



The effect of hole leakage and Auger recombination on the temperature sensitivity of GalnAsSb/GaSb mid-infrared lasers

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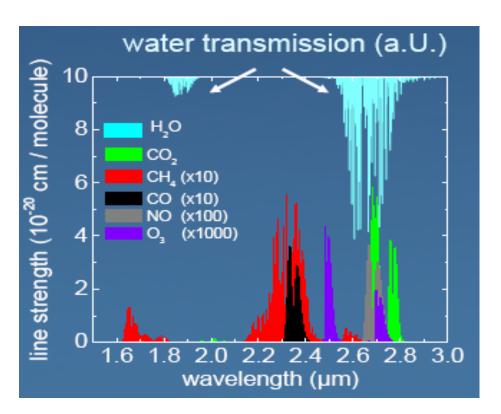
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Walter Schottky Institut, Technische Universität München, Am Coulombwall 3, 85748, Garching, Germany





Motivation





□ Air pollution monitoring

Medical diagnosticsGas analysis

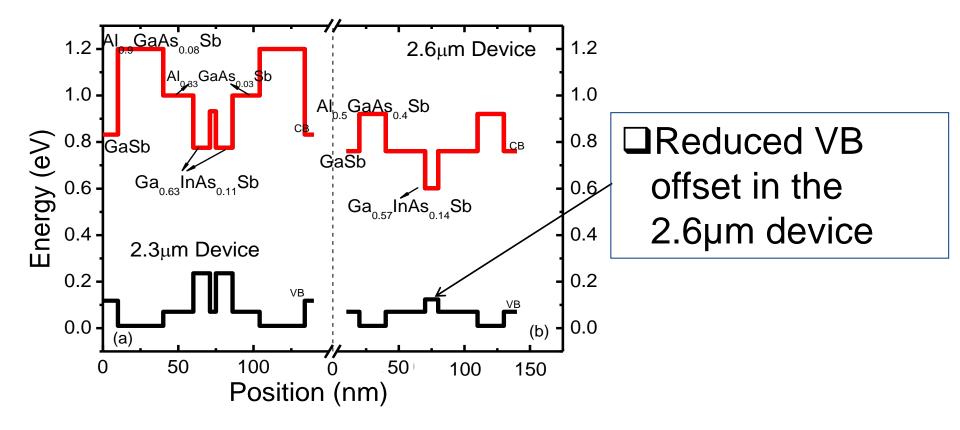
Absorption spectrum of some identified gases of interest.

CW, RT MIR Lasers are required!!

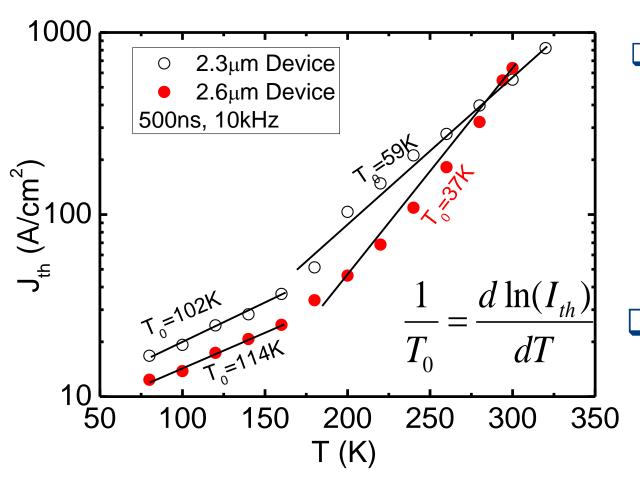
Interband Lasers Studied



λ(μm)	Ga	In	As	Sb	Barrier	strain	#QWs	Well width
2.3	0.63	0.37	0.11	0.89	Al _{0.33} Ga _{0.67} As _{0.03} Sb _{0.97}	1.6%	2	11nm
2.6	0.57	0.43	0.14	0.86	GaSb	1.7%	1	10nm



Temperature Dependence of J_{th}



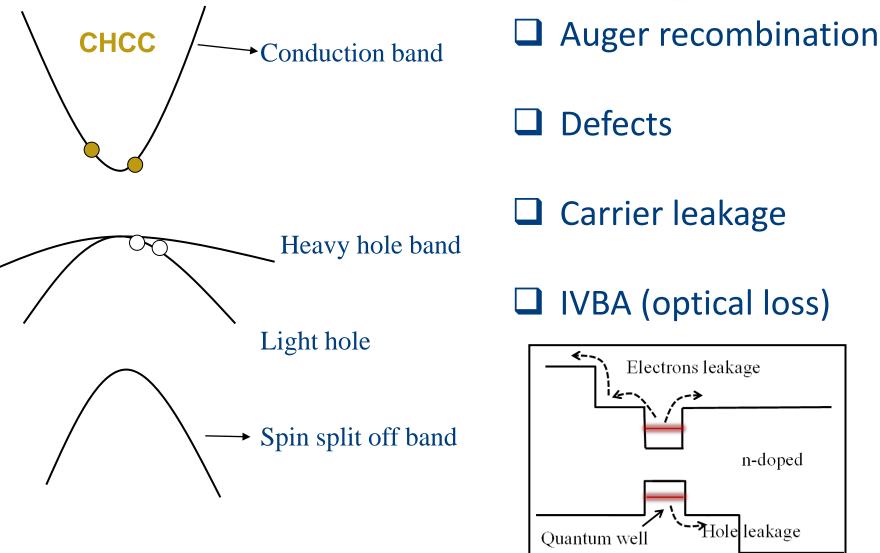
□ In the 2.3µm devices have a T_0 of ~59±3K in the temperature range of 200K≤ T ≤300K,

□In the 2.6µm devices T_0 values measured are **37±2K** for 200K≤ T ≤300K,

 $\Box \text{ Lower } T_0 \text{ at higher T suggests,} \\ \text{the presence of loss process}$

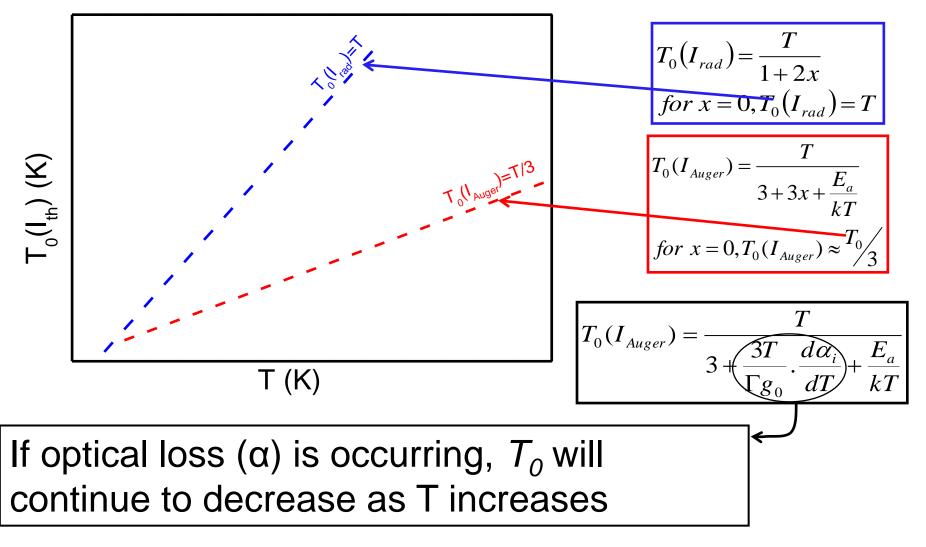
Loss mechanisms in MIR inter-band lasers





T_o analysis

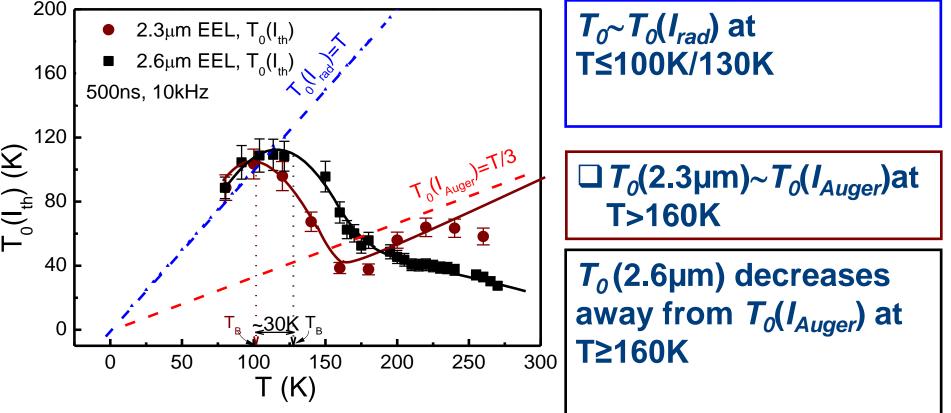




S. J. Sweeney and P. J. A. Thijs, 2003 IEEE Leos Annual Proc., 1 and 2, 2003.

Temperature Dependence of T_o





 T_o values are calculated using the 3-point centred moving difference technique

 □ Reduced Auger at T≤130K, Increased Auger at T≥130K
 □ Optical loss (α) sets in, at T≥160K in the 2.6µm device www.surrey.ac.uk

Spontaneous emission (L_{spon}) measurements

80

60

40

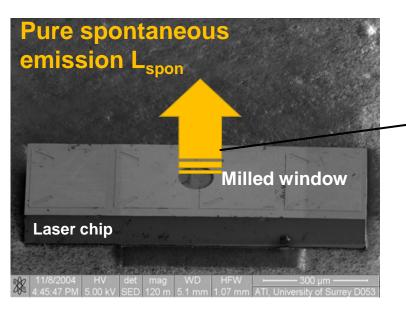
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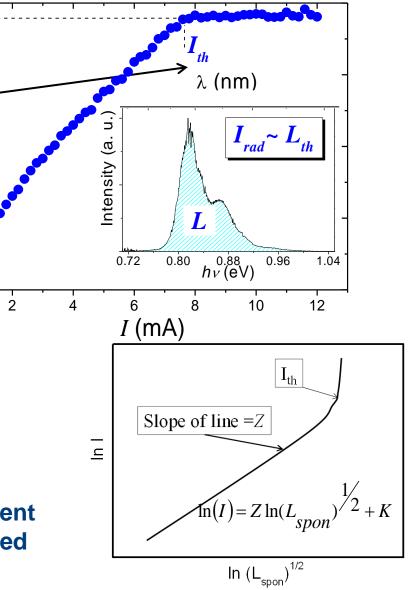




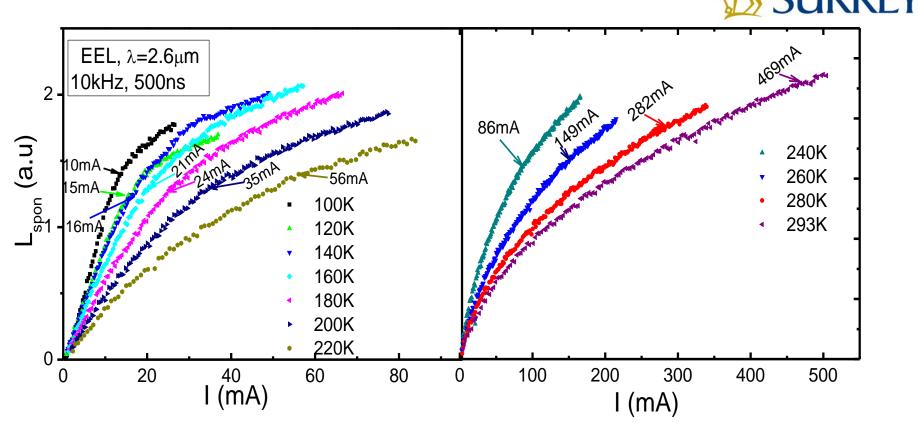
*I*_{rad} ~*L*_{spon} at threshold
 By measuring *J*_{rad}, other current paths in a diode laser can be deduced

Through Z analysis, the dominant current path at various T ranges can be deduced

$$I = eV(An + Bn^{2} + Cn^{3}) + I_{leak}$$



Temperature dependence of L_{spon} in EEL



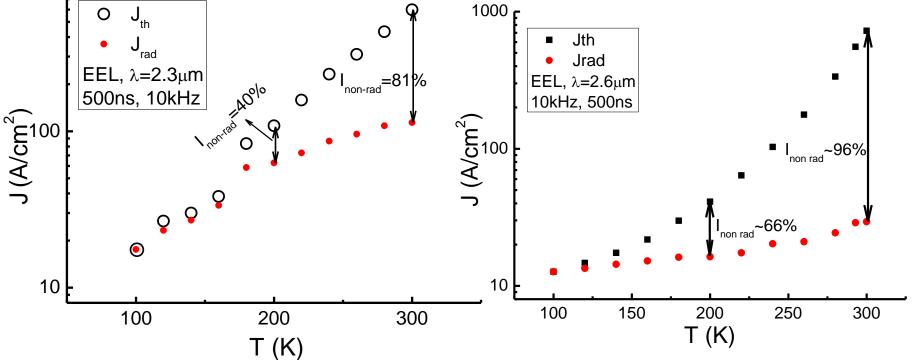
Poor Pinning of L_{spon} in both devices.
 Indicates that carrier density increases above threshold.
 Degrades slope efficiency

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Temperature dependence of J_{th} (J_{rad} and J_{non-rad})

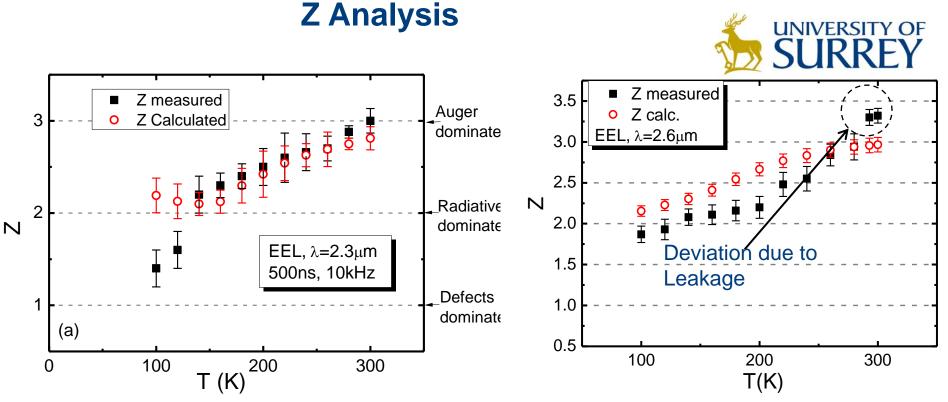




For the 2.3 μ m device: $\square ~81\% J_{th}$ at RT is non-radiative

~40% of J_{th} at 200K is nonradiative For the 2.6µm device: $\Box \sim 96\% J_{th}$ at RT is non-radiative

~66% of J_{th} at 200K is nonradiative



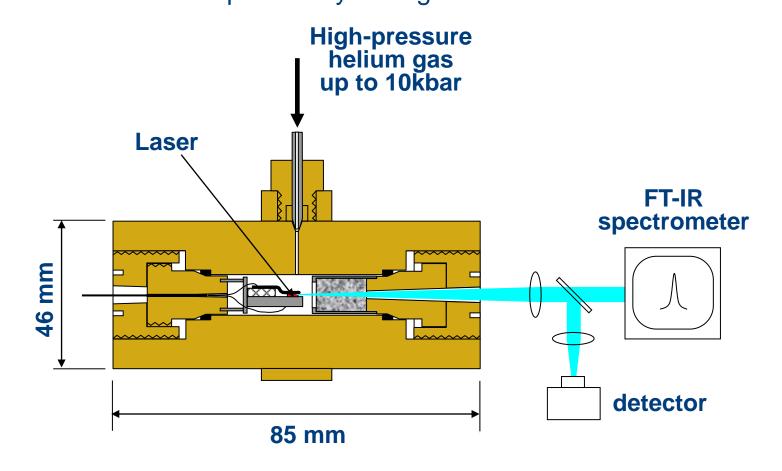
Measured Z suggests that Auger may be the dominant loss process in both devices at RT

In the 2.6µm device, Z>3 suggests that carrier leakage may be involved due to its reduced VB offset

High pressure system using helium gas



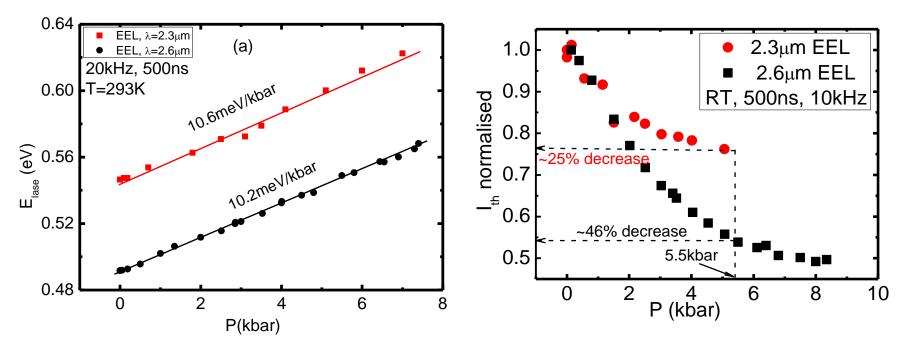
Hydrostatic pressure increases the bandgap of III-V semiconductors
 This reduces the probability of Auger recombination



Pressure cell was mounted inside a cryostat with variable temperatures from 80-300K

Pressure dependence measurement

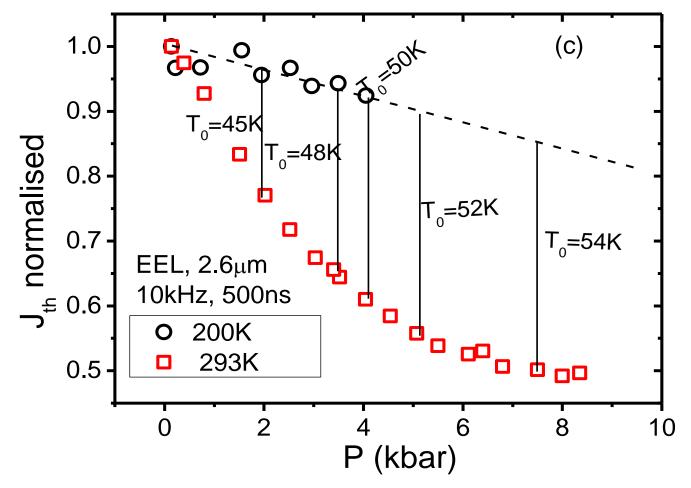




- □ J_{th} decreases with pressure by ~25% in the 2.3µm device at 5.5kbar.
- \Box J_{th} decreases with pressure by 46% in the 2.6µm device at 5.5kbar.
- This indicates that Auger is the dominant loss process in both devices

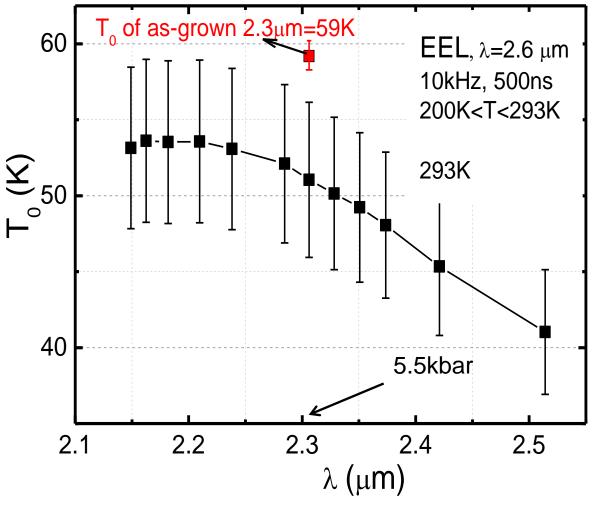
Pressure dependence measurement





□ Increasing pressure reduces Auger and improves T_0 from 45K to~54K at 7.7kbar

Pressure dependence measurement





At a pressure of 5.5kbar, the 2.6µm device operates at 2.3µm

■ But 2.6µm device with 46% less Auger has T₀ of ~ 52K compared to the as-grown 2.3µm device T₀ of ~59K at RT

Even though leakage is occurring, the temperature sensitivity is mainly determined by Auger recombination.





GalnAsSb/GaSb based MIR lasers investigated

- □ *J*_{th} of devices is dominated by non radiative Auger recombination
- □ Reduced VB offset is a possible path for hole leakage. However, this has much less influence on T₀.
- Temperature sensitivity is mainly due to Auger recombination; reducing Auger will enhance device performance.



Thank Y©U





2013 Conference on Lasers and Electro-Optics Europe and International Quantum Electronics Conference

Advance Programme

Munich ICM

International Congress Centre Munich, Germany

12 - 16 May 2013

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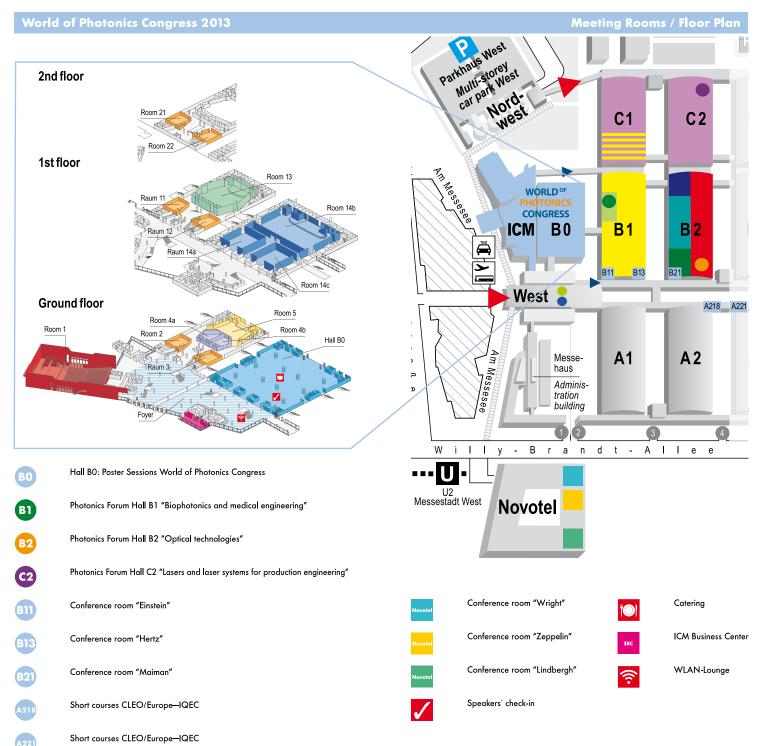
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Short courses CLEO/Europe—IQEC

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CLEO[®]/Europe 2013

2013 Conference on Lasers and Electro-Optics Europe

GENERAL INFORMATION

IOEC 2013

International Ouantum **Electronics** Conference

Munich, ICM Congress Centre, Germany, 12 - 16 May 2013

Sponsored by

- European Physical Society Quantum Electronics and Optics Division
- IEEE
- The Optical Society



Welcome to the 2013 Conference on Lasers and Electro-Optics Europe and the International Ouantum **Electronics Conference (hereafter** CLEO[®]/Europe-IQEC 2013) at the World of Photonics Congress 2013

Following on from the very successful previous conferences held in Amsterdam (1994), Hamburg (1996), Glasgow (1998), Nice (2000) and Munich

(2003, 2005, 2007, 2009, 2011), the General and Programme Chairs warmly welcome you to CLEO®/Europe-IQEC 2013 conference, which is being held in Munich from May 12 - 16, 2013. We extend a special welcome to postgraduate and PhD students attending, and we wish them every success, especially if this is their first participation in a major scientific conference.

The CLEO®/Europe-IQEC conference series has established a strong tradition as the largest, most comprehensive and prestigious gathering of optics and photonics researchers and engineers in Europe. With technical co-sponsorship provided by the European Physical Society (EPS), the Institute of Electrical and Electronics Engineers (IEEE) and the Optical Society (OSA), CLEO[®]/ Europe and IQEC has a strong international presence in the complementary research areas of laser science, photonics and quantum electronics. More specifically, CLEO[®]/Europe emphasizes applied physics, optical engineering and applications of photonics and laser technology, whereas IQEC emphasizes basic research in laser physics, nonlinear optics and quantum optics.

This combination provides a unique forum to benefit from informative overviews and discuss recent advances in a wide spectrum of topics, from fundamental light-matter interactions and new sources of coherent light to technology development, system engineering and applications in industry, science and medicine. Over five days CLEO[®]/Europe-IQEC 2013 will showcase over 1400 technical contributions in the form of oral presentations (in parallel sessions) and posters from industry, university and research organizations drawn from countries around the world and will provide an unparalleled opportunity to bring together scientists, engineers and end-users of laser and photonics technology under the same roof. As in former years, the meeting will be complemented by LASER 2013 World of Photonics, the world's largest tradeshow of laser and optical technology, which will provide researchers with the opportunity to see the latest developments in a very wide range of laser sources, optical and photonics products, and components.

CLEO®/Europe-IQEC is co-located with a number of smaller specialist conferences and topical meetings, including:

- · ECBO European Conferences on Biomedical Optics organised by The Optical Society (OSA) and SPIE.
- · LIM 2013 Lasers in Manufacturing organised by WLT-German Scientific Laser Society,
- Optical Metrology organised by SPIE Europe,
- together with a series of specialist conferences organised by the the European Optical Society (EOS).

All of the co-located conferences will share registration, allowing delegates to attend sessions of all the conferences.

Conference Structure and Technical Sessions

CLEO[®]/Europe-IQEC consists of a large number of technical presentations in a number of different formats:

A Plenary Talk is a broad-scope, 45 or 60-minute long talk given by a world-leading scientist and accessible to a general technical audience including conference attendees, exhibitors, and exhibit visitors. Plenary talks are not held in parallel with other sessions, allowing maximum possible attendance. In 2013, it is our pleasure to feature three plenary talks by Adolf Giesen (German Aerospace Center (DLR), Institute of

Technical Physics, Stuttgart, Germany) who will discuss recent advances and future prospects for "Thin Disk Lasers", Alain Aspect (Institut d'Optique, Palaiseau, France) who will discuss "Coherent Back Scattering and Anderson Localization of Ultra Cold Atoms" and Stefan W. Hell (Max Planck Institute for Biophysical Chemistry, Göttingen, Germany) who will discuss the topic of "Nanoscopy with Focused Light".

Keynote Presentations (45 minute talk) and Tutorials (60 minute talk) are also given by the world leaders in particular technical areas, but are generally directed at a more specific audience, and are given in parallel with other sessions. Keynotes provide a survey of exciting recent developments, and Tutorials are particularly valuable for those unfamiliar with a field, allowing them to rapidly come up to speed.

An attractive feature of the CLEO®/Europe technical programme has been the Tech-Focus format. Tech-Focus sessions concentrate on selected photonics applications of industrial importance. CLEO*/Europe-IQEC 2013 features two Tech-Focus sessions on Fibre and Solid State Lasers: A Comparison from an Industrial Point of View jointly held with LIM 2013, which showcase this exciting field through presentations from leading academic and industrial researchers. Both sessions take place on Tuesday afternoon.

Additionally three other sessions are jointly held with other co-located conferences:

Two sessions on "Biophotonics and Applications" jointly held with ECBO take place on Sunday afternoon.

A session on "Precision Processing in Micro to Nano Scale by Ultrafast Lasers" jointly held with LIM 2013 takes place on Tuesday morning.

Another much appreciated feature of the CLEO[®]/ Europe-IQEC meetings has been the special Symposia organized to anticipate and capture emerging fields by placing emphasis on fast developing, well defined topics. Five such symposia have been identified for CLEO[®]/Europe-IQEC 2013:

- ISI: Nuclear Photonics
- **JSII:** Photonics for Defence and Security
- JSIII: Dynamics of Random Waves and Extreme Events
- · JSIV: Quantum Coherent Effects in Biology
- JSV: Superconducting Optics

CLEO[®]/Europe-IQEC 2013 will also present twelve Short Courses:

- The course on Frequency Combs and Applications will be presented by Thomas Udem (Max-Planck-Institut für Quantenoptik, Garching, Germany).
- The course on *Fibre Amplifiers* will be presented by Rüdiger Paschotta (RP Photonics Consulting GmbH, Bad Dürrheim, Germany).
- The course on Applications of Photonic Crystals will be presented by Thomas Krauss (University of St. Andrews, St. Andrews, United Kingdom).
- The course on High Harmonic Generation and Attosecond Science will be presented by John Tisch (Imperial College, London, United Kingdom).
- The course on Practical Quantum Optics will be presented by Gerd Leuchs (University of Erlangen, Erlangen, Germany).
- The course on Ultrafast Lasers and Applications will be presented by Frank Wise (Cornell University, Ithaca, United States).
- · The course on Silicon Photonics will be presented by Dries Van Thourhout (Ghent University, Ghent, Belgium).
- The course on Ultrashort Pulse Characterization will be presented by Selçuk Aktürk (Istanbul Technical University, Istanbul, Turkey).

- The course on **Optical Parametric Oscillators** will be presented by Majid Ebrahim-Zadeh (ICFO, Barcelona, Spain).
- The course on *Optical Coherence Tomography*: Technology and Applications will be presented
- by Wolfgang Drexler (Medical University Vienna, Vienna, Austria).
- The course on *Laser Tweezers and Applications* will be presented by Miles Padgett (University of Glasgow, Glasgow, United Kingdom).
- The course on Laser Beam Analysis, Propagation and Spatial Shaping Techniques will be presented by James R. Leger (University of Minnesota, Minneapolis, United States).
- The courses will take place in parallel from Sunday morning, 12 May 2013 to Thursday morning, 16 May 2013 at the ICM Congress Centre or in the Exhibition Hall (A2).

The conference will also have two postdeadline sessions scheduled for Wednesday evening, 15 May 2013 (18:45 to 20:15). The purpose of the postdeadline sessions is to give the audience the chance to listen to the latest breaking news at the conference, and is usually one of the most interesting events that certainly contributes to the great atmosphere that makes the CLEO[®]/Europe-IQEC conference a unique event.

In addition to the technical sessions involving oral presentations, all scientific areas of both CLEO[®]/ Europe and IQEC will be covered in Poster Sessions, which will provide an interactive and less formal way for researchers to discuss their work, to interact, and to exchange ideas.

CLEO[®]/Europe-IQEC is now established as the largest and most comprehensive gathering of optics and photonics researchers and engineers in Europe, spanning classical and quantum optical science, laser technology and photonics applications.

The conference programme could not have been organized without the vital support and effort of 251 scientists, forming 28 technical programme sub-committees, who have assembled an excellent series of talks and posters covering a wide range of fields in optics and quantum electronics. The technical programme consists of 3 plenary sessions, 5 tutorial, 8 keynote, and 84 invited talks, and 1323 contributed oral presentations and posters. The Conference Chairs would like to extend sincere thanks to the technical programme committee members for all their hard work.

A conference as large as CLEO[®]/Europe-IQEC requires two years of planning and organisation, and we would like to thank the staff of the

Member Societies of the European Physical Society

Albanian Physical Society Armenian Physical Society Austrian Physical Society Belarusian Physical Society Belgian Physical Society Union of Physicists in Bulgaria Croatian Physical Society Czech Physical Society Danish Physical Society Estonian Physical Society Finnish Physical Society French Physical Society Georgian Physical Society German Physical Society Hellenic Physical Society Eötvös Loránd Physical Society Icelandic Physical Society Israel Physical Society Italian Physical Society Latvian Physical Society Liechtenstein Scientific Society (Physical Section) European Physical Society and the local conference chair in Munich for invaluable professional assistance during this period. We would also like to thank all the Sponsoring Societies for guidance and support, and for their invaluable advice, which ensures that this conference remains at the core of optics and photonics research in Europe.

Organisers, societies and committees, however, can only do so much. The real success of CLEO*/ Europe-IQEC 2013 rests on the efforts and commitment of researchers and students, who all contribute to the tremendous evolution of our research field and the high quality of the papers that will be presented.

We thank you all!

Lithuanian Physical Society Association Luxembourgeoise des Physiciens Moldovan Physical Society Physical Society of Montenegro Netherlands Physical Society Norwegian Physical Society Polish Physical Society Portuguese Physical Society Society of Physicists of Macedonia Romanian Physical Society United Physical Society of the Russian Federation Serbian Physical Society Slovak Physical Society Society of Mathematicians Physicists and Astronomers of Slovenia Royal Spanish Physical Society Swedish Physical Society Swiss Physical Society Turkish Physical Society Ukrainian Physical Society The Institute of Physics (IOP)

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	ROOM 12	ROOM 22	ROOM A218	ROOM A221	ROOM A218	ROOM A221	ROOM A218	ROOM A221	ROOM A218
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30 —	Short Course 10: Frequency Combs	Short Course 8: Fibre Amplifiers 1					Characterization 1	Oscillators 1	pagation and Spatia Shaping Techniques
00 —	and Applications 1						-	COFFEE BREAK	
0 —	COFFEE	BREAK					SH-1B	SH-3B	SH-5B
00 —	SH-10B	SH-8B					Short Course 1: Ultrashort Pulse	Short Course 3: Optical Parametric	Short Course 5: Lase Beam Analysis, Pro-
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Sunday at a glance

ROOM 1	ROOM 4A	ROOM 4B	ROOM 13A	ROOM 13B	ROOM 14A	ROOM 14B	ROOM 21	ROOM 22
CF/IE-1	IF-1	CC-1	CA-1	CB-1	CM-1	CD-1	СК-1	
Ultrafast Electron	Pulse Manipulation	Ultra Broadband and	Nonlinear Frequency	Quantum Cascade	Laser Ablation	Pulsed mid-IR	Photonic Crystals	
Dynamics	with Nonlinear Optics	High Terahertz Fields	Conversion	Lasers and Long Wavelength Emitters I		Sources		
-				COFFEE BREAK	l			l
CF/IE-2	IF-2	CC-2	CA-2	CB-2	CM-2	CD-2	СК-2	
CEP Control and Attosecond Phenomena	New Approaches in Nonlinear Light Propagation	Terahertz Imaging and Sensing	Visible Lasers	Quantum Cascade Lasers and Long Wavelength	Future Applications of Laser	Nonlinear Wave Mixing Phenomena	Silicon Photonics	
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CF/IE-3	IF-3	<u>CC-3</u>	<u>CA-3</u>	CL-1 / ECBO	CJ-1	CD-3	CK-3	IH-1
Pulse Shaping and	Nonlinear Light Inte-							·
Characterization	ractions in Quantum Systems	Terahertz Sources	Mid-IR-Lasers	Biophotonics and Applications I	Fibres and Components	Nonlinear Optics in Photonic Crystal Fibers	Novel Materials and Structures	
Characterization	ractions in Quantum		MIQ-IK-Lasers	and Applications I		in Photonic Crystal		Mapping Near Fiel
-	ractions in Quantum Systems			and Applications I	Components	in Photonic Crystal Fibers	Structures	
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 CF/IE-4	ractions in Quantum Systems	<u>CC-4</u>	<u>CA-4</u>	and Applications I COFFEE BREAK CL-2 / ECBO	Components CJ-2	in Photonic Crystal Fibers	Structures	
CF/IE-4 High-energy	IF-4 Nonlinear Optical Interactions in Struc-	CC-4 Terahertz Field	<u>CA-4</u>	and Applications I COFFEE BREAK CL-2 / ECBO Biophotonics	Components <u>CJ-2</u> Mode-locked	in Photonic Crystal Fibers CD-4 Nonlinear Imaging	Structures CK-4 Micro-nanostructured	
CF/IE-4 High-energy	IF-4 Nonlinear Optical Interactions in Struc-	CC-4 Terahertz Field	<u>CA-4</u>	and Applications I COFFEE BREAK CL-2 / ECBO Biophotonics	Components <u>CJ-2</u> Mode-locked	in Photonic Crystal Fibers CD-4 Nonlinear Imaging	Structures CK-4 Micro-nanostructured	
CF/IE-4 High-energy	IF-4 Nonlinear Optical Interactions in Struc-	CC-4 Terahertz Field	<u>CA-4</u>	and Applications I COFFEE BREAK CL-2 / ECBO Biophotonics	Components <u>CJ-2</u> Mode-locked	in Photonic Crystal Fibers CD-4 Nonlinear Imaging	Structures CK-4 Micro-nanostructured	·
CF/IE-4 High-energy	IF-4 Nonlinear Optical Interactions in Struc-	CC-4 Terahertz Field	<u>CA-4</u>	and Applications I COFFEE BREAK CL-2 / ECBO Biophotonics	Components <u>CJ-2</u> Mode-locked	in Photonic Crystal Fibers CD-4 Nonlinear Imaging	Structures CK-4 Micro-nanostructured	
CF/IE-4 High-energy	IF-4 Nonlinear Optical Interactions in Struc-	CC-4 Terahertz Field	<u>CA-4</u>	and Applications I COFFEE BREAK CL-2 / ECBO Biophotonics	Components <u>CJ-2</u> Mode-locked	in Photonic Crystal Fibers CD-4 Nonlinear Imaging	Structures CK-4 Micro-nanostructured	

GENERAL INFORMATION

Monday at a glance

\bigcirc	ROOM 1	ROOM 2	ROOM 3	ROOM 4A	ROOM 4B	ROOM 13A	ROOM 13B	ROOM 14A	ROOM 14B	ROOM 21	ROOM EINSTEIN
08:30 -	PL-1										
09:00 —	CLEO/Europe 2013										
	Plenary Talk COFFEE										
09:30 —	PL-2										
10:00 —	World of Photonics										
10:30 —	Opening with Plenary Talk										
11:00 —											
	CF/IE-5	JSI-2	<u>CH-1</u>	<u>ID-1</u>	<u>CI-1</u>	<u>IA-1</u>		<u>IB-1</u>	<u>CD-5</u>	<u>CK-5</u>	<u>CE-1</u>
11:30 —	Novel Methods in Ultrafast	Nuclear Photonics	Advances in Spectroscopy I	Frequency Standards and	Next Generation Transmission	Strong Coupling		Photon Pair Sources and	Optical Parametric	Microstructures for Energy and	Semiconductor Materials and
12:00 —	Optics		,	Spectroscopy				Detectors	Oscillators	Sensing	Devices
12:30 —											
13:00 —	-				EXHIBIT	ION AND LUNC	H BREAK				
13:30 —	-										
	-										
14:00 —				CB,	CK, IB, ID, AND	JSIV POSTER SI	ESSIONS – HALI	L BO			
14:30 —	CF/IE-6			ID-2	CL-3	IA-2	CB/CC-1	CJ-3	CD-6	JSIV-1	CE-2
15:00 —	Supercontinuum			Frequency	Applied Biopho-	Quantum	Terahertz	Modal	Frequency	Quantum	Thin Films and
15:30 —	Generation and Filamentation			Combs	tonics	Photonics	Quantum Cascade Semi-	Instabilities in Fibres	Conversion bas- ed on Quadratic	Coherent Effects in Biology I	Nanostructures
							conductor Lasers	IIIIIbies	Nonlinearities	In blology i	
16:00 —	_				I	COFFEE BREAK					
16:30 —	CF/IE-7			ID-3	CL-4	IA-3	CB-3	CJ-4	CD-7	JSIV-2	CE-3
17:00 —	High Harmonic			Precision	Structural	Quantum	Ultrafast	Coherent	New Devices for	Quantum	Photonic
17:30 —	Generation			Measurements	Imaging	Effects	Semiconductor Lasers I	Combining	Frequency Con- version based	Coherent Effects in Biology II	Nanowires - Materials and
	-								on Quadratic Nonlinearities	in biology in	Applications
18:00 —								·	·		
18:30 —				1 44	SER WORLD OF		ENING RECEPT	ION			
19:00 —	_				CM FOYER, GRO	UND FLOOR, CO					
19:30 —	_					(END 22:00)					
20:00 -	-										
20.00						06					

Tuesday at a glance

\bigcirc	ROOM 1	ROOM 4A	ROOM 4B	ROOM 11	ROOM 13A	ROOM 13B	ROOM 14A	ROOM 14B	ROOM 21	ROOM EINSTEIN
08:30 —	CD-8	JSV-1	CI-2		CM-3 / LIM	CB-4	IB-2	CA-5	IG-1	CE-4
09:00 — 09:30 —	New Guiding Phenomena	Superconducting Optics	Integrated Circuits		Precision Proces- sing in Micro to Nano Scale by Ultrafast Lasers	Ultrafast Semiconductor Lasers II	Integrated Quantum Photonics and Simulation	Yb-Doped Thin Disk Lasers	Synchronization Dynamics and Opto-mechanical Self-organization	Optical Fibres and Waveguides
10:00 —	_				COFFEI	E BREAK				<u> </u>
10:30 —	PL-3									
11:00 — 11:30 —	IQEC 2013 Plenary Talk and Awards Ceremony									
12:00 —										
12:30 —										
13:00 —					EXHIBITION AN	D LUNCH BREAK				
13:30 —	-			CD, CE, C	I, IC AND JSV PO	STER SESSIONS -	- HALL BO			
14:00 —	CD-9	IC-1	CL-5	CH-2	TF-1 / LIM	CB-5	IB-3	CA-6	CG-1	CE-5
14:30 — 15:00 —	UV – Sources	Atomic Quantum Simulators	Microscopic and Sensing Technologies	Novel Optical Sensing Systems	Fibre and Solid State Lasers: a Comparison from an Industrial Point of View I	Dynamics and Chaos in Semiconductor	QIP with Light and Matter	Ultrafast Solid-State Lasers	lonization Dynamics	Optical Metamaterials and Plasmonics
15:30 —	_				COFFE	E BREAK				1
16:00 —	CD-10	IC-2	CL-6		TF-2 / LIM	CB-6	IB-4	CA-7	CG-2	CE-6
16:30 — 17:00 —	Optical Devices for Data Processing	Ultracold Atoms: Clocks, Spins and Lattices	Mesoscopic Devices		Fibre and Solid State Lasers: a Comparison from an Industrial	Advanced Structures	Quantum Networking	High Energy Scaling Concepts	Ultrafast Dynamics in Attosecond	Laser Materials
17:30 —					Point of View II				Time Scale	
18:00 —										
18:30										
19:00 —										
19:30 —				CLEO®		ONFERENCE REC 23:00)	EPTION			
20:00 —										

Wednesday at a glance

\bigcirc	ROOM 1	ROOM 4A	ROOM 4B	ROOM 13A	ROOM 13B	ROOM 14A	ROOM 14B	ROOM 21	ROOM EINSTEIN
08:30 —		II-1	CL 2	CA D	JSII-1	CJ-5	CM-4	IA-4	CE-7
09:00 —		Quantum	CI-3 Optical Signal	CA-8 High Inversion	Photonics for Defence	Ligh Peak Power	Ultrafast Phenomena	Quantum State	Nonlinear Materials
09:30 —		and Graphene Plasmonics	Processing	Laser System	and Security: Spectroscopy Imaging and Detection	Fibre Sources	and Nanostructuring	Control	
10:00 —									
10:30 —			1	1	COFFEE BREAK		1		
11:00 —		<u>II-2</u>	<u>CI-4</u>	CA-9	JSII – 2	CJ-6	<u>CM-5</u>	IA-5	<u>CE-8</u>
-		Plasmonics Antennas	Opto-Electronic Devices	Novel Solid-State Laser Concepts	Photonics for Defence and Security:	Ultrafast Fibre Sources	Material Processing with Shaped Laser	Non-Classical Light	Lithium Niobate - Fabrication and
11:30 —		and Waveguides			Coherent Sources		Beams		Characterization
12:00 —									
12:30 —	-			EXHIB	ITION AND LUNCH	BREAK			
13:00 —									
13:30 —	-			CF/IE, CJ, II, JSII A	ND JSIII POSTER SE	SSIONS – HALL BO			
14:00 —	-								
14.00	CD-11	IG-2	CI-5	CA-10	JSIII-1	CJ-7	CF/IE-8	IA-6	CE-9
14:30 —	Application of Solitons	Light Beam Propagation in	Advanced Concepts for Communications	Beam Control	Light Emission and Propagation	Wavelength-Tuning and Conversion	Ultrafast Fibre and Waveguide Lasers	Coherent Effects	Functional Optical Materials
15:00 —		Disordered and	for communications		in Random Media	and conversion	waveguide Lasers		Materials
15:30 —		Periodic Systems							
-	-				COFFEE BREAK				
16:00 —	CD-12	IG-3	CH-3	CK-6	JSIII-2	CJ-8	CF/IE-9	IH-2	CG-3
16:30 —	Solitons and	Polaritons and	Advances in Optical	Plasmonic Nanos-	Rogue Waves and	Fibre Laser Sources	Ultrafast Optical Pa-	Heat and Energy	Plasma Based
17:00	Nonlinearly Driven Self-organization	Quantum Fluids	Sensor Devices	tructures and Applications	Soliton Dynamics		rametric Amplifiers	Control	Sources
17:30 —									
-	-			EP	S QEOD HAPPY HO	UR			
18:00 —					OUND FLOOR, CON				
18:30 —									
19:00 —				PD-A	PD-B				
19:30 —				Postdeadline	Postdeadline				
-				Session A (end 20:15)	Session B (end 20:15)				
20:00 —									

Thursday at a glance

\bigcirc	ROOM 1	ROOM 4A	ROOM 4B	ROOM 13A	ROOM 13B	ROOM 14A	ROOM 14B	ROOM 21	ROOM 22	ROOM EINSTEIN
08:30 —	CJ-9	II-3	CH-4	СК-7	CB-7	IB-5	CF/IE-10	IA-7	CG-4	IH-3
09:00	Raman Effects	Controlling and	Metrology of	Advanced	Semiconductor	Quantum	Ultrafast	Cavity-Opto	Ultrafast High	Controlling Light
09:30	in Fibre Sources	Harvesting Light with Plasmons	Materials and Structures	Structures for Light Sources	Lasers for Optical Communications	Communication	Spectroscopy	Mechanics	Power Lasers	Emission at the Nanoscale
10:00					COFFEI	E BREAK				
10:30 —	CJ-10	-4	CH-5	СК-8	CB-8	IB-6	CF/IE-11	CM-6	CG-5	IH-4
11:00 —	Two Micron	Transformation	Advances in	Light Management	Semiconductor	Photonic Quantum	Ultrafast	Transparent	Waveform	Quantum
11:30 —	Fibre Cases	Optics and Metamaterials	Spectroscopy II	in Structures	Vertical Cavity Surface Emitting Lasers	Computing	Microphotonics and Plasmonics	Material Processing	Synthesis and Control	Nanophotonics
12:00 —			J							
12:30 —	-				EXHIBITION AN	D LUNCH BREAK			-	
13:00 —										
13:30 —	-			CG, CH, I	A, IG AND IH PO	STER SESSIONS –	HALL BO			
14:00 —	CJ-11	IG-4	CH-6	СК-9	CB-9	IB-7	CF/IE-12	CM-7	CG-6	IH-5
14:30 — 15:00 —	Special Fibres	Solitons and Dynamics in Cavities	Optical Sensor Applications	Integrated Photonic Devices	High Efficiency/ High Brightness Semiconductor Lasers	Fundamentals of Quantum Information	Mid Infrared and Terahertz Phenomena	Femtosecond Laser Writing	FEL and High Photon Energy Science	Ultrafast Nanophotonics
15:30 —					COFFE	E BREAK				
16:00 —	CJ-12	IG-5	CH-7	CK-10	CB-10	IB-8	CF/IE-13	CM-8	CG-7	IH-6
16:30	Novel Waveguide	Rogue Waves, Ex-	Frontiers of	Micro-optics	Disk and	Quantum State	Charge Dynamics	Laser Processing	Field Driven	Quantum Dots.
17:00	Materials	treme Events and Nonlinear Wave Dynamics	Optical Sensing	and Integrated Sensors	Mid-Infrared Semiconductor Lasers	Characterization	in Solids	from Polymers to Fibres	Interactions	Optical Forces
17:30 —			1							
18:00 —					CONFERE	NCE ENDS				
18:30 —										
19:00										
19:30 —										
20:00 —										

SH-1

How to find the room?

A map locating the rooms can be found in the inner cover of the advance programme.

TALKS:

GENERAL INFORMATION

Alltalkstakeplace in the congress centre (so called ICM) with the exception of the Einstein room (formerly B11) located in the exhibition hall B1.

To save space in the layout of the parallel sessions, all locations were abbreviated to the strict minimum such as "Room 1" instead of "Room 1, Ground Floor / 1st Floor, Congress Centre". Below you will find the detailed locations of all the rooms:

Room 1, Ground Floor / 1st Floor,

Congress Centre Room 2, Ground Floor, Congress Centre Room 3, Ground Floor, Congress Centre Room 4a, Ground Floor, Congress Centre Room 4b, Ground Floor, Congress Centre Room 11, 1st Floor, Congress Centre Room 13a, 1st Floor, Congress Centre Room 13b, 1st Floor, Congress Centre Room 14a, 1st Floor, Congress Centre Room 14b, 1st Floor, Congress Centre Room 21, 2nd Floor, Congress Centre Room 22, 2nd Floor, Congress Centre Foyer ICM, Ground Floor, Congress Centre Foyer ICM, 1st Floor, Congress Centre Room Einstein (formerly B11), 1st Floor, Exhibition Hall B1*

SHORT COURSES:

Room 12, 1st Floor, Congress Centre Room 22, 2nd Floor, Congress Centre Room A218 & Room A221, 1st Floor, Exhibition Hall A2/A3 * (*Access via west entrance)

POSTERS:

All CLEO[®]/Europe-IQEC 2013 Posters take place in the **Hall B0**, Ground Floor, Congress Centre.

SHORT COURSES

SH-10 Short Course 10: Frequency Combs and Applications Thomas Udem, Max-Planck-Institut für Quantenoptik, Garching, Germany Sunday, 09:00 – 12:30 * Room 12

SH-8 Short Course 8: Fibre Amplifiers Rüdiger Paschotta, RP Photonics Consulting GmbH, Bad Dürrheim, Germany Sunday, 09:00 – 12:30 * Room 22

- SH-4 Short Course 4: Applications of Photonic Crystals Thomas Krauss, University of St. Andrews, St. Andrews, United Kingdom Sunday, 14:30 – 18:00 • Room 12
- SH-9 Short Course 9: High Harmonic Generation and Attosecond Science John Tisch, Imperial College, London, United Kingdom Monday, 14:30 – 18:00 * Room A218
- SH-6 Short Course 6: Practical Quantum Optics Gerd Leuchs, University of Erlangen, Erlangen, Germany Monday, 14:30 – 18:00 • Room A221
- SH-12 Short Course 12: Ultrafast Lasers and Applications Frank Wise, Cornell University, Ithaca, USA Tuesday, 14:00 – 17:30 • Room A218
- SH-11 Short Course 11: Silicon Photonics Dries Van Thourhout, Ghent University, Ghent, Belgium Tuesday, 14:00 – 17:30 • Room A221

- Short Course 1: Ultrashort Pulse Characterization Selçuk Aktürk, Istanbul Technical University, Istanbul, Turkey Wednesday, 08:30 – 12:00 • Room A218
- SH-3 Short Course 3: Optical Parametric Oscillators Majid Ebrahim-Zadeh, ICFO, Barcelona, Spain Wednesday, 08:30 – 12:00 • Room A221
- SH-2 Short Course 2: Optical Coherence Tomography: Technology and Applications Wolfgang Drexler, Medical University Vienna, Vienna, Austria Wednesday, 14:00 – 17:30 • Room A218
- SH-7 Short Course 7: Laser Tweezers and Applications Miles Padgett, University of Glasgow, Glasgow, United Kingdom Wednesday, 14:00 – 17:30 * Room A221
- SH-5 Short Course 5: Laser Beam Analysis, Propagation and Spatial Shaping Techniques James R. Leger, University of Minnesota, Minneapolis, United States Thursday, 08:30 – 12:00 * Room A218

PLENARY TALKS

PL-1: CLEO/Europe 2013 Plenary Talk Thin Disk Lasers Adolf Giesen, Institute of Technical Physics, DLR, Stuttgart, Germany Monday, 08:30 – 09:15 • Room 1 World of Photonics Opening with Plenary Talk Nanoscopy with Focused Light Stefan W. Hell, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany Monday, 09:30 – 10:45 • Room 1

PL-2

PL-3

(Together with words of welcome)

IQEC 2013 Plenary Talk and Awards Ceremony Coherent Back Scattering and Anderson Localization of Ultra Cold Atoms Alain Aspect, Laboratoire Charles Fabry, Institut d'Optique, Palaiseau, France Tuesday, 10:30 – 12:30 • Room 1

(Together with award ceremonies)

TUTORIAL TALKS

- CM-2 Future Applications of Laser Resource Efficiency Improvements through Laser Processing of Designer Materials Bill O'Neil, University of Cambridge, Cambridge, United Kingdom Sunday, 11:00 – 12:00 * Room 14a
- CL-1/ECBO Biophotonics and Applications I (Session jointly held with ECBO) Photoacoustic Tomography: Ultrasonically Breaking through the Optical Diffusion and Diffraction Limits Lihong Wang, Washington University, St. Louis, MO, United States Sunday, 14:30 – 15:30 * Room 13b

CG-2	Ultrafast Dynamics in Attosecond Time Scale Attosecond Science and Technology Paul Corkum, University of Ottawa, Ontario, Canada	Aarh	s Mølmer, Aarhus University, nus, Denmark rsday, 14:00 – 15:00 = Room 14a		Optical Data Storage Diffraction-Unlimited Min Gu, Swinburne Univ Technology, Hawthorn, Sunday, 16:30 – 17:15	Resolution versity of Australia	CJ-4	of Colorado, Boulder, CO, United States Monday, 16:30 – 17:15 • Room 1 Coherent Combining Coherent Combining of Fiber
II-4	Tuesday, 16:00 – 17:00 • Room 21 Transformation Optics and Metamaterials Geometry and Light: The Science of Invisibility Ulf Leonhardt, Weizmann Institute	CC-1 Ultra Tera Ultra Milli	EYNOTE TALKS a Broadband and High hertz Fields abroadband THz Pulses - From imeter Waves to the Infrared mut Roskos, Johann Wolfgang	CK-5	Microstructures for E and Sensing Optofluidic for Energy Demetri Psaltis, Ecole Poly de Lausanne, Lausanne, Monday, 11:00 – 11:45	/ Applications ytechnique Fédérale Switzerland	IC-1	and Solid-State Lasers Gregory D. Goodno, Northrop Grumman Aerospace Systems, Redondo Beach, CA, United States Monday, 16:30 – 17:15 • Room 14a Atomic Quantum Simulators
IB-7	of Science, Rehovot, Israel Thursday, 10:30 – 11:30 • Room 4a Fundamentals of Quantum Information Quantum Information Tools	Göth Mair Sund	ne-Universität, Frankfurt am n, Germany day, 09:00 – 09:45 • Room 4b Ilinear Optical Interactions in Inctured Materials	CF/IE-7	High Harmonic Gene Frontiers in Extreme N Attosecond-to-Zeptos Kiloelectronvolt X-ray Tenio Popmintchev, JILA	eration Ionlinear Optics: Second Coherent rs on a Tabletop		Quantum Simulations using Ultracold Atoms Immanuel Bloch, Max-Planck Institute of Quantum Optics, Garching, Germany Tuesday, 14:00 – 14:45 • Room 4a
How	v to read the Session Codes?							
	following pages are the abstracts of the pagented at CLEO*/Europe-IQEC 2013.	pers which will be	ORAL PRESENTATIONS Oral presentations have a code 1	made up of tl	nree parts, <i>e.g</i> .	Posters Poster presentation	ons have a	code made up of two parts, <i>e.g.</i>
	CLEO®/Europe sessions are on a white backs e which begins with a C .	ground and have a	CD-1.1 TUE (Invited) 09:00 The first part indicates the Con	oference, the	topic title, the session	ID-P.1 MON The first part inc	13:30 licates the	Conference, the topic title, the poster
	QEC sessions are on a shaded background an ns with an I .	nd have a code that	title and the placement of the pr	esentation w	ithin the session, <i>e.g.</i>			f the presentation within the topic, <i>e.g.</i>
Exc on • She	CEPTIONS AS MENTIONED BELOW ARE A DARK BACKGROUND: ort courses referenced with a SH enary talks referenced with a PL	2	CD-1.1 = CLEO*/Europe CD-1.1 = Applications of No CD-1.1 = Pulsed mid-IR Sou CD-1.1 = First paper present session of the CD t	irces ted in the "Pi		ID-P.1 = Post ID-P.1 = First	cision Metr ter t poster in t	ology and Frequency Combs he "Precision Metrology and Frequency of the IQEC conference.
• Teo	ch-focus sessions (jointly held with the LIM enced with a TF	l conferences) ref-	The second part indicates the takes place.	e day on wh	nich the presentation			the day on which the poster presenta- reviations as for the orals). All posters
• Th	LEO [*] /Europe-IQEC joint symposia reference the ECBO-CLEO/Europe joint sessions refer CBO and CL-2/ECBO		,	Tuesday Wednesday	THU = Thursday	are displayed per conference days (-	rding their reference numbers over the a glance).
• CF • CL	F/IE sessions as being joint sessions of CLEC EO-LIM joint session on Precision Processin ale by Ultrafast Lasers referenced with CM-3	g in Micro to Nano	The figures on the right indicate a Plenary, Tutorial, Keynote and Ir marked in brackets.					

- 11 -

CA-3

IF-3

CK-3

- Light Beam Propagation in Disordered and Periodic Systems High-Resolution Imaging with Scattered Light Allard Mosk, University of Twente, Enschede, The Netherlands Wednesday, 14:00 – 14:45 * Room 4a
- Heat and Energy Control Broadband Management of Light Using Nanophotonics for Solar and Thermal Applications Shanhui Fan, University of Stanford, Stanford, CA, United States Wednesday, 16:00 – 16:45 • Room 21

INVITED TALKS

- IF-1 Pulse Manipulation with Nonlinear Optics Broadband Deep-Ultraviolet Femtosecond Pulse Generation by Third-order Nonlinear Optical Processes in Thin Media Helder Crespo, University of Porto, Porto, Portugal Sunday, 09:00 – 09:30 • Room 4a
- CD-1 Pulsed mid-IR Sources Nonlinear Optics with High Power Femtosecond Mid-infrared Pulses Daniil Kartashov, Technical University, Vienna, Austria Sunday, 09:00 – 09:30 • Room 14b
- CB-1 Quantum Cascade Lasers I Recent Progress on Single-mode Quantum Cascade Lasers Borislav Hinkov, ETH Zürich,

- Zürich, Switzerland Sunday, 09:30 – 10:00 • Room 13b
- CM-1 Laser Ablation Film-Free Laser Microprinting of Complex Materials Pere Serra, Universitat de Barcelona, Applied Physics and Optics, Barcelona, Spain Sunday, 09:30 – 10:00 • Room 14a
- CF/IE-1 Ultrafast Electron Dynamics Strong-field Photoemission of Electron Pulses from Sharp Metallic Tips Claus Ropers, Göttingen University, Göttingen, Germany Sunday, 10:00 – 10:30 • Room 1
- CK-1 Photonic Crystals Ultra-Narrowband Nonlinear Wavelength Conversion Using Coupled Photonic Crystal Nanocavities Nobuyuki Matsuda, NTT Basic Research Laboratories & Nanophotonics Center, Atsugi, Japan Sunday, 10:00 – 10:30 • Room 21
- CF/IE-2 CEP Control and Attosecond Phenomena Generation of Gigawatt-scale Isolated Attosecond Pulses Eiji Takahashi, RIKEN, Wako, Japan Sunday, 12:00 – 12:30 • Room 1
- CC-3 Terahertz Sources Room-Temperature Terahertz Generation Using Vertical-External-Cavity Surface-Emitting Lasers Martin Koch, Philipps-Universität Marburg, Marburg, Germany Sunday, 14:30 – 15:00 • Room 4b

- Mid-IR-Lasers *Mid-IR Solid-State Lasers for Spectroscopy and Metrology Applications Gianluca Galzerano, Istituto di Fotonica e Nanotecnologie - CNR, Milano, Italy* Sunday, 14:30 – 15:00 • Room 13a
- Nonlinear Light Interactions in Quantum Systems Optical Parametric Oscillation with Distributed Feedback in Cold Atoms Willian Guerin, University of Tübingen, Tübingen, Germany Sunday, 15:00 – 15:30 • Room 4a
- Novel Materials and Structures Graphene, Plasmonic and Silicon Optical Modulators Volker Sorger, George Washington University, Washington, United States Sunday, 15:00 – 15:30 • Room 21
- CC-3 Terahertz Sources THz Emission from Intrinsic Josephson Junctions in High Tc Superconductors for Imaging Applications Kazuo Kadowaki, University of Tsukuba, Tsukuba, Japan Sunday, 15:30 – 16:00 • Room 4b
- CL-1 / ECBO Biophotonics and Applications I (Session jointly held with ECBO) Improved Precision in Optical Tweezers via Squeezed Light Warwick Bowen, The University of Queensland, Brisbane, Australia Sunday, 15:30 – 16:00 • Room 13b
- CA-4 Yb-Doped Lasers Solid State Crycoolers: Developments and Prospective

Mansoor Sheik-Bahae, University of New Mexico, Albuquerque, United States Sunday, 16:30 – 17:00 • Room 13a

- CL-2/ECBO Biophotonics and Applications II (Session jointly held with ECBO) Noninvasive Fluorescence Imaging through Strongly Scattering Jacopo Bertolotti, University of Twente, Enschede, The Netherlands & University of Florence, Florence, Italy Sunday, 16:30 – 17:00 - Room 13b
 - Mode-locked Fiber Lasers Investigations on Positively Chirped Pulses in a Thulium-Doped Fiber Laser Frithjof Haxsen, Laser Zentrum Hannover, Hannover, Germany Sunday, 17:00 – 17:30 • Room 14a

CJ-2

- CL-2/ECBO Biophotonics and Applications II (Session jointly held with ECBO) Combination of Optical Micromanipulation with Raman Spectroscopy for Cell Sorting Christoph Kraft, Institute of Photonic Technology, Jena, Germany Sunday, 17:30 – 18:00 • Room 13b
- CD-4 Nonlinear Imaging and Spectroscopy Label Free Nonlinear Imaging in Microscopy and Endoscopy Hervé Rigneault, Université Aix-Marseille, Marseille, France Sunday, 17:30 – 18:00 • Room 14b
- JSI-1 Nuclear Photonics Nuclear Photonics with Extreme Gamma-ray Sources Chris P.J. Barty, Lawrence Livermore National Laboratory, CA, United States Monday, 11:00 – 11:30 • Room 2

IG-2

IH-2

CE-3

- CI-1 Next Generation Transmission 400G/1T Superchannels Enabling Next Generation Optical Communications Sethumadhavan Chandrasekhar and Xiang Liu, Alcatel-Lucent Bell Labs, Holmdel, United States Monday, 11:00 – 11:30 * Room 4b
- JS1-2 Nuclear Photonics Nuclear Processes and Nuclear Decay Modifications in Plasmas Vincent Méot, CEA/DAM Ile de France, Arpajon, France Monday, 11:30 – 12:00 * Room 2
- IA-1 Strong Coupling Quantum Networks based on Single Atoms in Optical Cavities Stephan Ritter, Max-Planck-Institut für Quantenoptik, Garching, Germany Monday, 12:00 – 12:30 • Room 13a
- CE-1 Semiconductor Materials and Devices Nano-scale Characterization of Semiconductors Using Helium Temperature Scanning Transmission Electron Microscopy Cathodoluminescence Jürgen Christen, Otto-von-Guericke-University, Magdeburg, Germany Monday, 12:00 – 12:30 • Room Einstein
- IA-2 Quantum Photonics

Photonic Quantum Technologies Jeremy O'Brien, University of Bristol, Bristol, United Kingdom Monday, 14:30 – 15:00 • Room 13a

CJ-3 Modal Instabilities in Fibres Mode Instabilities in Large

- *Mode Area Fiber Amplifiers Tino Eidam, Friedrich Schiller University, Jena, Germany* Monday, 14:30 – 15:00 • Room 14a
- CL-3 Applied Biophotonics Super Resolution Imaging of Single DNA-Protein Interactions Erwin Peterman, Vrije University, Amsterdam, The Netherlands Monday, 15:00 – 15:30 • Room 4b
 - Frequency Combs Microresonator Frequency Combs Scott Papp, NIST, Boulder, United States Monday, 15:30 – 16:00 • Room 4a

ID-2

ID-3

- JSIV-1 Quantum Coherent Effects in Biology I Quantum Coherence Explored at the Level of Individual Light-Harvesting Complexes Niek Van Hulst, ICFO, Castelldefels, Spain Monday, 15:30 – 16:00 * Room 21
 - Precision Measurements Is the Electron Round? Particle Physics with Cold and Ultracold Molecular Beams Edward Hinds, Imperial College, London, United Kingdom Monday, 16:30 – 17:00 • Room 4a
- JSIV-2 Quantum Coherent Effects in Biology II Robust Design Principles for Quantum Enhanced Excitation Transport Andreas Buchleitner, Albert-Ludwigs-University, Freiburg in Brisgau, Germany Monday, 16:30 – 17:00 • Room 21

- Photonic Nanowires Materials and Applications III-V and III-Nitride Nanowires for LED Applications Lars Samuelson, Nanometer Structure Consortium at Lund University, Lund, Sweden Monday, 16:30 – 17:00 - Room Einstein
- CL-4 Structural Imaging Imaging Molecular Organization of Cell Membranes and Proteins Assemblies using Polarimetric Fluorescence Microscopy Sophie Brasselet, Fresnel Institute, Marseille, France Monday, 17:00 – 17:30 • Room 4b
- CB-3 Ultrafast Semiconductor Lasers I Optical Frequency Combs using Ultrafast Diode Lasers: Techniques and Applications Peter J. Delfyett, CREOL, The College of Optics and Photonics, Orlando, FL, United States Monday, 17:30 – 18:00 • Room 13b
- CD-8 New Guiding Phenomena Electro-optic Routing of Spatial Solitons in Nematic Liquid Crystals Armando Piccardi, University Roma Tre, Rome, Italy Tuesday, 08:30 – 09:00 • Room 1
- JSV-1 Superconducting Optics Superconducting Single Photon Detectors Sae Woo Nam, NIST, Boulder, United States Tuesday, 08:30 – 09:00 * Room 4a

- CM-3 / LIM Precision Processing in Micro to Nano Scale by Ultrafast Lasers (Session jointly held with LIM) Welding of Glass/Glass and Si/Glass Using Ultrashort Laser Pulses Isamu Miyamoto, Osaka University, Osaka, Japan Tuesday, 08:30 – 09:00 • Room 13a
 - Integrated Quantum Photonics and Simulation Quantum Simulation with Integrated Photonics Fabio Sciarrino, Sapienza Università di Roma, Rome, Italy Tuesday, 08:30 – 09:00 • Room 14a

IB-2

IG-1

CI-2

GENERAL INFORMATION

- Synchronization Dynamics and Optomechanical Self-organization Synchronization of N Coupled Dipoles: from Anderson to Dicke Robin Kaiser, INLN, Valbonne, France Tuesday, 08:30 – 09:00 * Room 21
- Integrated Circuits Low Energy Consumption and High Speed Germanium-Based Optoelectronic Devices Laurent Vivien, Université Paris Sud, Orsay, France Tuesday, 09:00 – 09:30 • Room 4b
- CM-3 / LIM Precision Processing in Micro to Nano Scale by Ultrafast Lasers (Session jointly held with LIM) Delocalization of Focused Intense Ultra-short Laser Pulses in Air and Transparent Solids Vitaly Konov, General Physics Institute, Moscow, Russia Tuesday, 09:00 – 09:30 * Room 13a

JSV-1	Superconducting Optics Producing Correlated Photons	TF-1	Fibre and Solid State Lasers: a Comparison from an Industrial	TF-1	Fibre and Solid State Lasers: a Comparison from an Industrial		Daniel Brunner, Instituto de Física Interdisciplinar y Sistemas Complejos
	Using Superconducting Circuits		Point of View I		Point of View I		(IFISC), UIB, Palma de Mallorca, Spain
	Göran Johansson, Chalmers University of		(Session jointly held with LIM)		(Session jointly held with LIM)		Tuesday, 16:30 – 17:00 • Room 1
	Technology, Gothenburg, Sweden		Applications and Market		The Power of Choice of Solid		140044, 10.00 17.00 100111
	Tuesday, 09:15 – 09:45 • Room 4a		Segments for Ultra-High		State Lasers for Successful	TF-2	Fibre and Solid State Lasers: a
			Brightness Direct Diode Lasers		Industrial Laser Applications		Comparison from an Industrial
CM-3/LI	M Precision Processing in Micro to Nano		Wolfgang Gries, Directphotonics Industries		Klaus Loeffler, Trumpf Laser- und		Point of View II
	Scale by Ultrafast Lasers (Session		GmbH, Berlin, Germany		Systemtechnik GmbH, Ditzingen, Germany		(Session jointly held with LIM)
	jointly held with LIM)		Tuesday, 14:30 – 15:00 • Room 13a		Tuesday, 15:00 – 15:30 • Room 13a		Ultrafast Solid State Laser with High
	Three-Dimensional Laser		······,,, ·····		·····		Pulse Energy - New Applications
	Lithography: Finer Features Faster	IB-3	QIP with Light and Matter	TF-2	Fibre and Solid State Lasers: a		Hans Amler, Photon Energy GmbH,
	Georg von Freymann, University of		Trapped lons for Simulating		Compraison from an Industrial		Ottensoos, Germany
	Kaiserslautern, Kaiserslautern, Germany		Interacting Spins		Point of View II		Tuesday, 16:30 – 17:00 • Room 13a
	Tuesday, 09:30 – 10:00 • Room 13a		Christian Roos, University of Innsbruck,		(Session jointly held with LIM)		
			Innsbruck, Austria		Recent Developments in Fiber	CA-7	High Energy Scaling Concepts
IG-1	Synchronization Dynamics and Opto-		Tuesday, 14:30 – 15:00 • Room 14a		Lasers and their Applications		The Opportunity of High Average
	mechanical Self-organization				Michael Grupp, IPG Laser GmbH,		and High Peak Power Lasers
	Collective Dynamics in	CG-1	Ionization Dynamics		Burbach, Germany		John Collier, Rutherford Appleton
	Optomechanical Arrays		Looking Inside the Recollision Process		Tuesday, 16:00 – 16:30 • Room 13a		Laboratory, Chilton, United Kingdom
	Florian Marquardt, University of Erlangen-		Nirit Dudovich, Weizmann Institute,				Tuesday, 16:30 – 17:00 • Room 14b
	Nüremberg, Erlangen, Germany		Rehovot, Israel	IB-4	Quantum Networking		
	Tuesday, 09:30 – 10:00 • Room 21		Tuesday, 14:30 – 15:00 • Room 21		Quantum Networks Enabled	IC-2	Ultracold Atoms: Clocks, Spins
					by Quantum Optics		and Lattices
TF-1	Fibre and Solid State Lasers: a	CE-5	Optical Metamaterials		Jeff H. Kimble, California Institute of		Matter-wave Clocks: Measuring
	Comparison from an Industrial		and Plasmonics		Technology, Pasadena, United States		Time and Mass, and Testing
	Point of View I		Optical Gain in Metamaterials		Tuesday, 16:00 – 16:30 • Room 14a		General Relativity
	(Session jointly held with LIM)		and Plasmonic Systems:				Holger Mueller, University of California,
	Next Generation of Ultra-High		from Loss Compensation to	CE-6	Laser Materials		Berkeley, United States
	Brightness Direct Diode Lasers		Stimulated Emission		Engineering of Refractive Index and		Tuesday, 17:00 – 17:30 • Room 4a
	Jay Liebowitz, TeraDiode Inc., Wilmington,		M.A. Noginov, Norfolk State University,		Doping Level of KY _{1-x-yz} Gd _x Lu _y Yb _z		
	United States		Norfolk, VA, United States		(WO ₄) ₂ Layers for a Cladding-side-	TF-2	Fibre and Solid State Lasers: a
	Tuesday, 14:00 – 14:30 • Room 13a		Tuesday, 14:30 – 15:00 • Room Einstein		pumped Channel Waveguide Laser		Comparison from an Industrial
					Markus Pollnau, University of Twente,		Point of View II
CA-6	Ultrafast Solid-State Lasers	IC-1	Atomic Quantum Simulators		Enschede, The Netherlands		(Session jointly held with LIM)
	Carbon Nanotube and Graphene		Exploring Cavity-Mediated		Tuesday, 16:00 – 16:30 • Room Einstein		Ultrafast Fiber Lasers and
	Saturable Absorbers: a New Generic		Long-Range Interactions				Bulk Lasers for Material
	Mode-Locking Technology?		in a Quantum Gas	CD-10	Optical Devices for Data Processing		Processing - A Comparison
	Fabian Rotermund, Ajou University,		Tobias Donner, ETH Zurich,		High Speed, High Performance		Norman Hodgson, Coherent Inc., Santa
	Suwon, South Korea		Zurich, Switzerland		All-optical Information Processing		Clara, CA, United States
	Tuesday, 14:00 – 14:30 • Room 14b		Tuesday, 15:00 – 15:30 • Room 4a		Utilizing Nonlinear Optical Transients		Tuesday, 17:00 – 17:30 • Room 13a

GENERAL INFORMATION

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JSII-1	Photonics for Defence and Security:		of Random Laser		Polytechnique, CNRS UMR 7639,	IH-4	Quantum Nanophotonics
	Spectroscopy Imaging and Detection		Hui Cao, Yale University, New Haven, CT,		Palaiseau, France		Controlling Stationary and
	QCL Based Detection of		United States		Wednesday, 17:00 – 17:30 • Room Einstein		Flying Qubits for Solid-state
	Hazardous Substances		Wednesday, 14:30 – 15:00 • Room 13b				Quantum Networks
	Kumar Patel, Pranalytica Inc., Santa		, , , , , , , , , , , , , , , , , , ,	II-3	Controlling and Harvesting Light		Mete Atature, University of Cambridge,
	Monica, CA, United States	CF/IE-8	Ultrafast Fibre and Waveguide Lasers		with Plasmons		Cambridge, United Kingdom
	Wednesday, 08:30 – 09:00 • Room 13b		High-Performance Femtosecond		Plasmon Induced Light Harvesting		Thursday, 10:30 – 11:00 • Room Einstein
	() called auf, colo control 100 million		Fiber Lasers Based on Self-		Peter Nordlander, Rice University, Houston,		11110 1100 1100 1100 1100 1100 1100 11
II-1	Quantum and Graphene Plasmonics		Similar Pulse Propagation		United States	IH-4	Quantum Nanophotonics
	Quantum Effects in Tunnelling Plasmonics		William Renninger, Cornell University,		Thursday, 08:30 – 09:00 • Room 4a		Optical Nonlinearity With Few-
	Javier Aizpurua, Materials Physics Center		Ithaca, United States				Photon Pulses Using A Quantum
	(CSIC-UPV/EHU) and DIPC, Donostia-San		Wednesday, 15:00 – 15:30 • Room 14b	IH-3	Controlling Light Emission at		Dot-Pillar Cavity Device
	Sebastián, Spain		Wednesday, 15.00 - 15.50 • Room 140	11-5	the Nanoscale		Loïc Lanco, Laboratoire de Photonique et de
	Wednesday, 09:00 – 09:30 • Room 4a	CD-12	Solitons and Nonlinearly Driven Self-		Accessing Forbidden Transitions:		Nanostructures, Marcoussis and Université
	wednesday, 09:00 – 09:50 • Room 4a	CD-12	organization		Magnetic Dipoles and Electric		Paris Diderot - Paris 7, Paris, France
	Non Classical Light		5		Quadrupoles for Nano-optics		
IA-5	Non-Classical Light Biological Measurement		Enlightening the Rules of Disorder:				Thursday, 11:30 – 12:00 • Room Einstein
	-		from Broadband Energy Harvesting		Rashid Zia, Brown University, Providence,	CI 11	Creasial Fibras
	beyond the Quantum Limit		to Many Body Solitons and Light		United States	CJ-11	Special Fibres
	Michael Taylor, University of Queensland,		Condensation Dynamics		Thursday, 09:00 – 09:30 • Room Einstein		Inhibited-coupling Guiding Hollow
	Brisbane, Australia		Andrea Fratalocchi, King Abdullah	CD -			Core Photonic Crystal Fibers
	Wednesday, 10:30 – 11:00 • Room 21		University of Science and Technology,	CB-7	Semiconductor Lasers for		Fetah Benabid, Université de Limoges, Limoges,
			Thuwal, Saudi Arabia		Optical Communications		France and University of Bath, Bath, UK
JSII-2	Photonics for Defence and Security:		Wednesday, 16:30 – 17:00 • Room 1		Multi-wavelength Hybrid Silicon		Thursday, 14:00 – 14:30 • Room 1
	Coherent Sources				Lasers for Optical Interconnects		
	CW mid-IR OPO Based on OP-GaAs	CK-6	Plasmonic Nanostructures		Martijn Heck, University of California,	CG-6	FEL and High Photon Energy Science
	Peter Schunemann, BAE Systems Inc.,		and Applications		Santa Barbara, United States		Non-linear FEL Science
	Nashua, NH, United States		Integrated Plasmonic NanoBiosensors		Thursday, 09:00 – 09:30 • Room 13b		Robin Santra, Center for Free-Electron
	Wednesday, 11:00 – 11:30 • Room 13b		Hatice Altug, Boston University, Boston, USA				Science, DESY, Hamburg, Germany
			Wednesday, 16:30 – 17:00 • Room 13a	CH-4	Metrology of Materials		Thursday, 14:00 – 14:30 • Room 22
CM-5	Material Processing with Shaped				and Structures		
	Laser Beams	JSIII-2	Rogue Waves and Soliton Dynamics		Phase-Space Measurement and	CH-6	Optical Sensor Applications
	Femtosecond laser micro and nano		Solitonization of the		Coherence Synthesis of Optical Beams		Optical Readout of Coupling
	processing with nondiffracting		Anderson Localization		Jason W. Fleischer, Princeton University,		between a Nanomembrane and an
	Bessel and accelerating Airy beams		Claudio Conti, Università Sapienza, Rome, Italy		Princeton, United States		LC Circuit at Room Temperature
	François Courvoisier, Université de		Wednesday, 17:00 – 17:30 • Room 13b		Thursday, 09:30 – 10:00 • Room 4b		Tolga Bagci, QUANTOP, Niels Bohr Institute,
	Franche-Comté, Besançon, France						Copenhaguen, Denmark
	Wednesday, 11:30 – 12:00 • Room 14b	CG-3	Plasma Based Sources	CH-5	Advances in Spectroscopy II		Thursday, 14:30 – 15:00 • Room 4b
			Single Attosecond Pulses		Precision Metrology with Coherent		
JSIII-1	Light Emission and Propagation in		from Plasma Mirrors		Dual Frequency Combs	CB-9	High Efficiency/High Brightness
	Random Media		Antonin Borot, Laboratoire d'Optique		Nathan R. Newbury, NIST, Boulder, CO, USA		Semiconductor Lasers
	Tailoring the Spatial Coherence		Appliquée, ENSTA Paristech, Ecole		Thursday, 10:30 – 11:00 • Room 4b		Efficiency droop of GaN Lasers and LEDs

- **GENERAL INFORMATION**
- Special Fibres Inhibited-coupling Guiding Hollow Core Photonic Crystal Fibers Fetah Benabid, Université de Limoges, Limoges, France and University of Bath, Bath, UK Thursday, 14:00 - 14:30 • Room 1
- FEL and High Photon Energy Science Non-linear FEL Science Robin Santra, Center for Free-Electron Science, DESY, Hamburg, Germany Thursday, 14:00 – 14:30 • Room 22
- **Optical Sensor Applications** Optical Readout of Coupling between a Nanomembrane and an LC Circuit at Room Temperature Tolga Bagci, QUANTOP, Niels Bohr Institute, Copenhaguen, Denmark Thursday, 14:30 – 15:00 • Room 4b
- High Efficiency/High Brightness Semiconductor Lasers Efficiency droop of GaN Lasers and LEDs

Sessions at a Glance

Jörg Hader, University of Arizona, Tucson, USA Thursday, 14:30 – 15:00 • Room 13b	CLE	EO [®] /Europe 2013 SESSIONS	CB-2	Quantum Cascade Lasers and Long Wavelength Emitters II
	CA	SOLID-STATE LASERS		Sunday, 11:00 – 12:45 • Room 13b
Integrated Photonic Devices				
Integrated Photonic Devices	CA-1	Nonlinear Frequency Conversion	CB/CC – 1	· · · · • • · · · · · · · · · · · · · ·
in III-V Semiconductors for		Sunday, 09:00 – 10:30 • Room 13a		Semiconductor Lasers
Optical Communications				Monday, 14:30 – 16:00 • Room 13b
Mike J. Wale, Oclaro Technology Ltd.,	CA-2	Visible Lasers		
Towcester, United Kingdom		Sunday, 11:00 – 12:30 • Room 13a	CB-3	Ultrafast Semiconductor Lasers I
Thursday, 15:00 – 15:30 • Room 13a				Monday, 16:30 – 18:00 • Room 13b
	CA-3	Mid-IR-Lasers		
Mid Infrared and		Sunday, 14:30 – 16:00 • Room 13a	CB-4	Ultrafast Semiconductor Lasers II
Terahertz Phenomena				Tuesday, 08:30 – 10:00 • Room 13b
Imaging ultrafast nanoscale dynamics	CA-4	Yb-Doped Lasers		
with a THz-pulse-coupled STM		Sunday, 16:30 – 18:00 • Room 13a	CB-5	Dynamics and Chaos in Semiconduc
Tyler Cocker, University of Alberta,				Tuesday, 14:00 – 15:30 • Room 13b
Edmonton, Canada	CA-5	Yb-Doped Thin Disk Lasers		
Thursday, 15:00 – 15:30 • Room 14b		Tuesday, 08:30 – 10:00 • Room 14b	CB-6	Advanced Structures Tuesday, 16:00 – 17:30 • Room 13b
Charge Dynamics in Solids	CA-6	Ultrafast Solid-State Lasers		
Ultrafast Electronic Charge		Tuesday, 14:00 – 15:30 • Room 14b	CB-7	Semiconductor Lasers for
Dynamics in Solids Mapped by				Optical Communications
Femtosecond X-ray Diffraction	CA-7	High Energy Scaling Concepts		Thursday, 08:30 – 10:00 • Room 13b
Thomas Elsaesser, Max-Born-Institute,	-	Tuesday, 16:00 – 17:30 • Room 14b		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Berlin, Germany			CB-8	Semiconductor Vertical Cavity
Thursday, 16:00 – 16:30 • Room 14b	CA-8	High Inversion Laser System		Surface Emitting Lasers
		Wednesday, 08:30 – 10:00 • Room 13a		Thursday, 10:30 – 12:00 • Room 13b
ECH FOCUS SESSIONS	CA-9	Novel Solid-State	CB-9	High Efficiency/High Brightness
2011 0003 323310113		Laser Concepts		Semiconductor Lasers
Fibre and Solid State Lasers: a		Wednesday, 10:30 – 12:00 • Room 13a		Thursday, 14:00 – 15:30 • Room 13b
Comparison from an Industrial Point				·
of View I	CA-10	Beam Control	CB-10	Disk and Mid-Infrared Semiconductor La
(Session jointly held with LIM)		Wednesday, 14:00 – 15:30 • Room 13a		Thursday, 16:00 - 17:30 • Room 13b
Tuesday, 14:00 – 15:30 • Room 13a				
	CB	SEMICONDUCTOR LASERS	CC	TERAHERTZ SOURCES
Fibre and Solid State Lasers: a	CD 1	Quantum Casa da		AND APPLICATIONS
Comparison from an Industrial	CB-1	Quantum Cascade	CC-1	Liltra Proadband and
Point of View II	1	Lasers and Long		Ultra Broadband and

Lasers and Long Wavelength Emitters I Sunday, 09:00 - 10:30 • Room 13b

High Terahertz Fields

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Sunday, 09:00 - 10:30 • Room 4b

ntum Cascade Lasers and g Wavelength Emitters II day, 11:00 – 12:45 • Room 13b	CC-2	Terahertz Imaging and Sensing Sunday, 11:00 – 12:30 • Room 4b
ay, 11.00 – 12.45 - 10000 150	CC-3	Terahertz Sources
hertz Quantum Cascade		Sunday, 14:30 – 16:00 • Room 4b
iconductor Lasers		
14:30 – 16:00 • Room 13b	CC-4	Terahertz Field Manipulation Sunday, 16:30 – 18:00 • Room 4b
afast Semiconductor Lasers I		
day, 16:30 – 18:00 • Room 13b	CD	APPLICATIONS OF NONLINEAR OPTICS
afast Semiconductor Lasers II		NONLINEAR OF TICS
day, 08:30 – 10:00 • Room 13b	CD-1	Pulsed mid-IR Sources Sunday, 09:00 – 10:15 • Room 14b
amics and Chaos in Semiconductor		
day, 14:00 – 15:30 • Room 13b	CD-2	Nonlinear Wave Mixing Phenomena Sunday, 11:00 – 12:30 • Room 14b
anced Structures		
day, 16:00 – 17:30 • Room 13b	CD-3	Nonlinear Optics in Photonic Crystal Fibers
iconductor Lasers for		Sunday, 14:30 – 16:00 • Room 14b
ical Communications		
rsday, 08:30 – 10:00 • Room 13b	CD-4	Nonlinear Imaging and Spectroscopy Sunday, 16:30 – 18:00 • Room 14b
iconductor Vertical Cavity		
ace Emitting Lasers	CD-5	Optical Parametric Oscillators
rsday, 10:30 – 12:00 • Room 13b		Monday, 11:00 – 12:30 • Room 14b
n Efficiency/High Brightness	CD-6	Frequency Conversion based
iconductor Lasers		on Quadratic Nonlinearities
rsday, 14:00 – 15:30 • Room 13b		Monday, 14:30 – 16:00 • Room 14b
and Mid-Infrared Semiconductor Lasers	CD-7	New Devices for Frequency Conversion
rsday, 16:00 – 17:30 • Room 13b		based on Quadratic Nonlinearities
		Monday, 16:30 – 18:00 • Room 14b
RAHERTZ SOURCES		
D APPLICATIONS	CD-8	New Guiding Phenomena Tuesday, 08:30 – 10:00 • Room 1
a Broadband and		,0000 1000 100011
n Terahertz Fields	CD-9	UV - Sources
lay, 09:00 – 10:30 • Room 4b		Tuesday, 14:00 – 15:30 • Room 1

CK-9

CF/IE-12

CF/IE-13

TF-1

TF-2

TECH FO

(Session jointly held with LIM)

Tuesday, 16:00 - 17:30 • Room 13a

CD-10

CD-11

CD-12

CE

CE-1

CE-2

CE-3

CE-4

CE-5

CE-6

CE-7

CE-8

CE-9

Optical Devices for Data Processing	CF/IE	ULTRAFAST SCIENCE AND			CH-3	Advances in Optical Sensor Devices
Tuesday, 16:00 – 17:30 • Room 1	01/11	TECHNOLOGY (JOINT TOPIC	CF/IE-12	Mid Infrared and Terahertz Phenomena		Wednesday, 16:00 – 17:15 • Room 4b
		AREA WITH IQEC 2013)		Thursday, 14:00 – 15:30 • Room 14b		
Application of Solitons		AREA WITH IQLO 2013)			CH-4	Metrology of Materials
Wednesday, 14:00 - 15:30 • Room 1	CF/IE-1	Ultrafast Electron Dynamics	CF/IE-13	Charge Dynamics in Solids		and Structures
		Sunday, 09:00 - 10:30 • Room 1		Thursday, 16:00 – 17:30 • Room 14b		Thursday, 08:30 – 10:00 • Room 4b
Solitons and Nonlinearly						
Driven Self-organization	CF/IE-2	CEP Control and			CH-5	Advances in Spectroscopy II
Wednesday, 16:00 – 17:30 • Room 1		Attosecond Phenomena	CG	HIGH-FIELD LASER PHYSICS AND		Thursday, 10:30 – 11:45 • Room 4b
		Sunday, 11:00 – 12:30 • Room 1	CU	ATTOSECOND TECHNOLOGIES		
OPTICALMATERIALS, FABRICATION				ATTOSECOND TECHNOLOGIES	CH-6	Optical Sensor Applications
AND CHARACTERIZATION	CF/IE-3	Pulse Shaping and Characterization	CG-1	lonization Dynamics		Thursday, 14:00 – 15:30 • Room 4b
		Sunday, 14:30 – 16:00 • Room 1		Tuesday, 14:00 – 15:30 • Room 21		
Semiconductor Materials and Devices					CH-7	Frontiers of Optical Sensing
Monday, 11:00 – 12:30 • Room Einstein	CF/IE-4	High-energy Ultrafast Sources	CG-2	Ultrafast Dynamics in Attosecond		Thursday, 16:00 – 17:15 • Room 4b
		Sunday, 16:30 – 18:00 • Room 1		Time Scale		
Thin Films and Nanostructures				Tuesday, 16:00 – 17:30 • Room 21	CI	OPTICAL TECHNOLOGIES
Monday, 14:30 – 16:00 • Room Einstein	CF/IE-5	Novel Methods in Ultrafast Optics				FOR COMMUNICATIONS
		Monday, 11:00 – 12:30 • Room 1	CG-3	Plasma Based Sources		AND DATA STORAGE
Photonic Nanowires				Wednesday, 16:00 – 17:30 • Room Einstein		AND DATA STORAGE
- Materials and Applications	CF/IE-6	Supercontinuum Generation			CI-1	Next Generation Transmission
Monday, 16:30 – 18:00 • Room Einstein		and Filamentation	CG-4	Ultrafast High Power Lasers		Monday, 11:00 – 12:30 • Room 4b
		Monday, 14:30 – 16:00 • Room 1		Thursday, 08:30 – 10:00 • Room 22		
Optical Fibres and Waveguides					CI-2	Integrated Circuits
Tuesday, 08:30 – 10:00 • Room Einstein	CF/IE-7	High Harmonic Generation	CG-5	Waveform Synthesis and Control		Tuesday, 08:30 – 10:00 • Room 4b
		Monday, 16:30 – 18:00 • Room 1		Thursday, 10:30 – 12:00 • Room 22		
Optical Metamaterials and Plasmonics					CI-3	Optical Signal Processing
Tuesday, 14:00 – 15:30 • Room Einstein	CF/IE-8	Ultrafast Fibre and	CG-6	FEL and High PhotonEnergy Science		Wednesday, 08:30 – 10:00 • Room 4b
		Waveguide Lasers		Thursday, 14:00 – 15:30 • Room 22		
Laser Materials		Wednesday, 14:00 – 15:30 • Room 14b			CI-4	Opto-Electronic Devices
Tuesday, 16:00 – 17:30 • Room Einstein			CG-7	Field Driven Interactions		Wednesday, 10:30 - 12:00 • Room 4b
	CF/IE-9	Ultrafast Optical Parametric Amplifiers		Thursday, 16:00 – 17:30 • Room 22		
Nonlinear Materials		Wednesday, 16:00 - 17:30 • Room 14b			CI-5	Advanced Concepts
Wednesday, 08:30 – 10:00 • Room Einstein			CH	OPTICAL SENSING		for Communications
	CF/IE-10	Ultrafast Spectroscopy	CII	AND METROLOGY		Wednesday, 14:00 – 15:30 • Room 4b
Lithium Niobate - Fabrication		Thursday, 08:30 – 10:00 • Room 14b		AND METROLOGI		
and Characterization			CH-1	Advances in Spectroscopy I	CJ	FIBRE AND GUIDED WAVE
Wednesday, 10:30 – 12:00 • Room Einstein	CF/IE-11	Ultrafast Microphotonics		Monday, 11:00 – 12:30 • Room 3	0,	LASERS AND GUIDED WAVE
-		and Plasmonics		·		LASERS AND AMPLIPIERS
Functional Optical Materials		Thursday, 10:30 – 11:45 • Room 14b	CH-2	Novel Optical Sensing Systems	CJ-1	Fibres and Components
Wednesday, 14:00 – 15:30 • Room Einstein				Tuesday, 14:00 – 15:45 • Room 11		Sunday, 14:30 – 16:00 • Room 14a

GENERAL INFORMATION

Sessions at a Glance

CJ-2	Mode-locked Fiber Lasers
	Sunday, 16:30 – 18:00 • Room 14a
CJ-3	Modal Instabilities in Fibres
6,5	Monday, 14:30 - 16:00 • Room 14a
CJ-4	Coherent Combining
	Monday, 16:30 – 18:00 • Room 14a
CJ-5	High Peak Power Fibre Sources
	Wednesday, 08:30 – 10:00 • Room 14a
	Ultrafast Fibre Sources
CJ-6	
	Wednesday, 10:30 – 12:00 • Room 14a
CJ-7	Wavelength-Tuning and Conversion
	Wednesday, 14:00 – 15:30 • Room 14a
CJ-8	Fibre Laser Sources
	Wednesday, 16:00 – 17:30 • Room 14a
CJ-9	Raman Effects in Fibre Sources
	Thursday, 08:30 – 10:00 • Room 1
CJ-10	Two Micron Fibre Cases
	Thursday, 10:30 – 12:00 • Room 1
CJ-11	Special Fibres
••••	Thursday, 14:00 – 15:30 • Room 1
CJ-12	Novel Waveguide Materials
	Thursday, 16:00 – 17:30 • Room 1
СК	MICRO- AND
	NANO-PHOTONICS
CK-1	Photonic Crystals
	Sunday, 09:00 – 10:30 • Room 21
C 14 C	
CK-2	Silicon Photonics
	Sunday, 11:00 – 12:30 • Room 21

GENERAL INFORMATION

CK-4	Micro-nanostructured Optical Fibers	CL-4
	Sunday, 16:30 – 18:00 • Room 21	CL-
CK-5	Microstructures for Energy and Sensing	
	Monday, 11:00 – 12:30 - Room 21	CL-0
CK-6	Plasmonic Nanostructures and Applications	
	Wednesday, 16:00 – 17:30 • Room 13a	
CK-7	Advanced Structures for Light Sources	СМ
	Thursday, 08:30 - 10:00 - Room 13a	СМ
CK-8	Light Management in Structures	CM
	Thursday, 10:30 – 12:00 • Room 13a	CN
СК-9	Integrated Photonic Devices	
	Thursday, 14:00 – 15:30 • Room 13a	
CK-10	Micro-optics and Integrated Sensors	CM
	Thursday, 16:00 – 17:30 • Room 13a	СМ
CL	BIOPHOTONICS AND APPLICATIONS	
CL-1/FCF	30 Biophotonics and Applications I	СМ
	(Session jointly held with ECBO) Sunday, 14:30 – 16:00 • Room 13b	
CL-2/ECE	30 Biophotonics and Applications II	СМ
	(Session jointly held with ECBO) Sunday, 16:30 – 18:00 • Room 13b	СМ
		10
		18 —

Novel Materials and Structures

Sunday, 14:30 – 16:00 • Room 21

CK-3

Monday,	Biophotonics		JOINT CLEO [®] /EUROPE
	14:30 – 16:00 • Room 4b	IQE	C 2013 SYMPOSIA TOPICS
CL-4 Structur	al Imaging	JSI	NUCLEAR PHOTONICS
	16:30 – 18:00 • Room 4b	JS1	NUCLEAR PHOTONICS
		JSI-1	Nuclear Photonics
CL-5 Microsco	opic and Sensing Technologies		Monday, 11:00 – 12:30 • Room 2
Tuesday,	14:00 – 15:30 • Room 4b		
		JSII	PHOTONICS FOR DEFENCE
	opic Devices		AND SECURITY
Tuesday,	16:00 – 17:30 • Room 4b		
		JSII-1	Photonics for Defence
CM MATER	RIALS PROCESSING		and Security: Spectroscopy
WITH	LASERS		Imaging and Detection
CM 1 Lasar Ak			Wednesday, 08:30 – 10:00 • Room 13t
CM-1 Laser Ab	09:00 – 10:30 • Room 14a	JSII-2	Photonics for Defence and Security Coherent Sources
Sunday, C	19:00 – 10:30 ° KOOIII 14a		Wednesday, 10:30 – 12:00 • Room 13t
CM-2 Future A	Applications of Laser		wednesday, 10.50 – 12.00 ° Room 150
	11:00 – 12:30 • Room 14a	10111	
		JSIII	DYNAMICS OF RANDOM
	n Processing in Micro to		WAVES AND EXTREME EVENT
CM-3/LIM Precision			
	ale by Ultrafast Lasers	JSIII-1	Light Emission and Propagation
Nano Sc		JSIII-1	Light Emission and Propagation in Random Media
Nano Sc (Session	ale by Ultrafast Lasers	JSIII-1	
Nano Sc (Session	ale by Ultrafast Lasers jointly held with LIM)	JSIII-1 JSIII-2	in Random Media
Nano Sc (Session Tuesday,	ale by Ultrafast Lasers jointly held with LIM)		in Random Media Wednesday, 14:00 – 15:30 • Room 13b
CM-4 Ultrafast F	ale by Ultrafast Lasers h jointly held with LIM) 08:30 – 10:00 • Room 13a		in Random Media Wednesday, 14:00 – 15:30 • Room 13t Rogue Waves and Soliton Dynamic
CM-4 Variable CM-4 Variable CM-4 Vednesc	ale by Ultrafast Lasers jointly held with LIM) 08:30 – 10:00 • Room 13a Phenomena and Nanostructuring day, 08:30 – 10:00 • Room 14b		in Random Media Wednesday, 14:00 – 15:30 • Room 13t Rogue Waves and Soliton Dynamic
CM-4 Ultrafast F Wednesc CM-5 Material	ale by Ultrafast Lasers jointly held with LIM) 08:30 – 10:00 • Room 13a Phenomena and Nanostructuring day, 08:30 – 10:00 • Room 14b	JSIII-2	in Random Media Wednesday, 14:00 – 15:30 • Room 13t Rogue Waves and Soliton Dynamic Wednesday, 16:00 – 17:30 • Room 13t
CM-4 Ultrafast F Wednesc CM-5 Material Shaped	ale by Ultrafast Lasers jointly held with LIM) 08:30 – 10:00 • Room 13a Phenomena and Nanostructuring day, 08:30 – 10:00 • Room 14b Processing with Laser Beams	JSIII-2 JSIV	in Random Media Wednesday, 14:00 – 15:30 • Room 13t Rogue Waves and Soliton Dynamic Wednesday, 16:00 – 17:30 • Room 13t QUANTUM COHERENT EFFECTS IN BIOLOGY
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CM-4 Ultrafast F Wednesc CM-5 Material Shaped Wednesc	ale by Ultrafast Lasers jointly held with LIM) 08:30 – 10:00 • Room 13a Phenomena and Nanostructuring day, 08:30 – 10:00 • Room 14b Processing with Laser Beams day, 10:30 – 12:00 • Room 14b	JSIII-2 JSIV JSIV-1	in Random Media Wednesday, 14:00 – 15:30 • Room 13t Rogue Waves and Soliton Dynamic Wednesday, 16:00 – 17:30 • Room 13t QUANTUM COHERENT EFFECTS IN BIOLOGY Quantum Coherent Effects in Biology Monday, 14:30 – 16:00 • Room 21
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Sessions at a Glance

	IQEC 2013 SESSIONS	IB-5	Quantum Communication	IF	FUNDAMENTALS OF	IH	LIGHT-MATTER
IA	QUANTUM OPTICS		Thursday, 08:30 – 10:00 • Room 14a		NONLINEAR OPTICS		INTERACTIONS AT
IA-1	Strong Coupling	IB-6	Photonic Quantum Computing	IF-1	Pulse Manipulation		THE NANO-SCALE
	Monday, 11:00 – 12:30 • Room 13a		Thursday, 10:30 – 12:00 • Room 14a		with Nonlinear Optics Sunday, 09:00 – 10:30 - Room 4a	IH-1	Mapping Near Fields Sunday, 14:30 – 16:00 • Room 22
IA-2	Quantum Photonics	IB-7	Fundamentals of				
	Monday, 14:30 – 16:00 • Room 13a		Quantum Information Thursday, 14:00 – 15:30 • Room 14a	IF-2	New Approaches in Nonlinear Light Propagation	IH-2	Heat and Energy Control Wednesday, 16:00 – 17:30 • Room 21
IA-3	Quantum Effects				Sunday, 11:00 – 12:30 • Room 4a		
	Monday, 16:30 – 18:00 • Room 13a	IB-8	Quantum State Characterization			IH-3	Controlling Light Emission at
			Thursday, 16:00 – 17:30 • Room 14a	IF-3	Nonlinear Light Interactions in		the Nanoscale
IA-4	Quantum State Control				Quantum Systems		Thursday, 08:30 – 10:00 • Room Einstein
	Wednesday, 08:30 – 10:00 • Room 21	IC	ULTRACOLD		Sunday, 14:30 – 16:00 • Room 4a	IH-4	Quantum Nanophotonics
IA-5	Non-Classical Light		QUANTUM MATTER	IF-4	Nonlinear Optical Interactions in		Thursday, 10:30 – 12:00 • Room Einstein
	Wednesday, 10:30 – 12:00 • Room 21	IC-1	Atomic Quantum Simulators		Structured Materials		<i>P</i>
			Tuesday, 14:00 – 15:30 • Room 4a		Sunday, 16:30 – 18:00 • Room 4a	IH-5	Ultrafast Nanophotonics
IA-6	Coherent Effects						Thursday, 14:00 – 15:30 • Room Einstein
	Wednesday, 14:00 – 15:30 • Room 21	IC-2	Ultracold Atoms: Clocks, Spins and Lattices	IG	DYNAMICS, SOLITONS		Quantum Data Ontical Farcas
IA-7	Cavity-Opto Mechanics		Tuesday, 16:00 – 17:30 • Room 4a		AND SELF-ORGANIZATION	IH-6	Quantum Dots. Optical Forces Thursday, 16:00 – 17:30 • Room Einstein
1,7 7	Thursday, 08:30 – 10:00 • Room 21		Tuesday, 10.00 – 17.50 * Room Ha	IG-1	Synchronization Dynamics and Opto-		Indisday, 10.00 – 17.50 - Room Enisteni
		ID	PRECISION METROLOGY		mechanical Self-organization	II	PLASMONICS
IB	QUANTUM INFORMATION, COM-		AND FREQUENCY COMBS		Tuesday, 08:30 – 10:00 • Room 21		AND METAMATERIALS
	MUNICATION, AND SIMULATION	ID-1	Frequency Standards and Spectroscopy	IG-2	Light Beam Propagation in	II-1	Quantum and Graphene Plasmonics
IB-1	Photon Pair Sources and Detectors		Monday, 11:00 – 12:30 • Room 4a		Disordered and Periodic Systems		Wednesday, 08:30 – 10:00 • Room 4a
	Monday, 11:00 – 12:30 - Room 14a	10.2			Wednesday, 14:00 – 15:30 • Room 4a		
IB-2	Integrated Quantum Photonics	ID-2	Frequency Combs Monday, 14:30 – 16:00 • Room 4a	IG-3	Polaritons and Quantum Fluids	ll-2	Plasmonics Antennas and Waveguides Wednesday, 10:30 – 12:00 • Room 4a
10-2	and Simulation		Monday, 14.50 – 10.00 * Kooni 4a	10-5	Wednesday, 16:00 – 17:30 • Room 4a		wednesday, 10.50 – 12.00 * Room 4a
	Tuesday, 08:30 – 10:00 • Room 14a	ID-3	Precision Measurements			II-3	Controlling and Harvesting
			Monday, 16:30 – 18:00 • Room 4a	IG-4	Solitons and Dynamics in Cavities		Light with Plasmons
IB-3	QIP with Light and Matter				Thursday, 14:00 – 15:30 • Room 4a		Thursday, 08:30 – 10:00 • Room 4a
	Tuesday, 14:00 – 15:30 · Room 14a	IE/CF	ULTRAFAST SCIENCE AND				
			TECHNOLOGY (JOINT TOPIC	IG-5	Rogue Waves, Extreme Events and Nonlinear Wave Dynamics	II-4	Transformation Optics and Metamaterials
IB-4	Quantum Networking Tuesday, 16:00 – 17:30 • Room 14a		AREA WITH CLEO®/EUROPE		Thursday, 16:00 – 17:30 • Room 4a		and Metamaterials Thursday, 10:30 – 12:00 • Room 4a
	1405uay, 10.00 - 17.50 - 100111 14a		2013 ALSO LISTED AS CF/IE)		marsday, 10.00 – 17.50 - 100m 4a		marsday, 10.50 – 12.00 - 100m 4d

CLEO[®]/Europe 2013 Topics

CA - Solid-state Lasers

GENERAL INFORMATION

Advances in solid-state lasers: novel solid-state lasers and amplifiers; high-power and high-energy lasers; power-scalable laser architectures, solid-state micro-chip and nanolasers; random lasers; pulse generation; short wavelength lasers; mid-infrared lasers; tunable lasers; intracavity wavelength conversion; upconversion lasers; thermal effects and their mitigation, beam quality characterisation; linewidth reduction and wavelength tuning techniques; amplitude and frequency stability; novel pump sources and pumping configurations; laser resonator design; spectroscopic characterisation of solid-state gain media; advanced laser crystals and glasses; laser characterisation and modelling, novel solid-state lasers for system applications.

CHAIR: David Burns, University of Strathclyde, Glasgow, United Kingdom

CB – **S**EMICONDUCTOR LASERS

New technology, devices and applications; semiconductor optical amplifiers; modelling of semiconductor lasers and optical amplifiers; novel characterization techniques; vertical (extended) cavity surface emitting lasers; optically-pumped semiconductor lasers, photonic crystal semiconductor lasers, micro-cavity lasers; quantum dot/dash lasers; semiconductor ring lasers; short wavelength lasers: blue and green; near-infrared long wavelength lasers; mid-infrared and far-infrared semiconductor lasers: quantum cascade lasers and THz lasers; high power and high brightness lasers; short-pulse generation, mode locking; functional applications: switching, clock recovery, signal processing; semiconductor lasers in integrated photonic circuits; nonlinear dynamics of semiconductor lasers: optical feedback, coupled lasers, optical injection, spatial and temporal

instabilities, synchronization, multimode dynamics, chaos.

CHAIR: Guido Giuliani, Università di Pavia, Pavia, Italy

CC - TERAHERTZ SOURCES AND APPLICATIONS

Sources for generating terahertz (far- infrared) radiation in the approximate range from 200 GHz to 10 THz. These sources can be based on various physical principles, including ultrafast time-domain systems, direct generation using terahertz lasers, and sources based on nonlinear optical mixing; applications using terahertz radiation for sensing, spectroscopy and imaging; advances in terahertz communications; new terahertz measurement techniques and instrumentation, including advances in imaging configurations, detector technologies, and terahertz optical components and waveguides; and terahertz optical measurements using surface plasmons, near-field effects, photonic crystals and metamaterials, and nonlinear optics; and terahertz imaging and modeling of plumes, turbulent air, or gaseous flows.

CHAIR: Jérôme Faist, ETH - Institute for Quantum Electronics, Zürich, Switzerland

CD - APPLICATIONS OF NONLINEAR OPTICS

Novel applications of nonlinear optical phenomena and new devices; nonlinear frequency conversion for the UV, visible and IR; telecommunications applications and all-optical switching; all-optical delay lines and slow light; optical parametric devices such as optical parametric amplifiers and oscillators; nonlinear optics in waveguides and fibres, including photonic crystal structures and microstructured optical fibres; quasi-phasematched materials and devices; novel nonlinear materials and structures; stimulated scattering processes and devices; optical solitons and their applications; optical limiting; spatial and spatio-temporal nonlinear processes including filamentation; electro-optic and Kerr devices in crystals and semiconductors; Raman based devices including amplifiers and lasers; nonlinear probing of surfaces; multi-photon imaging and coherent Raman microscopy.

CHAIR: Ulf Peschel, University of Erlangen-Nuremberg, Erlangen, Germany

CE - OPTICAL MATERIALS, FABRICATION AND CHARACTERIZATION

Fabrication of optical materials; new crystalline and glass laser materials in bulk, fiber and waveguide geometry; micro- and nano-fabrication and -engineering techniques; optical characterisation of laser and nonlinear materials, micro-structured fiber and photonic crystal waveguides, micro- and nano-crystalline materials, single defect centres, quantum wells, quantum wires and quantum dots, nano-tubes and nano-needles, innovative organic materials.

CHAIR: Stefan Kück, Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

CF/IE - Ultrafast Science and Technology (joint topic area with **IQEC 2013**)

Femtosecond and picosecond pulse generation from solid state, fiber and waveguide sources; mode-locked and Q-switched lasers; few-cycle optical pulses; ultrashort-pulse semiconductor lasers and devices; ultrafast parametric and nonlinear optical conversion; ultrashort-pulse mid-IR and THz radiation; pulse compression; super-continuum generation; dispersion compensation; ultrafast electro-optics; pulse-shaping; carrier-envelope effects; ultrafast characterization methods and measurement techniques, ultrafast optoelectronic systems and devices; applications of ultrafast technology, femtosecond pulse filamentation and applications. This topical area will also feature papers on fundamentals of ultrafast nonlinear processes and ultrafast spectroscopy in physics, chemistry, and biology; coherent control using femtosecond pulses; ultrafast microscopic techniques; electro-optic sampling; femtochemistry; ultrafast x-ray experiments and attosecond phenomena.

CHAIR: Giulio Cerullo, Politecnico di Milano, Milano, Italy

CG - HIGH-FIELD LASER PHYSICS AND ATTOSECOND TECHNOLOGIES

Laser and parametric chirped-pulse amplification; generation, compression, carrier-envelope phase (CEP) stabilization and characterization of Petawatt pulses; CEP and light waveform synthesis metrology; strong field ionization and attosecond XUV/x-ray pulse generation; generation of high brightness attosecond pulses; probing of non-linear and ultrafast dynamics by intense free-electron laser pulses; optimal control of ultrafast non-linear processes; time-resolved Auger spectroscopy, XUV/soft x-ray spectroscopy, interferometry and microscopy; time-resolved Coulomb explosion imaging; strongly coupled electron-nuclear dynamics in molecules; attosecond and femtosecond electron diffraction imaging of molecular structures; dynamics in fixed-in-space molecules; ultrafast electron dynamics in bulk media, nanostructures and quantum-confined structures; probing of surface electron dynamics and physiochemical processes via time-resolved UPS/soft XPS; time-resolved XAS, XANES & EXAFS; femtosecond-laser-produced plasmas; relativistic nonlinear optics; laser-driven particle acceleration.

CHAIR: Matthias Kling, Max Planck Institute, Garching, Germany

CH - OPTICAL SENSING AND METROLOGY

Optical sensing and metrology allow for inspection of a wide range of objects, from the macroscopic to the nanometric scale. This topic area focuses on recent progress in all aspects of optical sensing and metrology, particularly in new photonic sensor technologies and applications. Papers are solicited on the following and related topics: new trends in optical remote sensing; fiber sensors using conventional and photonic crystal fibers; active multispectral and hyperspectral imaging; sensor multiplexing; novel spectroscopic techniques, applications and systems; optical precision metrology; novel measurement methods and devices based on interferometry; holography; diffractometry or scatterometry; critical dimension metrology; virtual metrology; multiscale surface metrology; UV and DUV microscopy; resolution enhancement technologies in microscopy; inverse problems; adaptive optics; phase retrieval.

CHAIR: Tomas Nasilowski, Military University of Technology (MUT), Warsaw, Poland

CI - OPTICAL TECHNOLOGIES FOR COMMUNICATIONS AND DATA STORAGE

Fibre devices including dispersion compensating and nonlinear fibres, fibre propagation and polarization effects, fibre amplifiers and fibre lasers, fibre gratings and fibre grating-based devices; semiconductor devices for generation, processing and detection of optical signals including laser sources, detectors and modulators, performance monitoring devices, switches, picosecond and femtosecond pulse sources; optical components for enabling WDM and OTDM systems including filtering and switching devices; digital signal processing and coding techniques; communication and access networks; optical sub-systems including clock recovery techniques, packet/ burst switching subsystems, advanced modulation formats, subcarrier-multiplexing, receivers for coherent detection, radio-over-fiber and microwave photonic technologies, optical regeneration, switching and frequency conversion; optics in storage area networks, optical delays and buffering, holographic and 3D optical data storage, near-field recording and super-resolution, photorefractives.

CHAIR: Stefan Wabnitz, Università di Brescia, Brescia, Italy

CJ - FIBRE AND GUIDED WAVE LASERS AND AMPLIFIERS

Waveguide and fibre laser oscillator and amplifiers including novel waveguide and fibre geometries; power scaling of waveguide and fibre lasers - including beam combination techniques (for both pump and signal beams) and new waveguide coupling approaches; upconversion lasers; nonlinear effects in waveguides and fibres - including nonlinear frequency conversion and pulse generation and compression; advances in fibre waveguide materials; fabrication techniques for doped waveguide and fibre devices; active microstructured fibre and waveguide laser devices; novel waveguide and fibre sources for industrial applications.

CHAIR: Thomas Schreiber, Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena, Germany

CK - MICRO- AND NANO-PHOTONICS

The intensive research nowadays being carried out in the area of nanostructured materials for photonic applications has branched in many directions but keeps a common goal. This is learning and profiting from the novel phenomena occurring when light is created, transported and detected in environments where either dimensionality or size are reduced and, in particular, when light-matter interaction occurs in regions smaller than or similar to the wavelength of light. This trend has earned the term nanophotonics. Such a vast field includes but is not restricted to periodic or quasi-periodic nanostructures (photonic crystals), plasmonic and metamaterial devices; integrated optics; optical MEMS; materials aspects and fabrication techniques, including inorganic/organic nano-layers/wires, nanocrystals in periodic structures and single molecules; issues related to order/disorder in nanostructured materials; and applications tending to the integration into photonic devices for biology, lighting, communication, sensing and energy efficiency.

CHAIR: Valerio Pruneri, ICFO-The Institute of Photonic Sciences and ICREA, Castelldefels, Barcelona, Spain

CL - BIOPHOTONICS AND APPLICATIONS

This topic area addresses emerging concepts in biophotonics: single particle/molecule detection and tracking; spatio-temporal manipulation of light fields for biomedicine; enhanced linear and non linear excitation and detection; micro-fluidics, optofluidics and micro-optics; new optical probes for local measurements - including organic and inorganic nanoparticles, electric fields and temperature measurements; New routes and modalities for optical detection in biophotonics: non linear processes; spectroscopy; holography, adaptive optics, phase conjugation time reversal etc; physics of optical phenomena in biological media: scattering; coherence; polarization; symmetry and invariance. Advanced light sources and geometries for microscopy, phototherapy, surgery, biomedicine etc.

CHAIR: Kishan Dholakia, University of St. Andrews, St. Andrews, Fife, United Kingdom

CM - MATERIALS PROCESSING WITH LASERS

Fundamentals of laser-materials interactions: phase transformation, chemical reactions, diffusion processes, ablation; analytical and numerical mathematical modelling; high-power laser-materials processing: welding, cutting, surface treatment; laser ablation; thin-film growth: PLD, LCVD; direct write techniques: MAPLE, LIFT, near-field techniques; 2D and 3D micro/ nano structuring; plasma related processes; laser assisted nanosynthesis; fundamentals and applications of femtosecond micromaching; ultrafast laser processing: volume modification, index engineering; laser-assisted manufacturing.

CHAIR: Boris Chichkov, Laser Zentrum Hannover, Hannover, Germany

IQEC 2013 Topics

IA - QUANTUM OPTICS

This topical area will feature papers on multimode and mesoscopic quantum optics; single photon emission and absorption; quantum light sources and applications; nonlocality and quantum interference; squeezing and entanglement; quantum correlations and measurement; quantum optics in circuits and cavities; quantum coherence; slow light and quantum memories; quantum imaging and quantum lithography.

CHAIR: Axel Kuhn, Oxford University, Oxford, United Kingdom

IB - QUANTUM INFORMATION, COMMUNICATION, AND SIMULATION

This topical area will highlight recent innovations in all areas of the field, from algorithm and protocol development to experimental implementations of quantum computers and quantum communication systems. Of especial interest are results in quantum simulations, quantum key distribution, quantum logic gates, entanglement distribution and distillation, conversion of information between static and flying qubits, and quantum memories. In addition, novel platforms, devices and materials for quantum information processing, such as integrated devices, nano-mechanics, ion-trap arrays, superconducting structures, quantum dots and cavity QED based quantum gates will be covered.

CHAIR: Christine Silberhorn, Universität Paderborn, Paderborn, Germany

IC - Ultracold Quantum Matter

This topical area will feature papers on recent developments in few- and many-body phenomena with ultracold quantum gases of atoms and molecules. These will include: quantum simulation of strongly correlated systems with artificial gauge fields, frustration, disorder and impurities; out-of-equilibrium many-body phenomena; superfluidity and thermodynamics in Bose and Fermi systems; dipolar physics with atoms and molecules; Efimov physics; quantum atom interferometry; controllable multiparticle entanglement; hybrid systems.

CHAIR: Giovanni Modugno, LENS / Department of Physics, University of Florence, Florence, Italy

ID - PRECISION METROLOGY AND FREQUENCY COMBS

This topical area will deal with the ultimate limitations of measurement precision as imposed by the nature of quanta. It will feature papers on precision interferometry and spectroscopy, novel methods of laser spectroscopy, tests of fundamental symmetries, quantum metrology, definition of basic units, and the constancy of fundamental constants.

CHAIR: Ekkehard Peik, Physikalisch-Technische Bundesanstalt (PTB) Braunschweig, Germany

IE/CF - Ultrafast Science and Technology (joint topic area with CLEO®/Europe 2013)

Femtosecond and picosecond pulse generation from solid state, fiber and waveguide sources; mode-locked and Q-switched lasers; few-cycle optical pulses; ultrashort-pulse semiconductor

lasers and devices; ultrafast parametric and nonlinear optical conversion; ultrashort-pulse mid-IR and THz radiation; pulse compression; super-continuum generation; dispersion compensation; ultrafast electro-optics; pulse-shaping; carrier-envelope effects; ultrafast characterization methods and measurement techniques, ultrafast optoelectronic systems and devices; applications of ultrafast technology, femtosecond pulse filamentation and applications. This topical area will also feature papers on fundamentals of ultrafast nonlinear processes and ultrafast spectroscopy in physics, chemistry, and biology; coherent control using femtosecond pulses; ultrafast microscopic techniques; electro-optic sampling; femtochemistry; ultrafast x-ray experiments and attosecond phenomena.

CHAIR: Giulio Cerullo, *Politecnico di Milano, Milan, Italy*

IF - FUNDAMENTALS OF NONLINEAR OPTICS

This topical area will feature papers on nonlinear optical phenomena including frequency conversion, wave mixing, parametric processes, electromagnetic induced transparency, lasing without inversion, slow light and dark states, temporal and spatial solitons, novel nonlinear optical materials and nano-structures, nonlinear optical fibers, media with extreme nonlinear properties, nonlinear imaging, nonlinear manipulation and characterization of short pulses.

CHAIR: Sophie Brasselet, Fresnel Institute, Marseille, France

IG – DYNAMICS, SOLITONS AND SELF-ORGANIZATION This topical area features papers on the formation of self-organized spatio-temporal structures in optical systems. Topics include a large variety of phenomena such as nonlinear dynamics, pattern formation and dissipative solitons, beam filamentation, instabilities, synchronization, complex behaviour, and extreme events. Applications of these phenomena in, for example, information processing, chaos control and optical communication are also considered. Systems of interest encompass single active or passive photonic devices as well as coupled systems and networks, including novel optical systems such as polariton condensates, quantum dot lasers, microlasers, photonic crystal microcavities, optomechanical systems.

CHAIR: Thorsten Ackemann, University of Strathclyde, Glasgow, United Kingdom

IH – LIGHT-MATTER INTERACTIONS AT THE NANO-SCALE

This topical area will feature papers on all the aspects of light-matter interaction at the nanoscale including single photon emitters (quantum dots, NV centers) and related physics (nanoantennas, microcavities), strong coupling, non-linear optics at the nanoscale, photovoltaics, sources and detectors at the nanoscale, optical forces (optical tweezers at nanoscale, Casimir and Casimir-Polder forces) and radiative heat transfer at the nanoscale.

CHAIR: Jean-Jacques Greffet, Institut d'Optique, Palaiseau, France

II – PLASMONICS AND METAMATERIALS

This topical area will feature papers on metal nanophotonics, including nanoantennas, plasmonic cavities and waveguides, ranging from fundamental designs and proof-of-concept studies to application-oriented work. Another thrust are metamaterials, ranging from implementations at optical frequencies to work in the THz and RF regimes. We particularly welcome papers on active plasmonics and metamaterials, systems with gain, hybrid materials assemblies, nonlinear metamaterials, and three-dimensional structures.

CHAIR: Stefan Maier, Imperial College, London, United Kingdom

Joint CLEO®/EUROPE-IQEC 2013 TOPICS

JSI - JOINT SYMPOSIUM ON NUCLEAR PHOTONICS

The recent development of high intensity lasers, very brilliant y or ion beams and coherent x-ray sources opens new perspectives for nuclear physics studies in extreme conditions. Nuclear properties in presence of a very high electromagnetic field or the study of nuclear reaction, excitation, deexcitation rates in hot and dense plasmas are new domains of investigation. They are of prime importance in particular for the population of isomeric states and element synthesis in astrophysics, and for the issue of energy storage in nuclei. The aim of this symposium is to bring together theorists and experimentalists from different related areas such as direct laser-driven interactions, half-life modifications in plasmas, atomic effects in nuclear excitation and decay, UHI-driven particle sources and coherent X-ray sources.

Topics include:

• Nuclear physics in laser induced plasma (excitation processes in plasma, effect of high temperatures on astrophysics, effect of high temperatures on transmutation)

• Nuclear physics in laser fields (laser-driven excitations and review of nuclear experiments which can be carried out at XFEL)

- Nuclear physics with monoenergetic g-beams (review of experiments which can be carried out at Compton backscattering facilities)
- Techniques and facilities of UHI-driven particle beams, brilliant monoenergetic g-beams, coherent X-ray sources for nuclear physics.
- NEET and NEEC and the inverse processes with possible applications to gamma ray lasers.

CO-CHAIRS:

Franck Gobet, Centre Etudes Nucléaires, Bordeaux, France **Ken Ledingham**, University of Strathclyde, Glasgow, United Kingdom

JSII - JOINT SYMPOSIUM ON PHOTONICS FOR DEFENCE AND SECURITY

Today, worldwide security is significantly affected by the increasing globalization and the emergence of new military and non-military threats. Low-intensity conflicts, asymmetric warfare, peace keeping missions in urban theaters, border security, and the continued rise in terrorism. All this has created a need for new and innovative technical solutions where photonics are playing, and will continue to play, a key role. Optical sensing is now extending from the UV, through the visible and the infrared, into the terahertz frequency range, offering novel imaging systems with increased discrimination capabilities, and spectroscopic techniques that can help characterize suspicious materials. Laser systems have evolved which enable three-dimensional imaging, directed infrared countermeasures, and other new defense concepts. This symposium will focus on novel and improved techniques and applications of photonics for security and defence. It aims at bringing together engineers and scientists from academia, industry and government from around the world to exchange results and ideas in this field.

Topics include:

Active imaging, range gated flash imaging systems and applications, three dimensional imaging, hyper spectral, multispectral and polarimetric imaging. Automated target detection and identification. Enabling laser and focal plane arrays technologies.

Light detection and ranging, incoherent and coherent LIDAR, laser velocimetry, vibrometry

and profilometry. Obstacle detection and landing aid applications. 3D scanning. LIDAR-RADAR concepts, *i.e.*, RF modulated waveforms. Enabling technologies, such as eye-safe fiber laser with arbitrary waveforms capability, novel semiconductor lasers, advanced detectors, and non-mechanical beam steering.

Spectroscopic techniques for sensing biological and chemical species, including time resolved fluorescence, absorption, Raman, and LIBS spectroscopy. Detection and imaging of illegal substances, and in vapor phase, in liquids, and as solid traces. Hidden objects detection. Stand-off detection of improvised explosive devices and antipersonnel mines. Dedicated laser and detector technologies from the UV to the THz range.

Directed energy applications such as infrared countermeasures and laser weapon concepts. Infrared laser sources incl. high power solid-state and fiber lasers developments. Incoherent and coherent beam combining concepts. Propagation and turbulences effects mitigation. Beam directors and adaptive optics. Femtosecond lasers and associated effects, *e.g.*, filamentation and remote plasma generation.

CO-CHAIRS:

Eric Lallier, Thales Research and Technology, Palaiseau, France **Jerry Meyer**, Naval Research Labs, USA

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JSIII - JOINT SYMPOSIUM ON DYNAMICS OF RANDOM WAVES AND EXTREME EVENTS

There has been significant recent development in the observation and understanding of random waves and extreme event dynamics. However, the range of topical areas covering this field is extremely broad, from meteorology over optics to ultracold matter. The aim of this symposium is to present the recent progress in this field by bringing together experts from different areas such as dynamics of linear and nonlinear random waves, random surface waves, optical turbulences, instabilities in lasers cavities, pattern formation in liquid crystals, temporal extreme events in optical fibers and waveguides, as well as spatial extreme events in bulk media or rogue waves in Bose-Einstein condensates.

CO-CHAIRS:

Goëry Genty, Tampere University of Technology, Tampere, Finland Stefan Skupin, Max Planck Institute, Dresden, Germany

JSIV - JOINT SYMPOSIUM ON QUANTUM COHERENT EFFECTS IN BIOLOGY

This topical area will deal with the existence and potential importance of quantum coherence in biological processes. It will include: vibrational and electronic coherence in ultrafast light-activated processes; spin effects on magnetosensitivity; ultra-high time-resolution transient absorption and ultrafast multidimensional spectroscopy; theoretical predictions on the importance of quantum coherence in biology.

CO-CHAIRS:

Philipp Kukura, University of Oxford, Oxford, United Kingdom

Marcus Motzkus, University of Heidelberg, Heidelberg, Germany

JSV - JOINT SYMPOSIUM ON SUPERCONDUCTING OPTICS

This joint symposium highlights the growing role of superconducting materials and circuits in quantum optics. It will focus on the development of quantum circuits based on superconducting materials. These circuits provide an ideal playground for exploring atomic physics and quantum optics with microwave photons as well as a scalable blueprint for quantum computing. The symposium will also explore the wide ranging applications of superconducting detectors in quantum optics and quantum information, highlighting high performance superconducting technologies for infrared single photon detection, and implementations in applications such as quantum key distribution, quantum metrology and quantum information processing.

Co-Chairs:

Franco Nori, *RIKEN Advanced Science Institute, Saitama, Japan* **Robert Hadfield**, *Heriot-Watt University, Edinburgh, United Kingdom*

JOINT SESSIONS CLEO[®]/Europe and LIM:

One session on Precision Processing in Micro to Nano Scale by Ultrafast Lasers (CM-3/LIM) to take place on Tuesday morning is jointly organised by CLEO*/Europe (CM committee) and LIM, and will comprise three invited papers.

CO-CHAIRS:

Michael Schmidt, Universität Erlangen-Nürnberg, Erlangen, Germany (LIM) Boris Chichkov, Laser Zentrum Hannover, Hannover, Germany (CLEO)

Two Tech Focus sessions on Fibre and Solid-State Lasers - A Comparison from an Industrial Point of View (TF-1/LIM and TF-2/LIM) to take place on Tuesday afternoon are jointly organised by CLEO[®]/Europe and LIM.

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NOTES

GENERAL INFORMATION

Abstracts of the papers to be presented at CLEO^{*}/ Europe-IQEC 2013 appear in this advance programme. The presentation of the large number of contributed papers requires that there be up to ten parallel sessions during the conference. The programme includes twelve short courses, two tech-focus sessions, twelve CLEO^{*}/Europe topics, eight IQEC topics, one joint CLEO^{*}/ Europe-IQEC topic and five joint CLEO^{*}/Europe-IQEC symposia. The short courses and all the sessions will be held at the International Congress Centre in Munich.

The CLEO*/Europe-IQEC 2013 technical programme features 1423 presentations. These include 3 plenary, 5 tutorial, 8 keynote, 78 invited and 6 tech-focus talks. The conference also features 764 oral contributions and 559 poster presentations. Two postdeadline sessions (18 oral talks) are also added.

Conference Dates

CLEO[®]/Europe-IQEC 2013 will be running from **Sunday 12 May, 9:00 to Thursday 16 May, 17:30**.

2013 LASER World of PHOTONICS Opening with Plenary Talk

The official LASER World of PHOTONICS opening will take place right after the CLEO^{*}/Europe plenary talk on **Monday 13 May, beginning from 9:30, Room 1**.

The ceremony will start with a couple of welcome addresses and will be followed by a Plenary Talk. 2013 will mark the 40th anniversary of the LASER World of PHOTONICS. Messe Munich will honour the exhibitors of the first event.

TIME SCHEDULE:

- 09:30 10:00 ► Welcoming by Norbert Bargmann, Deputy CEO of Messe München International.
 - Welcoming by Peter Loosen, President of the Steering Committee World of Photonics Congress, Fraunhofer Institute for Laser Technology (ILT), Aachen, Germany.
- 10:00 10:45 ► Plenary Talk on "Nanoscopy with Focused Light" by Stefan W. Hell, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany.

Prizes and Awards

A series of Prize and Award ceremonies will take place during the Plenary session scheduled **Tuesday 14 May from 10:30 to 12:30, Room 1**.

During this session **Alain Aspect**, *Institut d'Optique*, *Palaiseau*, *France* will present a plenary talk on "Coherent Back Scattering and Anderson Localization of Ultra Cold Atoms".

The following Prizes and Awards will be presented: > 2013 Awards of the European Physical Society

- Quantum Electronics and Optics Division:
 - ► (2) Quantum Electronics Prizes.
 - ► (2) Fresnel Prizes.
- ▶ (4) PhD Thesis Prizes.
- See EPS-QEOD Prize Ceremony brochure.
- EPS Emmy Noether Distinction for Women in Physics
- ► OSA Fellow Awards
- DPG/OSA Herbert Walther Award.

See programme in the parallel sessions.

Poster Sessions

Posters are a major attraction and provide an intimate interaction between the presenter and the viewer. To allow participants to see as many posters as possible, all CLEO^{*}/Europe-IQEC 2013 posters will be displayed in the **Hall B0** (ground floor) next to the ICM centre. The conference will feature 5 poster sessions taking place from Sunday to Thursday after lunchtime. There will be no oral presentations during this time.

Poster time schedules:

- ▶ **Sunday:** 13:30 14:30 (topics CA, CC, CL, CM and IF)
- ▶ **Monday:** 13:30 14:30 (topics CB, CK, IB, ID and JSIV)
- ► **Tuesday:** 13:00 14:00 (topics CD, CE, CI, IC and JSV)
- ▶ Wednesday: 13:00 14:00 (topics CF/IE, CJ, II, JSII and JSIII)
- ► **Thursday:** 13:00 14:00 (topics CG, CH, IA, IG and IH)

All authors are requested to display posters on their allocated boards on the morning of their assigned poster day. In order to present their work and answer questions, they are requested to be present in the vicinity of their poster during that day between the assigned time schedules. The schedule of the poster sessions is presented on the respective pages of the advance programme.

Each author is provided with a bulletin board measuring 950 mm wide \times 1755 mm high on which to display a summary of the paper. Tape to fix the posters will be provided (pins cannot be applied).

NOTE: A catering counter with drinks and snacks will be built up in the middle of the hall.

Speakers' Information

Duration of the talks:

- Contributed presentations are 15 minutes including discussion
- Invited presentations are 30 minutes including discussion
- ► Tutorial presentations are 60 minutes including discussion
- Keynote presentations are 45 minutes including discussion
- Plenary presentations are 45 or 60 minutes including discussion

Speakers are asked to check-in with the session chair in the room of their relevant session ten minutes before the beginning of the session.

During the World of Photonics Congress a network-based presentation system will be used along with a congress specific interface to ensure a high quality of all presentations.

Speakers were requested to upload their presentations prior to the conference, to a protected server of M Events Cross Media GmbH (<u>http://www.m-events.com</u>) until May 11, 2013. Those who did not do it are kindly requested to do it on-site in the **Speakers' Check-IN** (Hall B0, ground floor, congress centre).

Important:

In any case all speakers need to check their presentations at the Speakers' Check-IN when they arrive to the ICM!

Please be assured that the presentations are securely protected against any external access. This applies for both the on line upload as well as the upload on-site. After the conference all submitted files will be deleted from all storage media.

Upload on-site at the Speakers' Check-IN:

Your final and complete presentations must be submitted to the Speakers' Check-IN at least three hours prior to the scheduled session.

This regulation does not apply for sessions that start before 10 a.m. - in this case we recommend uploading your final presentation one day prior to your lecture.

The Speakers' Check-IN is located in the hall B0, ground floor, congress centre and will be open during the following hours, with technicians available to assist you:

Sunday, 12 May 2013:	07:00 - 18:30
▶ Monday, 13 May 2013:	07:00 - 18:30
▶ Tuesday, 14 May 2013:	07:00 - 18:30
▶ Wednesday, 15 May 2013:	07:00 - 18:30
▶ Thursday, 16 May 2013:	07:00 - 12:00

NOTE: Even though there are more than 20 uploading stations available at the Speakers' Check-IN, there might be waiting periods at peak times.

Guidelines for presentation formats:

Only presentation material in the form of MS-PowerPoint 2010 or earlier versions (*.ppt and *.pptx) with a screen ratio of 4:3 and a minimum resolution of 1024×768 will be accepted. If you are using PowerPoint 2007 or older please do not forget to submit any videos as separate files as PowerPoint will not include them into the presentation. Only MS Office standard fonts are supported. Custom fonts cannot be embedded. No provisions are being made for overhead or traditional slide presentations.

Presentation Technology:

Each meeting room is equipped with a laptop, a data-projector and podium microphone and/

or wireless lavalieres. A network-based presentation system will be used along with a conference specific interface to ensure the perfect quality of all presentations. Therefore, **own laptops cannot be connected in the lecture room. All presentations must be uploaded in advance to the server**.

Laser pointers are not provided.

Internet access will not be available during the presentation.

Tech-Focus Sessions

A feature of CLEO[®]/Europe-IQEC 2013 will be the Tech-Focus sessions which will concentrate on a selected Fibre and Solid-State Lasers topic. It will consist of a combination of extended tutorial introductory material and authoritative technical reviews. CLEO[®]/Europe-IQEC 2013 will feature two Tech-Focus sessions on **Fibre and Solid-State Lasers: a Comparison from an Industrial Point of View,** jointly held with the LIM conferences and taking place on **Tuesday afternoon, Room 13a**.

All paid registrants are invited to attend the Tech-Focus sessions at no additional charge. Those wishing to attend the Tech-Focus who are NOT FULL FEE registrants must pay the oneday fee.

Short Courses

Twelve short courses at an extra cost will be presented in parallel from Sunday 12 May to Thursday 16 May 2013 (half days each). Each course is scheduled in two parts: Course Part I (1 hour ½), coffee break, Course Part II (1 hour ½). The courses are open to attendees of the World of Photonics Congress and Laser World of Photonics Exhibition subject to payment of the course fee.

Advance registration is required in order to obtain the short course material. This material will not be available for purchase during the conference.

Laboratory Tours

Guided laboratory tours through selected Munich (Garching) Laser Laboratories will take place on Friday, 17 May 2013.

The programme will be published beginning of May.

See http://www.cleoeurope.org/laboratory-tours.

CLEO[®]/Europe-IQEC participants can sign up for the laboratory visits during the conference: They will be invited to sign up on lists hanging on the message board located in the corridor between Entrance West and ICM.

If possible, Laboratory tour attendants should book their return flights in the evening, to be sure, that there is enough time.

Important: Transport!

Munich suburban map and respective information on "Tickets for public transport"; please glance the bottom of this site:

http://www.mpq.mpg.de/cms/mpq/en/metanavigation/contact/directions/index.html

Transportation will need to be arranged by the visitor!

To find connections from your hotel to the laboratory of your choice, please go to the Munich Public Transport Internet site (MVV) with a screen for English speakers:

http://efa.mvv-muenchen.de/mvv/XSLT_ TRIP_REQUEST2?language=en

You can enter either the street or subway station near your hotel as a starting point and, respectively, the same choice, for your intended destination. Please type in the field "arrival": 9:35. You head for Garching? Please specify by typing: "Garching b München".

GENERAL INFORMATION

Reception and Social Events

OPENING RECEPTION WITH CELEBRATION OF THE 40TH LASER WORLD OF PHOTONICS. Monday 13 May 2013, from 17:30 to 22:00, *ICM Foyer, Ground Floor, Congress Centre* All exhibitors and attendees of the World of Photonics Congress are cordially invited to attend the opening reception "Bavarian evening". Enjoy music, food and cold drinks and use the atmosphere to network.

CLEO[®]/EUROPE-IQEC CONFERENCE DINNER Tuesday 14 May 2013, beginning from 19:00, Löwenbräukeller, Munich

The delegates registered with the CLEO^{*}/Europe-IQEC 2013 are invited to the conference reception at a special cost of \in 10,- per participant and \in 35,- per additional guest. The dinner will take place at the famous Löwenbräukeller (<u>http://www.loewenbraeukeller.com/en/</u>) in downtown Munich. A rich selection of fine Bavarian food will be provided.

HAPPY HOUR

Wednesday 15 May 2013, from 17:30 to 18:30, *ICM Foyer, Ground Floor, Congress Centre* The event is sponsored by the Quantum Electronics and Optics Division of the European Physical Society. Beer and pretzels will be served. Depending on the weather the event may also take place outside.

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Exhibition Information

From 13 to 16 May, a major exhibition of laser and electro-optic equipment and services, LA-SER World of PHOTONICS 2013 will be held in conjunction with the congress.

The latest technology first hand will be exhibited. The range of products exhibited will cover innovative optical technologies:

- Laser and Optoelectronics;
- Optics;
- Manufacturing Technology for Optics;
- Sensors, Test and Measurement;
- Laser and Laser Systems for Production Engineering;
- Optical Information and Communication;
- Biophotonics and Medical Engineering;
- Imaging;
- Illumination and Energy;
- Security.

All conference registrants will have free entrance to the technical exhibition. Longer lunch breaks are organised to allow visits to the exhibition.

This combination of theory and practice, an extensive program of conferences and related events and the presence of all market leaders, decision-makers and users make LASER World of PHOTONICS unique and, at the same time, the most important international information and networking platform for the industrial, research and development sectors.

LASER World of PHOTONICS features more than 1,000 exhibitors from more than 30 countries and gives you a complete overview of all the latest trends and applications. The international research community meets the industry at the World of Photonics Congress that is held in conjunction with LASER World of PHOTONICS. Further information on the exhibition is available at http://world-of-photonics.net/en/laser/visitors

Opening hours of the exhibition

The exhibition will be opened from Monday through Wednesday 09:00 - 17:00 and on Thursday 09:00 - 16:00.

Application Panels

The application panels organized by Messe München International are now a permanent part of the World of Photonics Congress. The series of lectures that are held in the forums of the LASER World of PHOTONICS 2013 exhibition halls bridge the gap between science and practical application.

Well-known speakers from industry and research institutes report on the latest research and development findings in the sector of optical technologies and discuss the latest challenges with you. The Applications Panels at the 2013 fair will feature a number of new sectors for photonics applications. A series of 16 panels will be held on the four days of LASER World of PHOTONICS at the trade-fair centre in Munich from May 13 -16, 2013. Broken down into three main categories - *i.e.* Biophotonics and Medical Engineering (4 topics - Hall B1), Lasers and Laser Systems for Production Engineering (7 topics - Hall C2) and Optical Technologies (7 topics - Hall B2) - they will give attendees a comprehensive look at the latest trends and developments.

New topics include:

- Laser applications and optical diagnostics in ophthalmology
- Unmet Needs in Photonics and Medicine
- Laser–Additive Manufacturing
- ${\boldsymbol{\cdot}}$ Organic and Printed Electronics, Partner: OE-A

Optronical Systems in Security Applications
High-power diode lasers and VCSELs: most efficient and flexible beam sources

The admission is free for the Laser World of PHO-TONICS participants. Some panels are held in German and some in English. For further information, see the separate brochure.

On-Site Facilities for Attendees

ONLINE DATABASE

The entire program of events at the World of Photonics Congress is available online at <u>http://</u> world-of-photonics.net/en/photonics-congress/ <u>structure/conference-program-2013</u>. The database features versatile search functions and can help you to compile a personal congress schedule that you can transfer to your PDA. It also features information about all lectures and poster shows on specific topics and about the companies with exhibits at the fair.

W-LAN LOUNGE

All congress participants using their own laptops/ netbooks/pads have free access to the Internet in the W-LAN Lounge at the Congress Centre (ICM, ground floor, foyer).

CAREER CENTER (MAIN ENTRANCE WEST, BOOTH 800)

Societies can publish job advertisements on a job board and congress attendees like students can use the career coaching. Stock position on job board is charged. Messe München and wirth + partner Consulting Group manage the LASER World of PHOTONICS Career Center.

At the Career Center, job applicants can find job, training and apprenticeship openings of LASER World of PHOTONICS exhibitors. At the same time, personnel consultants offer career coachings free of charge for Young Professionals and professionally experienced engineers and physicists on every trade fair day between 10 am and 5 pm. You can register for the career coaching either on site at the trade fair or in advance at <u>info@</u> wirth-partner.com or +49 (0)89 / 4599580.

Find out about the job openings already now in our on line career centre at <u>http://www.</u> world-of-photonics.net/en/laser/start/hidden/ Jobboerse2013

CATERING

All conference attendees are invited to attend the free coffee breaks as marked in the tables of the days at a glance (first pages of the advance programme). Lunches are not included in the conference fee.

A number of gastronomy facilities are available on site.

Depending on the weather the beer garden outside will be open.

Besides three permanent food-service operations in the foyer – the ICM Bistro, ICM Bar and ICM Café – you can also visit the restaurant "Am See", which can be reached directly via the 1st floor. Snack bars with large assortments of snacks and beverages are located on the ground floor in each hall. The snack bars in the ICM are located on the ground floor and the first floor.

Full-service restaurants are located on the first floors of the East and West Entrances and above the halls.

Other **self-service restaurants** located on the **first floor** can also be found in the exhibition halls offering international cuisine:

• **Food Galery**, between Halls A1 and A2 (at the south end).

When the weather is nice, the terrace is open. The restaurant has a seating capacity of 350.

- Valentin's (Bavarian cuisine), between Halls B2 and B3 (along the Expressway). Almost all of its international dishes are prepared in front of the patrons. The restaurant has a seating capacity of 370.
- Asia Garden (Asian cuisine), between Halls B4 and B5 (along the Expressway). The restaurant features Asian-style décor and serves wok dishes and Asian specialties. The restaurant has a seating capacity of 300.
- **Paganini** (Italian cuisine), between Halls A5 and A6 (at the south end). When the weather is nice, the terrace is open. The restaurant has a seating capacity of 300.

Many **snack bars** located in the exhibition halls offer Alpine, American, Asian, and Italian cuisine. A catering counter with drinks and snacks will be built up in the middle of the hall B0 during the poster sessions.

Other catering places can be found at the "Riem Arcaden" shopping centre located at the exit of the "Messestadt West" subway station.

BUSINESS CENTRE

The ICM centre offers a first-class International Business-Centre (open from Sunday to Thursday from 08:00 to 19:00 hour, closed Saturday).

Office services are currently proposed at cost:

- PC workstation with printers (applications from
- all MS Office packages)
- Internet access
- Laptop connections
- Prepaid wireless-LAN connect card including support (requested in case you are not in the W-LAN Lounge at the congress centre)
- E-mail (receive/send)
- Colour/black-and-white copies
- Fax (receive/send)
- Stamps

- It also offers additional services:
- Information about cultural attractions in Munich
- Hotel informationFlight/train information
- Information about Munich International Trade Fairs
- Taxi service (directly in front of ICM main entrance)

BANKS

No bank-counter but ATM-machines to withdraw money (one is located between the "Messehaus" and hall A1, another is located between halls A4 and B4);

At the "Riem Arcaden" (three-minute walk from West Entrance) you will find:

- An ATM self-service machine (Münchner Bank).
- A branch office of the Sparda-Bank for customers to make deposits and withdraw funds. No currency exchange.

A ReiseBank branch is located at the Munich East train station (Ostbahnhof, Orleansplatz 11). Other banks are also to be found in the centre of Munich or at the main railway station.

TAXI SERVICE

The taxi service is located in front of the ICM main entrance.

AIRPORT SHUTTLE

An airport shuttle is organised in connection with the trade fair from 12 to 16 May 2013. Cost \in 8 one-way, \in 13,50 round trip. Shuttle buses directly stop in front of the West, East and North Entrances and in front of the entrance of the ICM Congress Centre.

Shuttle buses provide service between the Munich Airport and the trade-fair centre during the following schedule (every 30 minutes, on the hour and half-hour): Airport -Trade-fair centre: 8 am - 6 pm Trade-fair centre - Airport: 9:30 am - 7 pm The trip takes approximately 45 minutes. Information regarding departure locations and special fares is available at all information counters at the trade-fair centre.

First-aid

First-aid stations are located in the East and West Entrances.

As a service partner of Munich International Trade Fairs, Aicher Ambulanz Union is responsible for the medical needs of guests and visitors at the trade-fair center and the ICM. Phone: +49 89742200, +4989949-28103 (for first-aid emergency call), mobile: +491715663514.

Pharmacy

The nearest pharmacy is "SaniPlus" in the Riem Arcaden shopping centre. It is located on the ground floor in the right portion of the building. **Opening hours:** Monday through Saturday 09:00 - 20:00.

Optician

The Optician "Fielmann" has a retail outlet in the Riem Arcaden shopping centre.

GROCERIES WITH BAKERY, CLOAKROOM, AND INFORMATION/TRAVEL SERVICE... are located in the Main Hall of the Entrance West leading to Halls A1 and B1.

Post office

Deutsche Post has a small branch office in the Riem Arcaden shopping centre (lower level next to the "Edeka" supermarket).

DRY CLEANING

"Pan-o-tex" dry cleaning is located in the Riem Arcaden shopping centre.

Message Board

A message board will be installed. Participants should consult it daily for internal messages. It will be placed in the corridor between Entrance West and ICM.

PRESS SERVICES

All members of the Press are requested to register by Messe Munich. They will receive the conference material and badges that will admit them to all technical sessions and the exhibition.

Conference Venue

CLEO*/Europe-IQEC 2013 will take place at the New Munich Trade Fair Centre at the ICM -International Congress Centre, Am Messesee 6, 81829 Munich, Germany. Please visit <u>http://www.messe-muenchen.de/</u> or http://www.icm-muenchen.de.

How to reach the ICM Centre

By car:

simply follow the trade fair signs from the outskirts and throughout the city to the ICM. There you will find parking space.

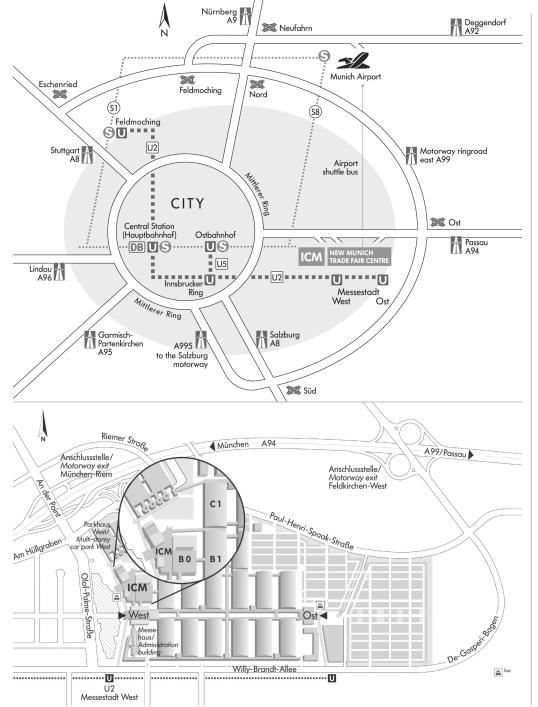
By train:

The ICM is about 20 minutes from Munich central station (Hauptbahnhof) by underground U2, exit "Messestadt West". The U2 subway runs from 4:12 in the morning to about 1:00 after midnight. Further information on the underground is available at <u>http://www.mvv-muenchen.de/</u> or at the information counters on the trade fair grounds.

From the airport:

At Munich airport, the station for urban railway lines S1 and S8 is directly below the central area. Trains in the direction of the city centre run at

General Information



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10-minute intervals. There are two routes from the airport to the ICM:

• Route S1 / U2: S1 from the airport to Feldmoching station or Munich Central Station (Hauptbahnhof). Change to underground U2 that takes you directly to the ICM - Messestadt West.

• Route S8 / U2: S8 from the airport to Munich central station (Hauptbahnhof). Change to underground U2 that takes you directly to the ICM - Messestadt West.

By taxi from the airport:

Taxis are available in front of the terminals. The journey takes about 35 minutes, depending on the volume of traffic (cost around 60 EUR).

By hire car from the airport:

All the major car rental firms are represented at Munich airport. The car rental centre with its own parking facilities is in front of module A, to the north of car park P6.

Please take the following route: From Munich Airport follow the signs "Messe/ICM" on the A92 in the direction of Munich to the motorway intersection Eching/Neufahrn. Then take the A9 in the direction of Munich to the motorway intersection München-Nord. Continue on the motorway ring road A99 in the direction of Salzburg to the motorway intersection München-Ost. Then take the A94 in the direction of Munich to the exit Feldkirchen-West or München-Riem. The journey takes about 35 minutes, depending on the volume of traffic.

How to take a taxi from the ICM Centre to the airport

You will find taxi ranks at all trade fair entrances and in front of the ICM going to the airport (Central Building).

AIRPORT SHUTTLE

An airport shuttle is organised in connection with

the trade fair from 12 to 16 May 2013. Cost \notin 8 one-way, \notin 13,50 round trip.

Shuttle buses directly stop in front of the West, East and North Entrances and in front of the entrance of the ICM Congress Centre.

Shuttle buses provide service between the Munich Airport and the trade-fair centre during the following schedule (every 30 minutes, on the hour and half-hour):

Airport -Trade-fair centre: 8 am - 6 pm Trade-fair centre - Airport: 9:30 am - 7 pm The trip takes approximately 45 minutes. Information regarding departure locations and special fares is available at all information counters at the trade-fair centre.

Conference Registration

CONFERENCE REGISTRATION FEES		
EPS/OSA/IEEE Member		
with the online digest	€ 590	
Non-Member		
with the on line digest	€710	
EPS/OSA/IEEE Student Member (*)		
with the online digest	€ 195	
Student Non-Member (*)		
with the online digest	€230	
One Day without the online digest	€ 290	
Student (*) extra fee for Short Course	€ 220	
Regular extra fee for Short Course	€ 350	
Reception ticket per participant	€ 10	
Additional reception ticket per guest	€ 35	
(All registration fees are exempt from Value		
Added Tax).		
(*) Applications for the student rates must in-		
clude a photocopy of an official student iden-		
tity card, which must also be presented on-site		
when collecting registration material	s.	

The full week registration fee for the meeting includes admission to all CLEO*/Europe-IQEC 2013 technical sessions, as well as to those of all conferences collocated with Laser 2013. It includes admission to the technical exhibition. Digest will be online. A login and password will be given. Coffee Breaks are included (as mentioned in the days at a glance). Tickets for public transportation are not included in the fees.

One-day registration fees are available for those wishing to attend one particular session rather than the whole conference. Please note that the online digest will not be included. Coffee Breaks are included. Tickets for public transportation are not included in the fees.

NOTE: One-day registration tickets are activated on the day the participant goes through the gates of the congress or the fair and will only be valid for that day.

Registration forms are available on site.

Cancellation Policy

An administration charge of \in 50 will be made for processing refunds. A request for cancellation must be made in writing. In the case of cancellation, requests received on or before Wednesday, 1 May 2013 will be refunded (less the administration charge). No refunds will be available if notice of cancellation is received after 2 May 2013.

Note to Exhibitors

Each exhibitor at LASER World of PHOTONICS 2013 is entitled to one free ticket to the World of Photonics Congress 2013. Each exhibitor may also purchase up to five congress tickets for a special price.

All tickets are personalized, *i.e.* they are valid only for the person whose name appears on the ticket, and they are not transferrable.

Special tickets to the World of Photonics Congress may only be ordered and used by exhibiting companies.

The official Congress Proceedings are not included in the discount price for special tickets for exhibitors.

Tickets will be pre-produced and will be available for pick-up at the World of Photonics Registration Desk in the West Entrance. Messe Munich manages the order of these tickets.

Beyond that, exhibitors must purchase any additional tickets to the World of Photonics Congress from one of the organizing scientific associations at the regular price.

Please note:

Neither the free special tickets nor the discount special tickets are available to speakers or poster presenters appearing at the World of Photonics Congress 2013. Speakers and poster presenters must register with the respective organizing association.

Registration Hours and Location

Registration for technical sessions will take place at the ICM centre. To enter the ICM centre please take the main Entrance West (named "Haupteingang WEST").

CLEO^{*}/Europe-EQEC 2013 registration counters are located on the left side at the end of the main corridor just prior you enter the exhibition halls.

REGISTRATION HOURS

Saturday 11 May	16:00-18:00
Sunday 12 May	08:00-17:00
Monday 13 May	08:00-17:00
Tuesday 14 May	08:00-17:00
Wednesday 15 May	08:00-17:00
Thursday 16 May	08:00-15:00

09:00-12:30/13:30-18:00

08:30-12:30/13:30-18:00

08:30-12:30/13:00-17:30

08:30-12:00/13:00-17:30

08:30-12:15/13:00-17:30

(CB-2 until 12:45)

and 18:45-20:15

(CM-6 until 12:15)

CONFERENCE HOURS

Sunday 12 May Monday 13 May Tuesday 14 May Wednesday 15 May Thursday 16 May

SHORT COURSE HOURS

Sunday 12 May09:00-12:30/14:30-18:00Monday 13 May14:30-18:00Tuesday 14 May14:00-17:30Wednesday 15 May08:30-12:00/14:00-17:30Thursday 16 May08:30-12:00

Supports

All supports were distributed. No additional requests can be received.

Hotel Information

The ICM is located about 20 minutes from the Munich Central Station (Hauptbahnhof) by underground U2, exit "Messestadt West". Whether you are looking for a hotel, a guesthouse, a private accommodation, or a boarding house you should be able to find your accommodation downtown or in the surrounding area of Munich.

Messe Munich has arranged for an on-line hotel reservation which can also be used for the CLEO®/Europe-IQEC 2013 participants at: http://www.tradefairs.com/index.html

The Hotel Guide of the Munich Trade Fairs offers you a large variety of accommodation possibilities for a pleasant stay. Whether near the ICM or centrally located and in the middle of the nightlife of Munich's trendy neighbourhoods or close to the mountains with a high recreation value - here you will find a comprehensive offer of accommodation in and around Munich as well as in the alpine upland - meeting your personal criteria.

Hotels can be directly searched and booked via the Hotel Directory.

Hotels, pensions, apartments or youth hostels in Munich can also be found at: <u>http://www.munich-info.de/hotels/</u> welcome_en.html

A larger variety of rooms can be found using the links:

http://www.muenchen.de/health/Service/4Hotel/511/index.html

http://www.muenchen.de/int/en/accomodation-hotels.html

Rooms, apartments and holidays homes can be found using the following link: <u>http://www.checkin-muenchen.de/index.</u> php?mms=1

Transportation in Munich

Munich offers very good transportation means (hire cars, trams, metro and buses). Participants of the World of PHOTONICS congress who use local public transportation to get to Neue Messe Munich must buy a travel ticket, at their own expense. Tickets can be purchased from all bus drivers, tram drivers, automatic ticket-dispensing machines at stations (S and U-Bahn stops) and from kiosks displaying the MVV logo. Some ticket machines accept 10 € and 20 € banknotes and most will give change. Please have some small coins ready! You can select your respective language on the ticket machines.

Buy your ticket depending on the zones you will cross and the time length you will need to travel:

- Stripe ticket (Streifenkarte): Stamp two stripes per zone. You are allowed to change and interrupt your journey. Return and round trips are not permitted.
- Single trip ticket: Valid for one person for one trip. You are allowed to change and interrupt your journey. Return and round trips are not permitted. The fare depends on the number of zones passed through.
- Single day ticket (Tageskarte): The most popular day tickets are also available as excellent value-for-money 3-day tickets. If you want to stay for 2 days, 4 days or even longer, simply combine the 1-day ticket and 3-day tickets.
- Partner day ticket: Available for as many trips as you like for up to five adults together.

FARES FOR SINGLE DAY TICKETS

1. Inner District (Innenraum)	
white zone	€ 5,80
2. Munich XXL (München XXL)	
white and green zones	€ 7,80
3. Outer District (Außenraum)	
green, yellow, red zones	€ 5,80
4. Entire Network (Gesamtnetz)	
all zones	€11,20
Fare for 3-day Inner District	

€ 14,30

white zone

For your trip Munich city / Munich airport you will need a stripe ticket (8 stamps) or an entire network ticket. Inner District includes the city centre (Marienplatz, Hauptbahnhof, ...) and Neue Messe Munich.

Once you have purchased your ticket, be sure to validate it by stamping it in the blue boxes you will see. This should be done prior to entering the station or immediately after boarding a bus or tram. To validate a stripe ticket (Streifenkarte) you must fold back the sections not required and insert the ticket into the validating machine (see below for number of required sections). Once you have validated your ticket, you can travel with any form of transport as long as you continue to travel in the same direction.

More information on the MVV, see: http://www.mvv-muenchen.de/en/homepage/ index.html

A subway map can be downloaded from: http://www.travelsthroughgermany.com/website2/munichsubway.htm

MUNICH, GERMANY

The celebrated capital of Bavaria, located in the foothills of the Alps, is one of the major cities in Europe. The 1,3 million inhabitants city is famous for its science and industry environment. Munich offers fantastic opportunities for shopping, museums, theatres, art galleries and sightseeing. Its October beer festival is world famous. Tourist attractions include the Bavarian beer and South German cuisine tradition, and many half-day or one-day excursion opportunities to the nearby Bavarian Alps or places such as the fairy-tale castle of Neuschwanstein or the beautiful Tegernsee.

In May the weather is likely to be warm and the sun is likely to shine, although rain is not impossible. Munich enjoys an outstanding public transportation system, and the modern Münchner Messe complex where CLEO[®]/Europe-IQEC 2013 and all Laser 2013 events will be held is easy to reach from the airport, from the city centre and from most parts of the city by U-Bahn and S-Bahn lines. Shuttle bus service to the Munich airport will be available as well during most of the Laser 2013 week.

MUNICH'S CHURCHES:

Munich is well-known for its many churches, among them:

▶ Frauenkirche (Church Of Our Lady), 1 Frauenplatz, Munich



Opening hours: 07:00-19:00, Thu 07:00-20:30, Fri 07:00-18:00 (no visits during the church services). Getting there: all S-Bahn train, U-Bahn lines 3/6 to Marienplatz

Alter Peter (Church Of St. Peter), 1 Rindermarkt, Munich

Opening hours: daily 07:30-19:00, Wed afternoon closed (no visits during the church services).

Opening hours of the tower: Mon-Sat 09:00-19:00, Sun and holidays 10:00-19:00 Getting there: all S-Bahn trains,U-bahn lines 3/6, Bus 52 to Marienplatz

▶ Heiliggeistkirche,

Tal 77, 80331 Munich, Tel. 089/22 44 02 Opening hours: 7.00-18.00 (Midday from 12.00-15.00 and no visits during the church services) Getting there: U-Bahn lines 3/6 to Marienplatz

MUNICH'S MUSEUMS:

▶ Glyptothek

Königsplatz 3, 80333 München, Tel. 089/28 61 00 Opening hours: Tue, Wed, Fr-Su 10:00-17:00, Thu 10.00-20.00, Mo closed Cost: Adult 3,50 €, Reduced 2,50 €, Sun 1,00 € Getting there: U-Bahn line 2 to Königsplatz The Glyptothek was commissioned by the Crown Prince (later King) Ludwig I of Bavaria alongside other projects as a monument to an-

cient Greece. It contains sculptures dating from the archaic age (around 650 BC) to the Roman era (around 550 AD).

Deutsches Museum

Museumsinsel 1, 80538 München, Tel: 089 / 2179-0 oder 2179 433 (recorded information)



Opening hours: daily 9:00-17:00 Getting there: all S-Bahn trains, to Isartor; Tram 18, to Museumsinsel The Deutsches Museum is the world's largest Museum of science and technology. The laws of nature, instruments and technological methods are presented on a scientifically high level using an entertaining way.

Also part of the Deutsches Museum: the Verkehrszentrum (featuring all kinds of vehicles from formula 1 car to bicycle) and the Flugwerft (focussing on airplanes)

- Deutsches Museum Verkehrszentrum Theresienhöhe 14a, 80339 München, Tel. 89/21 79 529
 Openinghours: daily 9:00-17:00, Thu 9.00-20.00
- Deutsches Museum Flugwerft Schleißheim Effnerstr. 18, 85764 Oberschleißheim, Tel. 089/315 71 40
 Opening hours: daily 9:00-17:00
 Getting there: S-Bahn line 1 to Oberschleißheim, Bus 292

 Neue Pinakothek
 Barer Str. 29, Entrance at Theresienstraße, 80799 München,
 Tel. 089/238 05-195



Opening hours: daily (except Mo) 10:00-17:00, Tue and Thu 10:00-20:00 **Getting there:** Tram 27 to Pinakothek The museum contains outstanding works of European art and sculpture from the late 18th to the beginning of the 20th century. Kunsthalle der Hypo-Kulturstiftung Theatinerstr. 15, 80333 München, Tel. 089/22 44 12
 Opening hours: daily 10:00-18:00, Thu till 21:00
 Getting there: U-Bahn lines 3/4/5/6 to Odeonsplatz or Tram 19 http://www.hypo-kunsthalle.de

Villa Stuck

Prinzregentenstr. 60, 81675 München, Tel. 089/45 55 51 25 **Opening hours:** Tue-Su 10:00-17:00, Tue till 21:00, Mo closed **Getting there:** U-Bahn line 4 to Prinzregentenplatz or U-Bahn line 5 to Max-Weber-Platz or Bus 53 or Tram 18 to Friedensengel http://www.villastuck.de/

▶ Bayerisches Nationalmuseum

Prinzregentenstr. 3, 80538 München, Tel. 089/211 24-1 **Opening hours:** Tue-Su 10:00-17:00, Mo closed, Thu 10:00-20:00 **Getting there:** Bus 53, Tram 17 to Haus der

Kunst/Nationalmuseum, U-Bahn lines 4/5 to Lehel

http://www.bayerisches-nationalmuseum.de/ Engl/b.htm

Münchner Stadtmuseum

Sankt-Jakobs-Platz 1, 80331 München, Tel. 089/233-223 70 and 233-255 86 **Opening hours:** Tue- Su 10:00-18:00 (Mondays closed)

Getting there: all S-Bahn trains to Marienplatz, U-Bahn line 3/6 to Marienplatz, U-Bahn lines 1/2 to Sendlinger Tor, Bus 52 to Viktualienmarkt, Bus 56 to Blumenstraße <u>http://www.muenchner-stadtmuseum.de/</u> <u>en.html</u>

Munich's famous places to be visited: Marienplatz



The Marienplatz is named according to the column of the Virgin Mary at its centre. The statue, erected in 1638 to celebrate the end of the Swedish invasion, is topped by a gilded statue of Virgin Mary which was sculpted earlier, in 1590 by Hubert Gerhard. At each corner of the column's pedestal is a statue of a putti, created by Ferdinand Murmann. The four putti's symbolize the city's overcoming of war, pestilence, hunger and heresy.

The place is famous for its carillon in the New Town Hall Tower (Glockenspiel im Rathausturm). This is the largest carillon in Germany, with near-lifesize figures performing the traditional Coopers' Dance and a jousting match. Three times a day at 11:00, 12:00 and 17:00.

The Marienplatz is a central place for the city's Founding Festival as well as for Fasching (carnival) celebrations and the popular Christmas market. The major restaurants, coffees and shops are located in this area. Shops are completely closed on Sunday.

▶ Königsplatz

Commissioned by Ludwig I, this neo-Classical square boasts the Propyläen gateway and the Glyptothek, a small but enchanting collection of Greek and Roman sculpture. Also the sight of an annual summer outdoor concert series.

Isartor (Isar Gate)

Most easterly of Munich's three remaining town gates, dating from the 14th century. Careful restoration has recreated the dimensions and appearance of the original structure. The Isar Gate accommodates the Valentin Museum.

Karlstor (Charles' Gate)

Westerly town gate from 14th century. Incorporated at the end of the 18th century into the square known as "Stachus" (officially Karlsplatz). Today it marks one end of Munich's primary pedestrian zone.

 Sendlinger Tor (Sendlinger Gate)
 Remaining towers of southerly fortifications from the 14th century.

BEER GARDENS



Nothing defines Munich more than its beer. You cannot talk about one without the other and you could never fully discover Munich without at least sampling its brews. Today the Munich breweries dispense 123 million gallons of beer annually. That is why many beer gardens are located in Munich:

Augustiner-Großgaststätte

Pedestrian Zone, Neuhauser Straße 16, 80331 Munich, Tel. 089/2 60 41 06. The Augustiner Großgaststätte is one of the

NOTES

more traditional Munich establishments, with a history that reaches back to 1328. The Augustin Brothers began brewing something heavenly in Augustiner's back rooms up until 1855 when the actual brewing plant was moved to Landsberger Straße. Today Augustiner Großgaststätte is a traditional beer hall with a small courtyard beer garden, smack dab in the middle of Munich's Marienplatz pedestrian zone. The food is great and the beer is the best.

Altes Hackerhaus

Sendlinger Str. 14, Munich, Tel. 089/2605026, http://www.hackerhaus.de **Opening hours:** 9 am to midnight daily. Located in Munich's newspaper publishing district and near Sendlinger Tor, Altes Hackerhaus has a long history involving two of the City's most renowned beer producing families, the Hackers and the Pschorrs. An entire wall in the restaurant is dedicated to the family tree, dating back to 1738 when the first Hackerhaus was founded. Highlights include a small but comfortable interior courtyard beer garden, and an outstanding restaurant serving excellent Bavarian fare. Although average by Munich high standards, Altes Hackerhaus benefits from its proximity to the Marienplatz (just a few blocks away) and easy access from the nearby U-Bahn stop at Sendlinger Tor.

▶ Chinesischer Turm (Chinese Tower)



One of Munich's largest beer gardens, and perhaps its most famous. With more than 7,000 seats around the famous erzat Chinese pagoda in the middle of Englischer Garten (900-acre park with shaded paths, brooks, ponds and swans), this place could hardly be overlooked. Location: Englischer Garten 3, open from 11:00 to midnight.

The park stretches from the centre of the city (near Odeonsplatz) to the northern city border. Access: The best way to reach it is the bus No. 54 from "Muenchner Freiheit" underground station (exit at stop "Chinesischer Turm")

Munich is very famous for its **theatres** but also for its **Olympic Park** (see <u>http://www.olympiapark.</u> <u>de/index.html</u>) located Spiridon-Louis-Ring 21, 80809 Munich, Tel.: 089/30 67 - 0, Fax: 089/30 67 - 22 22

Getting there: U-Bahn line 3 to Olympiazentrum



Further information on Munich is available at http://www.muenchen.de/ (8 languages available).

Conference Management

European Physical Society 6 rue des Frères Lumière • 68200 Mulhouse, France

This programme is edited by **P. Helfenstein** and **A. Wobst**.

Language

English is the official language of the conferences.

SHORT COURSES

CLEO®/Europe IQEC 2013 will present twelve Short Courses held in parallel. These courses will take place from Sunday 12 May 2013 to Thursday 16 May 2013 at the ICM (Rooms 12 and 22) or the Exhibition Halls (Rooms A218 and A221). The courses are at extra cost.

Advance registration is recommended in order to obtain the short course material. This material will not be available for purchase during the conference.

The courses are intended for engineers, scientists and graduate students with some general knowledge of optics and photonics who wish to improve their detailed understanding of the particular technical domains covered. Each course is scheduled in two parts: Course Part I (90 minutes), coffee break, Course Part II (90 minutes).

Detailed Programme:

▶ SUNDAY, 9:00-12:30, ROOM 12

Short Course 10:

Frequency Combs and Applications



Thomas Udem, Max-Planck-Institut für Quantenoptik, Garching, Germany

Course description:

A laser frequency comb allows the conversion of the very rapid oscillations of visible light of some 100s of THz down to frequencies that can be handled with conventional electronics. This capability has enabled

the most precise laser spectroscopy experiments yet, that allowed testing quantum electrodynamics, to determine fundamental constants and to search for possible slow changes of these constants.

Using an optical frequency reference in combination with a laser frequency comb has made it possible to construct all optical atomic clocks that are now outperforming even the best cesium atomic clocks. Direct frequency comb spectroscopy by employing individual modes of the comb may be used for recording broadband molecular absorption. While this has practical relevance for sensitive trace gas analysis, frequency combs may be converted to the extreme ultra violet where no single mode laser exists.

Therefore this method might allow high-resolution laser spectroscopy in this unexplored region for the first time. Frequency combs are also used to calibrate astronomical spectrographs and might reach an accuracy that is sufficient to observe the change of the expansion rate of the universe in real time and to find Earth-like extra solar planets. I will discuss the frequency comb principles in detail and present the various applications.

Benefits and Learning Objectives:

- A short history of the frequency comb.
- Basic properties both, in the time domain and frequency domain.
- Frequency metrology.
- Time domain applications.
- Practical issues for setting up and running a frequency comb.
- Various methods of direct frequency comb spectroscopy.
- XUV frequency combs.
- Applications such as all optical clocks and in astronomy.

Intended Audience:

This course is intended to be beneficial for graduate students and industrial and academic researchers who plan to work with frequency combs.

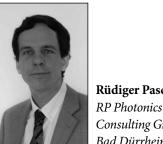
Biography:

Thomas Udem studied physics at the University of Giessen/Germany and at the University of Washington in Seattle/USA. In 1993 he received his diploma from the University of Giessen. After that he was working towards the PhD at the Max-Planck Institute of Quantum Optics in Garching/Germany, which he received from the Ludwigs Maximilians Universität Munich/Germany in 1997. Since then he has been working at the Max-Planck Institut of Quantum Optics and at the National Institute for Standards and Technology in Boulder/USA. In 2004 he received his habilitation from the Ludwigs Maximilians Universität Munich/Germany and became a fellow of the Max-Planck Institute of Ouantum Optics. His scientific work includes precision optical metrology that involves simple atomic systems such as hydrogen, opto-mechanics and precision spectroscopy with ion traps and precision astronomy. In addition he is conducting research that aims at making XUV radiation from high harmonic generation useful for high-resolution spectroscopy. In 2006 he received the Röntgen Award of the University of Giessen. He is a fellow of the Optical Society of America and the American Physical Society as well as a member of the German Physical Society.

▶ SUNDAY, 9:00 - 12:30, ROOM 22

Short Course 8:

Fibre Amplifiers



Rüdiger Paschotta,

Consulting GmbH, Bad Dürrheim, Germany

Course description:

This course begins with a general introduction to laser amplifiers, explaining the basic physical principles and properties of amplifiers, including e.g. four-level vs. quasi-three-level gain media, gain saturation in steady state and in pulse amplification, and amplified spontaneous emission (ASE). It then continues with more specific details for fibre amplifiers, including an overview on different amplifying ions and host media, double-clad fibres, mode areas, effective transition cross sections, influence of the pump wavelength, and ASE limitations. After a discussion of continuous-wave amplification, specific issues of pulse amplification will be discussed for the pulse duration regimes of nanoseconds, picosecond and femtoseconds. Finally, a brief overview on the physical modeling of amplifiers will be given. In order to obtain an improved qualitative and quantitative understanding of various effects, various case studies supported by numerical simulations with the software RP Fiber Power will be presented. These demonstrate, for example, the typical strong saturation effects, characteristics of ASE, differences between forward and backward pumping, issues of cladding pumping, and challenges for emission of Yb-doped amplifiers at short wavelengths.

Benefits and Learning Objectives:

- ·Understand the basic principles of laser amplifiers.
- Know the key properties of rare-earth-doped fibres, such as different dopant ions, effective transition cross sections, effective mode area, gain saturation characteristics, etc.
- Understand various techniques for alleviating various detrimental effects.
- Identify the key limitations for the performance of continuous-wave and pulsed amplifiers, and roughly quantify the typically possible performance figures.

Intended Audience:

This course is intended for researchers and industry people with a basic background in laser technology, but not necessarily with a detailed expertise on optical amplifiers or fibre technology.

Biography:

Rüdiger Paschotta is an expert in laser physics, nonlinear optics and fiber technology. He originally had a career as a researcher, working at the University of Konstanz (Germany), the Optoelectronics Research Center (UK), the University of Paderborn (Germany) and ETH Zurich (Switzerland). Since mid 2005, he is working full time in his company RP Photonics Consulting GmbH, which moved to Bad Dürrheim, Germany, in 2010. He is providing technical consultancy primarily for companies being active in laser technology and related fields. Also, RP Photonics offers simulation software for fiber amplifiers and lasers as well as for various other fields in photonics.

Rüdiger Paschotta became well known also as the author of the open-access Encyclopedia of Laser Physics and Technology.

▶ SUNDAY, 14:30 – 18:00, ROOM 12

Short Course 4:

TECHNICAL PROGRAMME

Applications of Photonic Crystals



Thomas Krauss, University of St. Andrews, St. Andrews, United Kingdom

Course description:

Photonic crystals came to the fore in the early 90's due to their ability to confine light and control its flow to an unprecedented degree. The field has since made major technological advances and has evolved from a scientific curiosity to the stage where many interesting applications can be considered. The presence of photonic crystals is now felt across the entire photonics spectrum and any major photonics conference will feature them in a variety of sessions, ranging from LEDs for light extraction to solar cells for light trapping, to photonic circuits for low power optical switching and modulation, to enhanced nonlinear effects, and to strong confinement effects for optical biosensing and for quantum optics. I will provide the conceptual background for these applications. After establishing their band structure as the main framework for describing the properties of photonic crystals, I will explore the key properties that make them unique and that allow us to tailor their properties for specific applications, addressing questions such as, "What determines the wavelength response and bandwidth?";"Why do photonic crystal cavities exhibit such a high Q-factor?"; "What is slow light and why is it interesting?";"How can we use photonic crystals to couple light in and out of high index materials?"

Benefits and Learning Objectives:

- Understand the photonic band structure and how it relates to the physical lattice.
- Appreciate how the band structure relates to photonic functionalities and applications.
- Determine the wavelength response and bandwidth of a photonic crystal structure.
- Appreciate the origin of the strong confinement offered by photonic crystals and how extremely high Q-factors can be created in very small volumes, *e.g.* for strong light-matter interaction and for quantum optics.

- Appreciate the concept of slow light waveguides and its applications.
- Be able to design grating couplers and relate their properties to LEDs for light extraction and to solar cells for light trapping.
- For each application, appreciate the unique advantages that photonic crystals may offer.

Intended Audience:

The course is appropriate for researchers and applications engineers who have heard about photonic crystals and are considering them for specific applications, but need to understand better how they work and what functionalities they might be able to offer. The course is conceptual and intuitive and only uses mathematical tools where absolutely necessary. It only assumes an appreciation for the major concepts in photonics, such as optical modes, phase and interference effects, as well as solid-state concepts such as crystal lattices, dispersion curves and band structures.

Biography:

Thomas F. Krauss has moved from St Andrews to York University where he has started a full-time position in Jan 2013. He is in the process of setting up a State-of-the-Art nanofabrication laboratory in the York Nanocentre that is due to be completed April 2013. Krauss pioneered the development of planar photonic crystals worldwide in the 1990s and he is one of the leading researchers in the field, with 240 refereed journal publications, >900 annual citations and an "h"-factor of 50. He gives 10-15 invited presentations and chairs 2-3 conferences per year. He has led industrial projects (sponsored e.g. by Intel and Osram) and has coordinated a number of EU projects, e.g. FP5-PICCO (2000-2003) and FP6-SPLASH (2007-2010). He is a Fellow of the Royal Society of Edinburgh, the Optical Society (OSA) and the Institute of Physics.

▶ MONDAY, 14:30 – 18:00, ROOM A218

Short Course 9:

High Harmonic Generation and Attosecond Science



John Tisch, Imperial College, London, United Kingdom

Course description:

The course aims to provide an overview of the exciting topic of High Harmonic Generation (HHG) and Attosecond Science from the perspective of a leading experimentalist working in the field. Specifically, the course participants will learn about the relation of HHG to other "strongfield" processes; enabling ultrafast laser technology for HHG; introduction to the theory of HHG in terms of both the single-atom response and phase-matching; details on experimental implementations of HHG; HHG dependencies on key experimental parameters; key properties of HHG radiation and comparison to other short wavelength sources; the central role of HHG in Attosecond Science, including generation and characterisation of attosecond pulse trains and isolated attosecond pulses; scientific applications of HHG, including diffraction imaging, ultrafast spectroscopy, seeding of free-electron lasers, attosecond-resolution measurements; current challenges and future perspectives for HHG.

Benefits and Learning Objectives:

• Recognise that HHG is an important short-wavelength light generation phenomenon that can arise in a strong-field laser matter interaction.

- Appreciate the enabling laser technology and understand the pivotal role that HHG plays in Attosecond Science as a proven route to generating attosecond duration light pulses.
- Comprehend the basic physical principles of HHG in terms of both the single emitter and macroscopic (phase-matching) responses.
- Understand the semi-classical 3-step recollision model of HHG.
- Be familiar with the various experimental implementations of HHG and gain an appreciation of the dependencies on key experimental parameters.
- Learn about the key properties of HHG radiation and how it relates to other short-wavelength sources.
- Gain an appreciation of the scientific applications of HHG, especially in attosecond science.
- Obtain a perspective of the current state of the art of HHG and an appreciation of important recent developments as well as trends for future research.

Intended Audience:

This course is aimed at researchers with little or no background in high harmonic generation or attosecond science, as well as those more familiar with the topic, who wish to improve their understanding and keep abreast of recent developments in the field and learn about some of the experimental details that don't appear in journal articles!

Biography:

John W.G. Tisch is a Professor of Laser Physics at the Blackett Laboratory, Imperial College London. His research interests are ultrafast laser physics and high-intensity laser-matter interactions, especially the generation and application of high-power femtosecond laser pulses to generate coherent x-ray pulses of attosecond duration. He is a recognised world-authority on High

Harmonic Generation (HHG) and Attosecond Science and Technology and joint founder of the UK Attosecond Programme. Tisch has been an elected member of the Commission on Atomic, Molecular, and Optical Physics of the International Union of Pure and Applied Physics, and has also served on a number of international conference committees, including High Field Short Wavelength and CLEO. He was one of the Founding Chairs of the international conference series "Ultrafast Dynamical Imaging of Matter" and is Joint General Chair for the conference Ultrafast Optics IX. He is a member of the international Scientific Advisory Committee for the Extreme Light Infrastructure (ELI) European project and a Fellow of the Institute of Physics. He has dual Swiss and Australian nationality and is married with two children. In his spare time he enjoys competitive running, cycling, tennis, carpentry and playing trumpet and piano.

▶ MONDAY, 14:30 – 18:00, ROOM A221

Short Course 6:

Practical Quantum Optics



Gerd Leuchs, University of Erlangen, Erlangen, Germany

Course description:

What does it mean if optics is quantum? Is hardcore quantum optics solely concerned with the study of fundamental physics questions or is it also useful for practical applications? The course will give answers to these questions. An introduction to quantum aspects in optics will be given and experimental demonstrations will underline some of the counter intuitive quantum phenomena. The generation, propagation and detection of quantum light are central topics. Practical quantum optics is all about noise, noise reduction and over coming established sensitivity limits in interferometry, imaging, communication and sensing. Such applications of modern quantum optical technologies will be addressed in detail. Mathematical descriptions of the light field and its interaction with matter will be given whenever necessary but emphasis is put on practical considerations. Possible limits that quantum effects may impose on or opportunities that they may offer for applications in industry in the foreseeable future will be discussed.

Experimental demonstrations at the course: Demonstration of the different properties of classical and quantum noise.

Demonstration of the strong correlations of photon pairs generated in parametric down conversion.

Benefits and Learning Objectives:

- Understanding the quantum limitations in optics such as in sensing, amplification and phase conjugation and appreciating the opportunities.
- Learn the basic tools for describing quantum noise.
- Acquire the practical skills for experimenting with non classical light generation, characterization and control.

• Learn to assess the potential benefit when attempting to exploit quantum aspects in standard optical scenarios including telecom applications.

Intended Audience:

The course is designed to appeal to an audience without prior experience in quantum optics as

well as to researchers who want to refresh and be updated with current trends. This course is intended to be beneficial for graduate students and industrial and academic researchers alike having a general interest in quantum optics and its practical application.

Biography:

Gerd Leuchs studied Physics and Mathematics at the University of Cologne until 1975 and finished with the diploma degree. In 1975 he moved to the University of Munich as research associate in the group of Prof. Dr. H. Walther. His PhD-thesis in 1978 deals with the fine structure splitting of sodium Rydberg atoms. From 1979 to 1980 he was visiting fellow at the University of Colorado in Boulder, USA. In 1982 he received the Habilitation degree at the University of Munich on multiphoton processes in atoms. 1980 he obtained a Feodor-Lynen Stipend of the Alexander-von-Humboldt Foundation and, from 1983 to 1985, a Heisenberg-Fellowship of the Deutsche Forschungsgemeinschaft, which he used to work at JILA and NIST in Boulder. From 1985 to 1989 he led the gravitational wave detection group of the Max-Planck-Society in Garching. There one focus of his research was the generation of quantum noise reduced light beams and their application towards the improvement of the sensitivity of laser interferometers. From 1990 to 1994 he served as Technical Director of Nanomach AG at Buchs in Switzerland. After having spent 5 years in industry he took over the chair of optics at the University of Erlangen-Nuremberg and continued to do research on quantum noise reduced light, this time focussing on soliton pulses in optical fibers including world first demonstrations. This led to the generation of entangled intense beams with applications in quantum information and quantum key distribution. He discovered, that quantum cryptography

with intense coherent beams has no in principle distance limitation that came as a surprise. Since 1994 he is Professor of Physics at the University Erlangen-Nuremberg. In 2000 he started the Center of Modern Optics at Erlangen. In 2004 he was appointed Fellow of the Optical Society of America and Fellow of the Institute of Physics, UK. In 2005 he won the Quantum Electronics Prize of the European Physical Society and was appointed member of the German Academy of Science Leopoldina. From 2004 to 2008 he served as director of the 'Max Planck Research Group of Optics, Information and Photonics'. After two successful scientific evaluations the Max Planck Society decided to establish the new Max Planck Institute for the Science of Light at Erlangen and since January 2009 Gerd Leuchs is one of the directors of the Max-Planck Institute for the Science of Light (MPL).

Gerd Leuchs published more than 250 publications in peer reviewed scientific journals and numerous invited papers; he is editor of 3 books and inventor of 10 patents. In 2012 he received the cross of merit of the Federal republic of Germany. Since 2012 he is Adjunct Professor at the University of Ottawa in Canada.

► TUESDAY, 14:00 – 17:30, ROOM A218

Short Course 12:

TECHNICAL PROGRAMME

Ultrafast Lasers and Applications



Frank Wise, Cornell University, Ithaca, United States

Course description:

The course will provide a self-contained overview of ultrafast optical techniques. After a brief review of the fundamental linear and nonlinear processes, the propagation and generation of ultrashort light pulses will be covered. Pulse formation in important solid-state and fiber lasers and amplifiers will be described. The achievable performance of each device will be discussed along with the factors that limit the performance. Applications to the generation of electromagnetic pulses in new frequency regimes (terahertz and ultrafast x-rays pulses, e.g.) will be touched on briefly. Techniques for the measurement of short pulses will be described. Example applications will include studies of ultrafast phenomena in solids and molecules, nonlinear microscopies for biological imaging, and generation of frequency combs.

Benefits and Learning Objectives:

Students will

- Learn how linear and nonlinear wave processes govern the formation and propagation of ultrashort pulses.
- Understand techniques for measuring ultrashort pulses.
- Become familiar with the key parameters of practical short-pulse sources.
- Learn the basic features of ultrafast-optical measurements.
- Gain an overview of the field of ultrafast science, including recent developments.

Biography:

Frank Wise received a BS degree from Princeton University, an MS degree from the University of California-Berkeley, and a PhD degree from Cornell University. Since 1989 he has been on the faculty in Applied Physics at Cornell. He has 25 years of experience developing sources of ultrashort pulses and using them to measure ultrafast phenomena in semiconductors, molecules, nanostructures, and glasses. He is an author or co-author on about 200 papers in refereed journals and holds 10 patents. Highlights of his research include the first time-domain observation of intramolecular vibration. In recent years his group has developed new pulse-shaping techniques for femtosecond fiber lasers, which have led to order-of-magnitude increases in the pulse energy over prior designs. This work includes lasers that support self-similar evolution or recently-identified dissipative solitons. Wise developed the first commercial femtosecond laser, in 1986, and this led to the creation of Clark Instrumentation, Inc. (now Clark-MXR, Inc.) to market femtosecond lasers and associated instruments. His group is now transferring ultrafast fiber-laser technology to industry.

▶ TUESDAY, 14:00 – 17:30, ROOM A221

The course will discuss both fundamentals and

applications of silicon photonics. Silicon photon-

ics is rapidly emerging as an attractive platform

for realizing cheaper photonic integrated circuits.

Active optical cables based on silicon photonics

are now already being employed in some of the

Short Course 11:

Silicon Photonics



Dries Van Thourhout,

Ghent University, Ghent, Belgium highest performance supercomputers and several major semiconductor companies have announced activities in this domain.

The course will start with explaining the reasons for this sudden interest and the possible advantages of the platform. Next the fundamentals of the waveguide platform and its performance will be discussed (straight and bend waveguides, filters, fiber-chip coupling ...). Subsequently we will also discuss more advanced devices such as detectors, high-speed modulators and lasers. In each case we will also touch upon the problems that still need to be resolved and give a comprehensive overview of the current state-of-the-art.

In a second part we will discuss on the integration in a standard CMOS processing environment and on different approaches to integrate silicon photonics circuits with optical circuits.

Finally we give a review of current and future applications, in optical communications, optical interconnect and optical sensing.

The course will contain extensive references for further study.

Benefits and Learning Objectives:

• Understand why silicon photonics forms a promising platform for realizing densely integrated photonic integrated circuits.

• Understand the operation of basic (splitters, filters, couplers) and more advanced (detectors, modulators, lasers) silicon photonics devices.

- Understand the main challenges still to be resolved.
- Get insight in the different approaches to combine silicon photonics with electronics.
- Get insight in the fabrication technology and in possibilities for getting processed devices in a cost-effective way, *e.g.* though the epixfab multiproject wafer service.
- Understand for what type of applications silicon photonics may form a suitable technology platform.

Intended audience:

The course targets members from academia and industry who want to get a comprehensive review of current state of the art in silicon photonics and get insight in its advantages and challenges. It is intended for researchers with little or no background in silicon photonics as well as those with a more specialist view who want to get a broader understanding of the emerging developments in the field. The course in particular could benefit those wanting to get insight in the question "is silicon photonics the solution for my problem?"

Biography:

Dries Van Thourhout got his PhD in applied physics from Ghent University in 2000 and subsequently spent 2 years at Bell Laboratories, Crawford Hill, NJ US. Currently he is a professor at Ghent University and associated with imec, Europe's largest nano-electronics research centre. He has extensive experience in integrated optics, silicon photonics and heterogeneous integration on silicon photonics. He has worked on fundamental research topics (such as optomechanics and nanocrystals) but has also been involved in more application-oriented projects such as the EU projects WADIMOS (optical interconnect) and SMARTFIBER (silicon photonics read out chip for fibre bragg sensing), which he is coordinating. He is also strongly involved in the EU funded integrated project HELIOS, which covers the whole value chain of silicon photonics. He has authored or coauthored over 150 journal publications, over 300 conference contributions and over 10 patents. He has given tutorials on silicon photonics at major conferences such as OFC, ACP and CLEO. He is associated reviewer for IEEE PTL and holder of an ERC starting grant. In 2012 he was awarded with the "Laureate of the Academy" prize of the Belgian Academy of Sciences.

▶ WEDNESDAY, 8:30 – 12:00, ROOM A218

Short Course 1:

Ultrashort Pulse Characterization



Selçuk Aktürk, Istanbul Technical University, Istanbul, Turkey

Course description:

The course will start with a quick introduction to Ultrafast Optics, Nonlinear Optics and fundamentals of pulse characterization. Then, characterizations methods from the most basic (*i.e.* autocorrelations) to recent and advanced ones will be covered in detailed. Applicability, advantages and limitations of various approaches will be reviewed.

Specifically, the course participants will learn about the basic principles and limitations of autocorrelation and interferometric approaches; complete intensity and phase measurement using more advanced techniques such as Frequency Resolved Optical Gating (FROG), Spectral phase interferometry for direct electric-field reconstruction (SPIDER) and related methods. Particular considerations for measurements in extreme cases such as near-single-cycle regime and very complicated temporal structures will be reviewed. Finally, extensions of the methods to include spatial evolutions and complete spatio-temporal pictures will be covered.

Benefits and Learning Objectives:

- Understand the basic principles of Ultrafast Optics and Nonlinear Optics.
- Understand the basics of ultrashort pulse characterization.

- Learn the basics of autocorrelation and Interferometric autocorrelation.
- Learn the basics of intensity and phase measurements with more advanced techniques.
- Obtain a detailed understanding, applicability and limitations of commonly used methods.
- Identify the critical issues, relevant to measurements of pulses in the single-cycle regime.
- Obtain an understanding of spatio-temporal dynamics of femtosecond pulses.
- Learn the necessary techniques for spatio-temporal pulse measurements.
- Obtain the relevant practical skills for building of pulse characterization devices.
- Obtain an appreciation for recent trends and advances in the area of pulse characterization.

Intended audience:

This course is intended for researchers working with fundamental or applied aspects of Ultrafast Optics, in both academic and industrial institutions. Basic background and familiarity in Ultrafast Optics will be sufficient. Ultrashort pulse characterization methods will be covered from basic concepts to advanced techniques.

Biography:

Selçuk Aktürk received his BS degree in Physics from Bilkent University in Ankara, Turkey (2001), and PhD degree in Physics from Georgia Institute of Technology in Atlanta, Ga, USA (2005). He worked as a post-doc researcher at GaTech and Research Scientist at Swamp Optics LLC until 2006. He continued his post-doctoral research at Laboratoire d'Optique Appliquée, Ecole Polytechnique – ENSTA in Palaiseau, France from 2006 to 2009. Since April 2009, he is at the Istanbul technical University, Department of Physics, currently at Associate Professor level.

Selçuk Akturk's research activities involve ultrashort pulse characterization in time and space, of interactions of high intensity laser pulses with matter, and laser material processing. He co-authored about 40 peer-reviewed journal articles and numerous conference proceedings. His achievements were recognized by several awards from institutions including Georgia Institute of Technology, Turkish Academy of Sciences, The Abdus-Salam International Centre for Theoretical Physics and International Commission for Optics. He is a member of Optical Society of America and SPIE.

▶ WEDNESDAY, 8:30 – 12:00, ROOM A221

Short Course 3:

Optical Parametric Oscillators



Majid Ebrahim-Zadeh, The Institute of Photonic Sciences (ICFO), Barcelona, Spain

Course description:

This course provides an overview of optical parametric oscillators (OPOs), from basic operation principles to advanced devices. The course will begin with a description of the fundamental concepts in nonlinear optics and frequency conversion, followed by a discussion of OPO devices, an overview of the latest advances in OPO technology, and applications. The discussion will cover OPOs operating in all temporal regimes, from the continuous-wave (cw) to the ultrafast femtosecond time-scales.

Specifically, the course participants will gain knowledge of the basic principles of nonlinear frequency conversion and optical parametric generation; phase-matching, amplification and tuning; OPO design issues, including nonlinear material and pump laser selection criteria; OPO operation in different time-scales, generic device architectures, pumping and resonance configurations; cw OPOs: singly-resonant, pump-enhanced, doubly- and triply-resonant oscillators, pump power threshold and frequency behaviour, frequency tuning and control, solid-state, fiber, and semiconductor disk laser pumping, visible to mid-IR generation, novel device architectures; pulsed OPOs: operating principle, threshold condition, compact all-solid-state oscillators, highand low-energy devices, single-mode operation, UV to mid-IR and THz generation; synchronously-pumped OPOs: picosecond OPOs: high-repetition-rate cw and pulsed oscillators, solid-state, Ti:sapphire and fiber laser pumping, birefringent and quasi-phase-matched devices, UV to mid-IR generation; femtosecond OPOs: Ti:sapphire, solid-state, and fiber-pumped devices, collinear and noncollinear pumping, birefringent and quasi-phase-matched oscillators, spectral and temporal control, UV to mid-IR generation; applications of OPO devices in spectroscopy, trace gas sensing, imaging, frequency synthesis and comb generation; commercial developments in OPO technology.

Benefits and Learning Objectives:

TECHNICAL PROGRAMME

- · Understand the basic principles of optical parametric generation and amplification of light.
- · Learn the operating principles of optical parametric devices, in particular optical parametric oscillators (OPOs).
- Obtain an understanding of nonlinear gain, phase-matching, operation threshold, device architectures, resonator configurations, tuning, spectral and temporal behaviour.
- · Identify the critical issues in the design of optical parametric devices, including material and

pump laser selection.

- · Acquire the required skills and apply the necessary procedures in the practical implementation of OPO devices in cw, pulsed, picosecond and femtosecond operation.
- · Learn the necessary techniques for spatial, spectral, and temporal control of OPO devices in differerent operating regimes.
- · Gain a perspective of current OPO technology, the important recent developments in the field, as well as novel and emerging applications of OPO sources.

Intended Audience:

This course is intended for researchers with little or no background in OPOs, as well as those more familiar with the subject area, who wish to enhance their understanding and update their knowledge of the latest developments in OPO device technology. The course will benefit graduate students and other industrial and academic researchers already involved or in early stages in OPO development.

Biography:

Majid Ebrahim-Zadeh is an ICREA (Institucio Catalana de Recerca i Estudis Avancats) Professor at ICFO-The Institute of Photonic Sciences, Barcelona, Spain. He has been active in the advancement of nonlinear frequency conversion technology and parametric sources for over 20 vears. His contributions to the field have led the realization of new generations of innovative light sources from the UV to mid-IR and in all timescales, from continuous-wave to ultrafast picosecond and femtosecond regime. He has published over 450 journal papers and peer-reviewed communications, including 70 invited papers and 11 post-deadline papers at major international conferences. He has edited 2 books and has authored 11 major invited book chapters and reviews in

volumes such as Science, OSA Handbook of Optics, Springer, Handbook of Laser Technology and Applications, Laser and Photonics Review, and Phil. Tans. Roy. Soc. A (2003). He has been a regular instructor of the short course on OPOs at CLEO/USA since 1997 and at CLEO/Europe since 2007.

Majid Ebrahim-Zadeh has served more than 40 times on the technical, organizing, advisory, and steering committees of major international conferences and has chaired 3 international conferences. He has served as advisory editor of Optics Letters, guest editor of J. Opt. Soc. Am. B, topical editor of Optics Letters, associate editor of Advances in Nonlinear Optics, and associate editor of IEEE Photonics Journal, and serves as the current Chair of Nonlinear Optics Technical Group at OSA. Majid Ebrahim-Zadeh is the co-founder, president and chief scientist of Radiant Light (www.radiantis.com), a company he created from his research laboratory in Barcelona in 2005. He is a recipient of Innova Prize for technology innovation and enterprise (Spain: 2004), Berthold Leibinger Innovationspreis (Germany: 2010), and a fellow of OSA and SPIE.

▶ WEDNESDAY, 14:00 - 17:30, ROOM A218

Short Course 2:

Optical Coherence Tomography and Applications



Wolfgang Drexler, Medical University

Vienna, Vienna, Austria

Course description:

This course aims to provide a comprehensive, focused overview of optical coherence tomography (OCT) from basic operation principles to advanced state-of-the-art technology. The course introduces OCT technology and applications not only from an optical and technological viewpoint, but also from biomedical and clinical perspectives. The different parts of the course are presented in a style comprehensible to a broad audience. The course will begin with a discussion of fundamental OCT concepts, key technological components (broad bandwidth and swept source laser technology, high speed detection technologies) parameters (imaging resolution, imaging speed, penetration depth, imaging sensitivity), critical design issues and data analysis and signal post processing in OCT leading to a review of the current state-of-the-art OCT technologies (commercial and scientific).

Multispectral functional extensions of OCT (Doppler OCT, Doppler angiography, spectroscopic OCT, OCT elastography, optophysiology) as well as contrast enhanced OCT (polarization sensitive OCT, contrast agents in OCT), hybrid multimodal OCT imaging approaches (adaptive optics OCT; OCT/multiphoton microscopy; OCT/photoacoustic tomography; OCT/fluorescence imaging; OCT/ Coherent Anti-Stokes Raman Scattering) and their (bio)medical and nonmedical applications will also be presented. Finally OCT technology transfer, OCT market and the economic impact of OCT as well as possible future directions of OCT will be discussed.

Benefits and Learning Objectives:

•Understand the basic principles of OCT (time domain OCT, spectral/Fourier domain OCT, swept source OCT, full-field OCT, digital holoscopy)

- Obtain an appreciation for limitations of different OCT technologies
- Gain a perspective of current light source technologies in OCT
- Obtain an overview of state-of-the-art OCT developments including ultrahigh speed and resolution, functional, contrast enhanced, hybrid multi-modal OCT
- Presentation of biologic, clinical and nonmedical applications of OCT
- Get insight into the OCT market and technology transfer as well as possible future directions

Intended Audience:

This course is intended for researchers with background in optics, biophotonics and optical imaging (especially optical coherence tomography - OCT) as well as for those familiar with the subject area who wish to enhance their understanding and update their knowledge of the emerging developments in this field. The course will benefit researchers in both industry and academia and will be of interest not only to physicists, scientists and engineers, but also to biomedical and clinical researchers from different medical specialties.

Biography:

Wolfgang Drexler received his MS and PhD in Electrical Engineering in 1991 and 1995, respectively, at the Technical University of Vienna, Austria. From 2006 to 2009 he was a Full Professor of Biomedical Imaging at the School of Optometry and Vision Sciences at Cardiff University, Wales, UK. Since 2010 he is an Honorary Distinguished Professor at Cardiff University, UK. Since October 2009 he is a Full Professor of Medical Physics and the Head of the Center for Medical Physics and Biomedical Engineering at the Medical University of Vienna, Austria and is also Director of the Christian Doppler Laboratory for Laser Development and their Application in Medicine since 2011. He spent 2 years at the Massachusetts Institute of Technology (MIT), Cambridge, USA, received the Austrian START Award from the Austrian Science Fund in 2001, the COGAN Award from ARVO in 2007, the Fear Memorial Award in 2008, the Gabriel Coscas Medal in 2009, the EVER Acta Silver Medal in 2010, the DOG's Innovator's Award in 2011 as well as the Edridge Green Medal from The Royal College of Ophthalmologists in 2012.

He is a member of the Austrian Academy of Science and has published more than 155 publications (including Nature Medicine and PNAS) in peer reviewed journals and is first, co-author or corresponding author of more than 400 conference proceedings or abstracts resulting in a h-index of 49. His group's publications have been cited more than 7700 times in the last 10 vears with more than 900 citations in years 2008, 2010 and 2011. He is (Co)Editor of 11 books, including "Optical Coherence Tomography: Technology and Applications" (2008). Wolfgang Drexler gave more than 160 invited or keynote talks since 2000 and has accomplished more than € 8.7 million research grant income in the last decade.

▶ WEDNESDAY, 14:00 – 17:30, ROOM A221

Short Course 7:

Laser Tweezers and Applications



Miles Padgett, University of Glasgow, Glasgow, United Kingdom

Course description:

This course is intended for researchers with little or no background in Laser Tweezers as well as for those familiar with the subject area wishing to enhance their understanding and update their knowledge of the field. The course will benefit researchers in both industry and academia.

The course will provide an overview of Laser Tweezers starting from their basic operational principles to advanced systems that use spatial light modulators to trap and move many objects simultaneously. The course will cover the fundamental concepts and the critical design issues for anyone wishing to build or modify a tweezers system.

Specifically, the course participants will learn about the pros and cons of various optical configurations; strategies for multi-trap control; algorithms for holographic beam formation; user interfaces and options for high-speed position and force measurements. A guide will be given to free to down-load software for hologram design and spatial light modulator control.

We hope also to exhibit a commercial system with input from the suppliers to answer questions regarding possible customisation.

Benefits and Learning Objectives:

• Understand the basic principles of Laser Tweezers.

- Compare and contrast the various configurations for optical manipulation.
- Understand the benefits and restrictions of different trap steering approaches.
- Consider the pros and cons of various algorithms for hologram calculation and control of spatial light modulators.
- Review the various options for tweezers-human interface.
- Examine how high-speed video can be employed to give both force and position measurement.

• Consider various example applications and what tweezers can do that other technologies cannot.

Biography:

Miles Padgett is Professor of Optics in the School of Physics and Astronomy at the University of Glasgow. He heads a 15-person team covering a wide spectrum from blue-sky research to applied commercial development, funded by a combination of Miles Padgett is Professor of Optics in the School of Physics and Astronomy at the University of Glasgow. He heads a 15-person team covering a wide spectrum from blue-sky research to applied commercial development, funded by a combination of government charity and industry. In 2001 he was elected to Fellowship of the Royal Society of Edinburgh. In 2007/8 he was a Leverhulme Trust, Royal Society Senior Research Fellow. From 2009 he holds a Royal Society/Wolfson Merit Award. In 2011 he was appointed to the Kelvin Chair of Natural Philosophy and became a Fellow of the Optical Society. In 2008 Padgett was awarded the UK Institute of Physics, Optics and Photonics Division Prize for a "distinguished record of achievement in research that spans fundamental aspects of optical angular momentum and applied optical sensors". In 2009 Padgett was awarded the Institute of Physics, Young Medal "for pioneering work on optical angular momentum". Padgett is recognised for his studies in the field of optics and in particular of optical angular momentum. His contributions include an optical spanner for spinning micron-sized cells, use of orbital angular momentum to increase the data capacity of communication systems and an angular form of the quantum Einstein-PodolskyRosen (EPR) paradox. With respect to Optical Tweezers, Padgett's Group and their collaborators have focused on the use of spatial light modulators for forming multiple traps coupled to various user interfaces for high-speed interactive use.

▶ THURSDAY, 8:30 – 12:00, ROOM A218

Short Course 5:

Laser Beam Analysis, Propagation and Spatial Shaping



James R. Leger, University of Minnesota, Minneapolis, United States

Course description:

The propagation and focusing properties of real laser beams are greatly influenced by beam shape, phase distortions, degree of coherence, and aperture truncation effects. The ability to understand, predict, and correct these real-world effects is essential to modern optical engineering. Attendees of this course will learn a variety of techniques for measuring and quantifying the important characteristics of real laser beams, be able to calculate the effects of these characteristics on optical system performance, and explore a variety of beam shaping techniques to optimize specific optical systems.

TECHNICAL PROGRAMME

The course starts with a basic and intuitive description of Gaussian beam characteristics from an ideal laser. These concepts are extended to non-Gaussian beams (*e.g.* high-order Hermite Gaussian beams, top-hat shapes, laser arrays, and non-diffracting beams) and the relative merits of various beam shapes are discussed. Beam characterization methods such as M2, Strehl ratio, and TDL are reviewed. Simple expressions for estimating the effects of laser aberrations and coherence on beam focusing and propagation are reviewed. Coupling of light into single and multi-mode fibres, as well as far-field light concentration limits are explored as real-world examples. The constant radiance theorem and étendue are employed as engineering tools to optimize optical design, and simple analytical tools are presented to estimate the effects of spatial beam shape, phase aberrations, and coherence on beam concentration. The course ends with a description of internal and external cavity beam shaping techniques using phase modulation (*e.g.* diffractive optical methods) and polarization modulation (*e.g.* cylindrical vector beams).

Benefits and Learning Objectives:

This course will enable participants to:

- Measure the quality of a laser beam using several methods.
- Interpret the meaning of various laser specifications.
- Understand Gaussian laser beam properties from an intuitive standpoint.
- Predict the propagation and focusing properties of non-ideal and aberrated laser beams.
- Determine the concentration limits of a light field.
- Design optimal beam concentration optics.
- Compare different beam profiles for specific applications and calculate ideal performance.
- Design beam shaping optics using polarization and phase manipulation.

Intended Audience:

This course is designed to provide laser engineers, optical system designers, and technical management professionals with a working knowledge of laser beam characterization, analysis, and modification. Physical and intuitive explanations of most topics are designed to make the concepts accessible to a wide range of participants.

Biography:

James Leger received his BS degree in Applied Physics from the California Institute of Technology (1974) and Ph.D. degree in Electrical Engineering from the University of California, San Diego (1980). He has held previous positions at the 3M Company, and MIT Lincoln Laboratory. He is currently professor of Electrical Engineering at the University of Minnesota, where he holds both the Cymer Professorship of Electrical Engineering and the Mr. and Mrs. George W. Taylor distinguished professorship. His research group is studying a wide variety of optical techniques, including laser mode control and beam shaping techniques, spectral and coherent laser beam combining, optical metrology, solar energy optics, design of nonclassical imaging systems, and microoptical engineering. James Leger is currently serving as deputy editor of Optics Express, and has recently served as a member of the CLEO (US) steering committee and the Board of Directors of the Optical Society of America. James Leger has been awarded the 1998 Joseph

Fraunhofer Award/Robert M. Burley Prize by the Optical Society of America, the 1998 Eta Kappa Nu outstanding teaching professor award, the 2000 George Taylor Award for Outstanding Research at the University of Minnesota, the 2006 Eta Kappa Nu Outstanding teaching Professor award, the ITSB professor of the year award (2006), the Morse Award for Outstanding Undergraduate Teaching (2006), the George Taylor Distinguished Teaching Award (2007), and the George Taylor Service Award (2008). He has recently been inducted into the academy of distinguished teachers at the University of Minnesota. He is a Fellow of the Optical Society of America, Fellow of the Institute of Electrical and Electronic Engineers (IEEE), and Fellow of the International Society of Optical Engineers (SPIE).

NOTES



TUE 15:00

TECH-FOCUS SESSIONS

An attractive feature of the CLEO*/Europe technical programme has been the **Tech Focus** format. Tech-Focus sessions concentrate on selected photonics applications of industrial importance. The 2013 programme features two Tech-Focus sessions entitled **"Fibre and Solid-State Lasers** - A Comparison from an Industrial Point of View - High Power" jointly held with the LIM 2013 conference, which showcase this exciting field through presentations from leading academic and industrial researchers. Both sessions consisting of a total of 6 invited presentations take place on Tuesday afternoon.

CLEO*/Europe-IQEC 2013 paid registrants are invited to attend the Tech-Focus sessions at no additional charge. Those wishing to attend the Tech-Focus who are NOT FULL FEE registrants of the conferences must pay the one-day fee.

► **TUESDAY, 14:00 – 15:30** *Location: Room 13a*

TF-1: Fibre and Solid State Lasers: a Comparison from an Industrial Point of View I (Session jointly held with LIM)

TF-1/LIM.1

TUE 14:00

Next Generation of Ultra-High Brightness Direct Diode Lasers

•J. Liebowitz, R. Huang, B. Chann, J. Burgess, M. Kaiman, R. Overman, and P. Tayebati,

TeraDiode, Wilmington, United States Wavelength beam combining allows use of direct diode lasers for steel cutting and keyhole welding, traditionally performed by multi-kilowatt CO₂, fiber, and disk lasers. This innovation lowers laser cost in these applications. TF-1/LIM.2 TUE 14:30 Applications and Market Segments for Ultra-High Brightness Direct Diode Lasers •W. Gries, S. Heinemann, H. Fritsche, and W. Süptitz, Directphotonics Industries GmbH, Berlin, Germany

Ultra-highbrightness (UHB) direct diode laser systems with kW output power are on the verge of market introduction. This talk discusses applications and market dynamics of UHB direct diode lasers.

TF-1/LIM.3

The Power of Choice of Solid State Lasers for Successful Industrial Laser Applications

•**K. Loefffler,** *TRUMPF Laser und Systemtechnik GmbH*, *Ditzingen, Germany*

The presentation will show on examples from successful laser applications the use and need for the different solid-state laser resonator concepts. It will describe CW-high power as well as short pulse lasers in the ps / and ns range.

► **TUESDAY 16:00 – 17:30** *Location: Room 13a*

TF-2/LIM.1

TF-2: Fibre and Solid State Lasers: a Comparison from an Industrial Point of View II (Session jointly held with LIM)

TUE 16:00

Recent Developments in Fiber Lasers and their Applications

•**M. Grupp,** *IPG Laser GmbH, Burbach, Germany* Over the past few years fiber lasers gained a huge market share in all kind of industrial applications. Reason for this wide acceptance is the continuous development of specialized and adapted lasers suited for the requirements of the applications.

TF-2/LIM.2

Ultrafast Solid State Laser with High Pulse Energy – New Applications •H. Amler, S. Sobolewski, and J. Thumbs, Photon Energy GmbH, Ottensoos, Germany Usually for marking applications ns-lasers are used. Since a new ps-laser source is available with lower costs, new possibilities are opened up to use the advan-

TF-2/LIM.3 TUE 17:00 Ultrafast Fiber Lasers and Bulk Lasers for Material Processing - A Comparison

tages of this laser type also for marking applications.

•N. Hodgson, R. Knappe, and M. Bengtsson, Coherent Inc., Santa Clara, CA, United States The technology and performance of high energy picosecond and femtosecond lasers in fiber and bulk solid state geometry are reviewed. Ultrafast laser systems providing pulse energies of up to 100s of microJoules are compared with respect to their applicability in material processing.

PLENARY SESSIONS

PL-1: CLEO[®]/Europe 2013 Plenary Talk

► MONDAY, 8:30 - 9:15 Location: Room 1

PL-1.1 MON

Thin Disk Lasers



Adolf Giesen, DLR, German Aerospace Center, Stuttgart, Germany

Biography

TUE 16:30

Dr. Adolf Giesen received his Ph.D. in 1982 at the University of Bonn, Germany. Then, he joined DLR (the German Aerospace Center), institute of Technical Physics at Stuttgart working on rf-excited CO₂-lasers. In 1986 he moved to the University of Stuttgart, Institut für Strahlwerkzeuge as head of the laser development department. At the University he continued working on CO₂-lasers as well as on optical components for high power lasers. In 1992 he started working on thin disk lasers (in collaboration between the University of Stuttgart and DLR). 2002 he received the "Berthold Leibinger Preis" for the invention and the work on thin disk lasers and in 2004 he received the "Rank Prize" also for the invention and the work on thin disk lasers. Since 2007 he is director of the Institute of Technical Physics of DLR and he is continuing the work on high power lasers, especially for aerospace applications as well as for security and defence applications.

Abstract

The design ideas of thin disk lasers will be explained. Results for continuous wave operation and for pulsed operation show the capability for building high power lasers with high efficiency and good beam quality, simultaneously.

PL- 2: World of Photonics Opening with Plenary Talk

► MONDAY, 09:30 - 10:45 Location: Room 1

Words of Welcome will also be addressed during the session.

PL-2.1 MON Nanoscopy with Focused Light



Stefan Hell, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany

Biography

TECHNICAL PROGRAMME

Stefan W. Hell is a director at the Max Planck Institute for Biophysical Chemistry in Göttingen, where he leads the Department of Nano-Biophotonics. He also leads a research group at the German Cancer Research Center (DKFZ) in Heidelberg.

Stefan W. Hell received his diploma (1987) and doctorate (1990) in physics from the University of Heidelberg. From 1991 to 1993 he worked at the European Molecular Biology Laboratory, followed with stays as a senior researcher at the University of Turku, Finland, between 1993 and 1996, and as a visiting scientist at the University of Oxford, England, in 1994. In 1997 he joined the Max Planck Institute for Biophysical Chemistry in Göttingen, where he has built up his current group dedicated to subdiffraction-resolution microscopy. In 2003, following his appointment as a director, he established the Department of Nano-Biophotonics. Stefan W. Hell is credited with having developed the first viable approach for overcoming Abbe's diffraction barrier in a farfield light microscope. For his work he has received several awards, including the Prize of the International Commission in Optics (2000), the Otto-Hahn-Prize (2009), the Gothenburg Lise-Meitner Prize (2011), and

the Körber European Science Award (2011).

Abstract

Throughout the 20th century the resolution of optical microscopy relying on conventional lenses was limited by diffraction. We show how this limit can be radically overcome and how this change impacts various fields of science.

PL-3: IQEC 2013 Plenary Talk and Awards Ceremony

► TUESDAY, 10:30 - 12:30 Location: Room 1

A series of Prizes and Award Ceremonies will also be presented during the session.

PL-3.1 MON

Coherent Back Scattering and Anderson Localization of Ultra Cold Atoms



Alain Aspect, Laboratoire Charles Fabry, Institut d'Optique, Palaiseau, France

Biography

Born in 1947, Alain Aspect is an alumni of ENS Cachan and Université d'Orsay. After three years teaching in Cameroon, he became a lecturer at ENS Cachan, with his research at Institut d'Optique.

In 1985 he took a research position at ENS/Collège de France, with Claude Cohen-Tannoudji. Since 1992 he has been a CNRS senior researcher (emeritus since 2012), at Institut d'Optique. He is also a professor at Institut d'Optique Graduat School (Augustin Fresnel chair), and at Ecole Polytechnique, in Palaiseau.

He is a member of the Académie des Sciences (France), Académie des Technologies (France), National Academy of Sciences (USA), OAW (Austria).

Research

Alain Aspect first research bore upon tests of Bell's inequalities with entangled photon pairs (PhD 1983), then wave-particle duality for single photons.

With Claude Cohen-Tannoudji he developed new methods for cooling atoms with lasers.

Since 1992, he is in the Atom Optics group that he has established at Institut d'Optique, where research bears upon quantum atom optics, quantum degenerate gases and atom lasers, quantum simulators of disordered materials.

Abstract

Ultra cold atoms in a disordered potential created with a laser speckle are used to study Anderson Localization and Coherent Back Scattering.

TUTORIAL TALKS

► **SUNDAY, 11:00 – 12:00** *Location: Room 14a*

CM-2.1 SUN

Resource Efficiency Improvements through Laser Processing of Designer Materials

•**William O'Neill,** University of Cambridge, Cambridge, United Kingdom

This tutorial explores the laser technologies and processes that can effect change in the resource efficiencies of production operations. Three basic visions are presented along with case studies to demonstrate their implementation. ► SUNDAY, 14:30 - 15:30 Location: Room 13b

CL-1/ECBO.1 SUN

Photoacoustic Tomography: Ultrasonically Breaking through the Optical Diffusion and Diffraction Limits

•Lihong V. Wang, Washington University, St. Louis, MO, United States

Photoacoustic tomography provides in vivo multiscale functional, metabolic, molecular, and histologic imaging across the scales of organelles, cells, tissues, and organs with consistent contrast. Penetration and resolution have reached 7 cm and 90 nm, respectively.

► TUESDAY, 16:00 - 17:00 Location: Room 21

CG-2.1 TUE

Attosecond Science and Technology

•Paul Corkum, University of Ottawa and National Research Council, Ontario, Canada Describes the physics and technology of attosecond pulse generation and characterization, both in space and in time. It then generalizes from characterizing attosecond pulses to imaging valence electrons and their changes during a photochemical reaction.

► **THURSDAY**, 10:30 – 11:30 *Location: Room 4a*

ll-4.1 THU

Geometry and Light: The Science of Invisibility

•**Ulf Leonhardt**, *Weizmann Institute of Science*, *Rehovot*, *Israel*

Science Magazine listed transformation optics among the top 10 science insights of the decade 2000-2010. The tutorial gives an introduction into this subject that may, literally, transform optics. ► **THURSDAY, 14:00 – 15:00** *Location: Room 14a*

IB-7.1 THU

Quantum Information Tools

•Klaus Mølmer, Aarhus University, Aarhus, Denmark

This tutorial will present an introduction to the basic ideas of quantum information processing and an overview of candidate physical implementations, tools and ideas pursued in quantum computing research.

KEYNOTE TALKS

► **SUNDAY, 9:00 – 9:45** *Location: Room* 4b

CC-1.1 SUN

Ultrabroadband THz Pulses - From Millimeter Waves to the Infrared

•Hartmut Roskos, Mark Thomson, Johann Wolfgang Göthe-Universität, Frankfurt am Main, Germany

An overview is given of the generation, coherent detection and application of ultra-broadband terahertz pulses which cover substantial parts - or all - of the far-infrared and infrared spectral regimes.

► SUNDAY, 16:30 – 17:15 Location: Room 4a

IF-4.1 SUN

Optical Data Storage with Diffraction-Unlimited Resolution

•Min Gu, Swinburne University of Technology, Hawthorn, Australia

We show our recent progress on optical data storage with superresolution optics of lamda/24 and lamda/26 in newly designed

photopolymerisation and photoreduction materials, respectively.

► MONDAY, 11:00 - 11:45 Location: Room 21

CK-5.1 MON

Optofluidic for Energy Applications

•Demetri Psaltis, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland We will discuss optofluidic solar fuel systems that rely on microstructured components with combined optical and fluidic functionality to improve the efficiency of solar energy harvesting.

► MONDAY, 16:30 - 17:15 Location: Room 1

CF/IE-7.1 MON

Frontiers in Extreme Nonlinear Optics: Attosecond-to-Zeptosecond Coherent Kiloelectronvolt X-rays on a Tabletop

•Tenio Popmintchev, JILA, and University of Colorado, Boulder, CO, United States We present experimentally and theoretically a unified picture of phase matching of high harmonic generation spanning the electromagnetic spectrum from the vacuum ultraviolet to the keV X-ray region, combining both microscopic and macroscopic physics.

MONDAY, 16:30 – 17:15 *Location:* Room 14a

CJ-4.1 MON

Coherent Combining of Fiber and Solid-State Lasers

•Gregory D. Goodno, Northrop Grumman Aerospace Systems, Redondo Beach, CA, United States We review recent advances in coherent laser combining, including active laser control methods, diffractive optics beam combining, and high coherence fiber and SSL amplifiers that have enabled unprecedented brightness scaling of cw sources.

► **TUESDAY, 14:00 – 14:45** *Location: Room 4a*

IC-1.1 TUE

Quantum Simulations using Ultracold Atoms

•Immanuel Bloch, Max-Planck Institute of Quantum Optics, Garching, Germany Ultracold quantum gases offer remarkable opportunities for probing and controlling quantum matter. In my talk I will discuss highlights and future perspectives of this interdisciplinary research field.

► WEDNESDAY, 14:00 – 14:45 Location: Room 4a

IG-2.1 WED

High-Resolution Imaging with Scattered Light

•Allard Mosk, University of Twente, Enschede, The Netherlands

Wavefront shaping allows unprecedented control of scattered laser light. This discovery has spurred recent advances in focusing and imaging with scattered light, ranging from high-resolution microscopy to noninvasive optical imaging through scattering layers.

► WEDNESDAY, 16:00 - 16:45 Location: Room 21

IH-2.1 WED

Broadband Management of Light Using Nanophotonics for Solar and Thermal Applications

•**Shanhui Fan,** *University of Stanford, Stanford, CA, United States*

There is enormous potential for the use of nanophotonics in solar and thermal applications. In this talk, we show that one can use nanophotonic approach to enhance both the voltage and the current of the solar cells. We also show one can use nanophotonics effectively for a number of emerging thermal applications, including both novel approach for radiative cooling in the far field, and active control of heat flow in the near field.

NOTES

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9:00

ROOM 1

9:00 - 10:30

CF/IE-1: Ultrafast Electron Dynamics

Chair: Lukas Gallmann, ETH Zurich, Zurich, Switzerland

CF/IE-1.1 SUN

The influence of nuclear motion on the electron dynamics in an efficient sub-cycle control of the molecule K₂

•R. Siemering¹, P. von den Hoff¹, T. Bayer², H. Braun², T. Baumert², M. Wollenhaupt², and R. de Vivie-Riedle¹; ¹Department für Chemie, Ludwig-Maximilians-Universität, München, Germany; ²Institut für Physik und CINSaT, Universität Kassel, Kassel, Germany Selective population of dressed states (SPODS) is a control pathway in atoms and molecules including explicitly the electron dynamics. We highlight the influence of the nuclear motion on the electron dynamics in the potassium dimer.

CF/IE-1.2 SUN

9:15Direct laser acceleration of non-relativistic electrons

9:30

9:00

at a photonic structure

•J. Breuer¹ and P. Hommelhoff^{2,1}; ¹Max Planck Institute of Quantum Optics, Garching, Germany; ²Department of Physics, Friedrich Alexander University Erlangen Nuremberg, Erlangen, Germany

We report direct laser acceleration of non-relativistic 28keV-electrons at a dielectric grating with the inverse Smith-Purcell effect. We observe an acceleration gradient of 25MeV/m, already comparable to state-of-the-art RF-linacs and expect 1.5GeV/m for relativistic electrons.

CF/IE-1.3 SUN

Ultrafast restoration of valence electrons in 1,3-butadiene probed by time-resolved photoelectron spectroscopy with high harmonic pulses

A. Makida, H. Igarashi, T. Fujiwara, and •T. Sekikawa; Hokkaido University, Sapporo, Japan Ultrafast recovery of the valence electrons to the ground state in 1,3-butadiene with a time constant of 53 fs after photoexcitation was observed by time-resolved photoelectron spectroscopy using high harmonic pulses.

ROOM 4a

9:00 - 10:30

IF-1: Pulse Manipulation with Nonlinear **Optics**

Chair: Rachel Grange, Friedrich Schiller University, Jena, Germany

IF-1.1 SUN (Invited)

Broadband deep-ultraviolet femtosecond pulse generation by third-order nonlinear optical processes in thin media

•H. Crespo¹, F. Silva¹, and R. Weigand²; ¹IFIMUP-IN and Departamento de Física e Astronomia, Faculdade de Ciências, Universidade do Porto, R. do Campo Alegre 687, 4169-007, Porto, Portugal; ²Departamento de Óptica, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, Avda. Complutense s/n, 28040, Madrid, Spain We demonstrate the generation and measurement of broadband deep-ultraviolet pulses using third-order nonlinear optical processes in thin media. These results are well described by simulations. The new pulse measuring technique of dispersion-scan is also discussed.

ROOM 4b

9:00 - 10:30

CC-1: Ultra Broadband and High Terahertz Fields

Chair: Martin Koch, Phillips-University Marburg, Marburg, Germany

CC-1.1 SUN (Keynote)

Ultra-broadband THz Pulses - From Millimeter Waves to the Infrared •H. Roskos and M. Thomson; Goethe University, Frank-

furt, Germany

An overview is given of the generation, coherent detection and application of ultra-broadband terahertz pulses which cover substantial parts - or all - of the far-infrared and infrared spectral regimes.

ROOM 13a

9:00 - 10:30

CA-1: Nonlinear Frequency Conversion Chair: Valdas Pasiskevicius, KTH Stockholm, Stockholm, Sweden

9:00 CA-1.1 SUN

118 nm VUV Generation Using Microchip Laser

•R. Bhandari¹, N. Tsuji², T. Suzuki³, M. Nishifuji², and T. Taira¹; ¹Institute for Molecular Science, Okazaki, Japan; ²Nippon Steel & Sumitomo Metal, Futtsu, Japan; ³Nippon Steel Technoresearch Corporation, Futtsu, Japan We report the first demonstration of ninth harmonic generation of a Nd:YAG/Cr4+:YAG passively Q-switched microchip laser output, generating 118 nm VUV. This output was used for single-photon ionization of benzene in a time-of-flight mass-spectroscope.

CA-1.2 SUN

9:15

9:30

9:00

Absorption Coefficient and Raman Gain in CVD Diamond as Functions of Pump Wavelength: Towards **Efficient Diamond Raman Lasers**

•V. Savitski¹, S. Reilly¹, W. Lubeigt², and A. Kemp¹; ¹Institute of Photonics, University of Strathclyde, Glasgow, United Kingdom; ²Department of Electronic and Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom

Raman gain in synthetic diamond is measured at different wavelengths taking into account absorption losses. It is found to scale linearly with the pump wavenumber. A 6W intracavity diamond Raman laser will be discussed.

CA-1.3 SUN

Narrow-linewidth UV laser source at 257 nm

•X. Délen¹, L. Deyra¹, A. Benoit^{2,3}, M. Hanna¹, F. Balembois¹, B. Coquelin², D. Sangla², F. Salin², J. Didierjean⁴, and P. Georges¹; ¹Laboratoire Charles Fabry, Palaiseau, France; ²Eolite systems, Pessac, France; ³Institut de recherche XLIM, Limoges, France; ⁴Fibercryst, Vileurbanne, France

We report on a narrow-linewidth pulsed laser source emitting over 3 W at 257 nm. An Yb:YAG single crystal fiber power amplifier is used to overcome the Brillouin limitation in glass fibers.

IF-1.2 SUN

Self-Compression to Sub-3-Cycle Duration of Mid-IR **Optical Pulses via Nonlinear Propagation in Bulk**

•M. Hemmer¹, M. Baudisch¹, A. Thai¹, and J. Biegert^{1,2}; ¹ICFO - Institute of Photonic Sciences, Barcelona, Spain; ²ICREA - Institucio Catalana de Recerca i Estudis Avancats, Barcelona, Spain

Mid-IR pulses with 3-cycle duration (32 fs) and 2 uJ energy at 3.2 um wavelength and 160 kHz repetition rate were generated via nonlinear propagation of 7-cycle duration mid-IR pulses through Yttrium Aluminum garnet (YAG).

9:30

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ROOM 13b

9:00 - 10:30

CB-1: Quantum Cascade Lasers and Long Wavelength Emitters I

Chair: Martijn Heck, University of California, Santa Barbara, CA, United States

CB-1.1 SUN

EC tuning of a two color QCL active region design in the 3 to 4 μm region

•S. Riedi, A. Bismuto, A. Hugi, M. Beck, and J. Faist; Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland

A broadband Quantum-Cascade-Laser in the 3 to 4 μ m region was tuned over 549 cm-1 using a grating-tuned external cavity set-up. The junction-up mounted device was HR and AR coated and operated in pulsed mode.

CB-1.2 SUN

Mid-wave infrared (3-5um) AlInSb resonant-cavity LEDs

•L. Meriggi¹, M.J. Steer^{1,2}, M. Sorel¹, C.N. Ironside¹, I.G. Thayne¹, and C. MacGregor²; ¹University of Glasgow, Glasgow, United Kingdom; ²Quantum Device Solutions, Glasgow, United Kingdom

We present a mid-wave infrared AlInSb resonant cavity LED with a 5-pairs bottom Distributed Bragg Reflector. Measured photoluminescence shows 2.5-fold emission enhancement at 4-4.5um and clear Fabry-Pérot modes, validating the modelled cavity reflectivity and dimensions.

CB-1.3 SUN (Invited)

Recent progress on single-mode quantum cascade lasers

•B. Hinkov¹, P. Jouy¹, A. Hugi¹, A. Bismuto^{1,2}, M. Beck¹, S. Blaser², and J. Faist¹; ¹Institute for Quantum Electronics, Swiss Federal Institute of Technology (ETH) Zürich, Zürich, Switzerland; ²Alpes Lasers SA, Neuchâtel, Switzerland

Recent progress on single-mode quantum cascade lasers is reviewed. Special emphasis is put on below-1W dissipation devices, monolithic master-oscillator poweramplifier geometries with peak power above 1W and switchable twin distributed feedback grating sources.

ROOM 14a

9:00 - 10:30

CM-1: Laser Ablation

Chair: Peter Kozansky, University of Southampton, Southampton, United Kingdom

CM-1.1 SUN

9:00

9:15

9:30

Synthesis and Characterization of Hybrid Copper-Chitosan Nanoantimicrobials by Femtosecond Laser-Ablation in Liquids

•A. Ancona¹, C. Palazzo³, A. Trapani³, T. Sibillano¹, F.P. Mezzapesa¹, R.A. Picca², M.C. Sportelli², E. Bonerba⁴, G. Tantillo⁴, G. Trapani³, and N. Cioff²; ¹CNR-Istituto di Fotonica e Nanotecnologie U.O.S. Bari, Bari, Italy; ²Università degli Studi di Bari, Dipartimento di Chimica, Bari, Italy; ³Università degli Studi di Bari, Dipartimento di Farmacia-Scienze del Farmaco, Bari, Italy; ⁴Università degli Studi di Bari, Dipartimento di Medicina Veterinaria, Bari, Italy

We report on the synthesis by fs-laser ablation in liquids of novel copper-chitosan composite biodegradable nano-antimicrobial material. The hybrid nanocolloids were characterized by several techniques. Bioactivity tests demonstrated their efficacy against Gram-negative bacteria proliferation.

CM-1.2 SUN 9:15 Uni-directional liquid spreading realized by laser-based surface structuring

•E. Fadeeva, J. Koch, and B.N. Chichkov; Laser Zentrum Hannover e. V., Hannover, Germany

Slanted microspikes have been fabricated by ultra-short pulse laser irradiation of solid targets, placed at different angles to the incident laser beam. On the structured surfaces liquid guidance in a one preferred direction is demonstrated.

CM-1.3 SUN (Invited)

Film-free laser microprinting of complex materials

A. Patrascioiu, J.M. Fernández-Pradas, J.L. Morenza, and
P. Serra; Departament de Física Aplicada i Òptica, Universitat de Barcelona, Barcelona, Spain

The mechanisms of ejection taking place during the filmfree laser printing of liquids are investigated through time-resolved imaging; the acquired images reveal a complex jetting dynamics driven by a laser-generated cavitation bubble.

ROOM 14b

9:00 - 10:15

CD-1: Pulsed mid-IR Sources

Chair: Thomas Schreiber, Frauhnhofer IOF, Jena, Germany

CD-1.1 SUN (Invited)

Nonlinear Optics with High Power Femtosecond Mid-Infrared Laser Pulses

•D. Kartashov¹, S. Ališauskas¹, A. Pugžlys¹, A. Zheltikov^{2,3}, J. Kasparian⁴, J.-P. Wolf⁴, D. Faccio⁵, and A. Baltuška¹; ¹Photonics Institute, Vienna University of Technology, Vienna, Austria; ²Russian Quantum Center, International Laser Center, Physics Department of M.V. Lomonosov Moscow State University, Moscow, Russia; ³Department of Physics and Astronomy, Texas A&M University, College Station, United States; ⁴Université de Genève, Genève, Switzerland; ⁵Institute of Photonics and Quantum Sciences, Heriot-Watt University, Edinburgh, United Kingdom

We present review of experimental and numerical investigations of interaction of high power mid-infrared femtosecond laser radiation with gases and solids. Highorder nonlinear processes and new regimes of filamentation in gases and solids are discussed.

ROOM 21

<u>9:00 - 10:30</u> CK-1: Photonic Crystals

Chair: Kestutis Staliunas, Universitat Politecnica de Catalunya and ICRES, Terrassa, Spain

CK-1.1 SUN

9:00

9:00

Multifunctionnal self-collimating mesoscopic photonic crystals

•A. Monmayrant¹, F. Lozes-Dupuy¹, O. Gauthier-Lafaye¹, G. Magno², M. Grande², G. Calò², and V. Petrucelli²; ¹LAAS-CNRS, Toulouse, France; ²Politecnico di Bari, Bari, Italy

The new concept of curvature index is exploited to design multifunctional self-collimating mesoscopic photonic crystals in all-positive index materials. High reflectivity and antireflection are achieved by suitably tailoring the structure parameters through simple design criteria.

CK-1.2 SUN

9:15

9:30

Silica Microbeams for Tunable Bragg Gratings

•P. Cooper, C. Holmes, L. Carpenter, C. Sima, P. Mennea, J. Gates, and P. Smith; Optoelectronics Research Centre, Southampton, United Kingdom

A silica microbeam has been fabricated on a silicon substrate. The microbeam contains an integrated singlemode optical waveguide and Gaussian apodized Bragg grating. The Bragg grating is thermally tuned and displays a tuning of 45pm/mW.

Enhancement and shape control of weak molecular absorption signal with chirped-pulse mid-IR lasers

•E. Sorokin¹, N. Tolstik², and I.T. Sorokina²; ¹TU, Wien, Austria; ²NTNU, Trondheim, Austria

The weak molecular absorption signal is enhanced by 140 times by power-tuning of a chirped-pulse mid-IR oscillator spectrum edge. The signal shape is continuously tuned between dispersion-like and peak-like by propagating in ZBLAN fiber.

9:30 CK-1.3 SUN

Fano interference between resonant and leaky waves in 1D silicon photonic crystal microcavities

•K. Mehta, J. Orcutt, and R. Ram; Massachusetts Institute of Technology, Cambridge, United States

Interference between resonant and leaky second-order mode transmission through a high Q 1D silicon photonic crystal microresonator, fabricated photolithographically within a CMOS process, gives rise to strongly tunable linear and nonlinear Fano interference.

9:30

CD-1.2 SUN

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9:45

10:00

10:15

ROOM 1

CF/IE-1.4 SUN

Ultrafast Electron Dynamics in an Amino Acid Measured by Attosecond Pulses

L. Belshaw¹, •F. Calegari², M. Duffy¹, A. Trabattoni², F. Frassetto³, L. Poletto³, M. Nisoli², and J. Greenwood¹; ¹Centre for Plasma Physics, School of Maths and Physics, Queen's University Belfast, Belfast, United Kingdom; ²Politecnico di Milano, Department of Physics, CNR-IFN, Milano, Italy; ³Institute of Photonics and Nanotechnologies, CNR-IFN, Padova, Italy

We investigated the ultrafast charge-migration in the amino-acid phenylalanine. By measuring the yield of a doubly-charged ion vs. delay between a 1.5-fs XUV pulse and a 6-fs pulse, a 30-fs charge migration process was measured.

CF/IE-1.5 SUN (Invited)

Strong-field Photoemission of Electron Pulses from Sharp Metallic Tips

•C. Ropers; University of Göttingen, Göttingen, Germany Localized photoemission from single metallic nanotips is investigated with ultrashort pulses in a wavelength range between 0.8 and 8 micrometers. Kinetic energies of hundreds of eV and strong-field dynamics characteristic of spatial localization are observed.

ROOM 4a

IF-1.3 SUN

9:45

10:00

Soliton Molecules: 4 Symbols for Quaternary Data Transmission

•P. Rohrmann, A. Hause, and F. Mitschke; Universität Rostock, Institut für Physik, Rostock, Germany

Fiber-optic solitons can form stable molecules in dispersion-managed fibers. First experimental observations of a three-soliton molecule are reported. Using a flexible pulse shaper existence regimes of these bound states are mapped out.

IF-1.4 SUN

Unifying the Description of Fiber-Optic Frequency Conversion: From Cascaded Four-Wave Mixing to Cherenkov Radiation

•M. Erkintalo¹, Y. Xu¹, S.G. Murdoch¹, J.M. Dudley², and G. Genty³; ¹Department of Physics, University of Auckland, Auckland, New Zealand; ²Institut FEMTO-ST, CNRS UMR 6174, Universite de Franche-Comte, Besancon, France; ³Optics Laboratory, Tampere University of Technology, Tampere, Finland

We show theoretically and experimentally that cascaded fiber-optic four-wave mixing can mimic a higherorder nonlinear process and drive the amplification of a selected sideband. This process provides a physical frequency-domain interpretation of soliton-induced Cherenkov radiation.

IF-1.5 SUN

Optical signal enhancement in supercontinuum generation

•L. Orsila¹, J. Sand², G. Genty², and G. Steinmeyer^{1,3}; ¹Optoelectronics Research Centre, Tampere University of Technology, Tampere, Finland; ²Department of Physics, Tampere University of Technology, Tampere, Finland; ³Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie (MBI), Berlin, Germany

The noise amplification capabilities of supercontinuum generation are exploited to enhance a weak optical intensity modulation by a factor of 30. This mechanism may enable retrieval of faint and otherwise undetectable signals in ultrafast optics.

ROOM 4b

CC-1.2 SUN

Ultra-energetic THz pulses from a laser-driven particle accelerator

•A. Gopal^{1,2}, P. Singh¹, S. Herzer¹, A. Schmidt¹, A. Reinhard¹, W. Ziegler¹, G. Paulus^{1,2}, U. Dillner³, T. May³, H.-G. Meyer³, D. Broemmel⁴, A. Karmakar⁴, and P. Gibbon⁴; ¹Friedrich-Schiller University Jena, Jena, Germany; ²2 Helmholtz Institute Jena, Förbelsteig, Jena, Germany; ³3 Institute of Photonic Technologies, Jena, Germany; ⁴Institute of Advanced Simulation, Forschungszentrum Juelich, Juelich, Germany

We report the experimental realization of a GW class T-ray source based on laser-driven particle accelerators. The source has been characterized in detail. PIC simulations have been carried out to identify the source of T-rays.

CC-1.3 SUN

Multi-octave MV/cm pulses filling the THz gap

•C. Vicario¹, C. Ruchert¹, and C.P. Hauri^{1,2}; ¹Paul Scherrer Institute, 5232 Villigen PSI, Switzerland; ²Ecole Polytechnique Federale de Lausanne, 1015 Lausanne, Switzerland

1.5 MV/cm THz electric fields are efficiently generated in organic crystals. The multi-octave spectrum extends over the full THz gap (0.1-10 THz). The source initiates coherent magnetization dynamics in thin ferroelectric film.

CC-1.4 SUN

Ultrabroadband Infrared Pulse Ranging from Terahertz Region to Near Infrared Using Air for both Generation and Detection

•E. Matsubara, M. Nagai, and M. Ashida; Osaka University, Osaka, Japan

We generated ultrabroadband coherent infrared pulses with 1-200 THz spectral range and detected their electric-field profile in a range up to 150 THz using air as media and sub-mJ 10-fs pulses as a light source.

ROOM 13a

9:45 CA-1.4 SUN

Power Scaling of Efficient Diamond Raman Lasers with 1240 nm and 1485 nm Output

•A. McKay, O. Kitzler, and R. Mildren; Macquarie University, Sydney, Australia

We report an external cavity diamond Raman laser with quantum conversion efficiency approaching 65% and output powers of 14.5 W. This represents a substantial improvement in efficiency compared to other high-averagepower crystalline Raman lasers.

CA-1.5 SUN

10:00

10:15

Megawatt peak power, 1 kHz, 266 nm sub nanosecond laser source based on single-crystal fiber amplifier

•L. Deyra¹, I. Martial², F. Balembois¹, J. Diderjean², and P. Georges¹; ¹Laboratoire Charles Fabry, Institut Optique, CNRS, Univ Paris-Sud, Palaiseau, France; ²Fibercryst SAS, Villeurbanne, France

We report the realization of a MW peak power UV source at 266 nmbased on the fourth harmonic generation with LBO/BBO of a Nd:YAG passively Q:switched oscillator amplified in a single-crystal fiber.

CA-1.6 SUN

10:15

9:45

10:00

Continuous-wave emission from a self-Raman vortex laser

•A. Lee¹, T. Omatsu², and H. Pask¹; ¹Macquarie University, Sydney, Australia; ²Chiba University, Chiba, Japan We report the first demonstration of a diode endpumped Nd:GdVO4 self-Raman laser which generates a first-order vortex mode at the first-Stokes wavelength (1173 nm).

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		010 Sunday 12 May 2010	
ROOM 13b	ROOM 14a	ROOM 14b	ROOM 21
		CD-1.3 SUN 9:45	CK-1.4 SUN 9
		Mid infrared supercontinuum generation in nanotapered chalcogenide-silica step-index waveguides	Experimental characterization of hydrogenated amorphous silicon photonic crystal waveguides •L. Carletti ¹ , C. Grillet ¹ , R. Orobtchouk ¹ , T. Benyatt
		•N. Granzow ¹ , M. Schmidt ^{1,6} , W. Chang ¹ , L. Wang ¹ , Q. Coulombier ² , J. Troles ³ , P. Toupin ³ , I. Hartl ⁴ , K. Lee ⁴ , M. Fermann ⁴ , L. Wondraczek ⁵ , and P. Russell ¹ ; ¹ Max	P. Rojo-Romeo ¹ , X. Letartre ¹ , JM. Fedeli ² , and Monat ¹ ; ¹ Institut des Nanotechnologies de Lyon (II Lyon, France; ² CEA-Leti, Grenoble, France
		Planck Institute for the Science of Light Erlangen Ger-	We report the linear characterization of photonic c

10:00

CB-1.4 SUN

Towards Mid-Infrared On-Chip Sensing utilizing a bi-functional Quantum Cascade Laser/Detector

•B. Schwarz¹, P. Reininger¹, O. Baumgartner², T. Zederbauer¹, H. Detz¹, A.M. Andrews¹, W. Schrenk¹, H. Kosina², and G. Strasser¹; ¹Institute for Solid State Electronics and Center for Micro- and Nanostructures, Vienna, Austria; ²Institute for Microelectronics, Vienna, Austria

We demonstrate the monolithic integration of a quantum cascade laser and detector based on a bi-functional active region. With a detector signal of 191.5mV at roomtemperature, we move a significant step towards midinfrared on-chip sensing.

CB-1.5 SUN

Wavelength Tuning and Polarisation Control with an Integrated Tunable Birefringent Filter for Ouantum Cascade Lasers

D. Dhirhe¹, T.J. Slight², B.M. Holmes¹, D.C. Hutchings¹, and •C.N. Ironside¹; ¹School of Engineering, University of Glasgow, Glasgow, United Kingdom; ²CST Global Ltd, 4 Stanley Boulevard, Hamilton International Technology Park, Blantyre, Glasgow, United Kingdom

We discuss the design, modelling, fabrication and characterization of integrated tunable birefringent for quantum cascade lasers. We describe how it can be employed to tune the wavelength and polarisation state of a quantum cascade laser.

10:00 CM-1.4 SUN

Electrochemistry Assisted Laser Ablation in Liquid : A General Strategy for Fabricating Polyoxometalate Nanostructures

•G.W. Yang, P. Liu, Y. Liang, H.B. Li, and J. Xiao; Sun Yat-sen University, Guangzhou, China, People's Republic of (PRC)

We propose a general strategy for fabricating polyoxometalate nanostructures: electrochemistry assisted laser ablation in liquid (ECLAL). This is a green, simple, and catalyst-free approach under the ambient environment.

CD-1.4 SUN

Mid-infrared supercontinuum generation in suspended-core Chalcogenide and Tellurite optical fibers

I. Savelli¹, O. Mouawad¹, J. Fatome¹, •B. Kibler¹, C. Finot¹, F. Désévédavv¹, G. Gadret¹, I.-C. Iules¹, P.-Y. Bony¹, H. Kawashima², W. Gao², T. Kohoutek², T. Suzuki², Y. Ohishi², and F. Smektala¹; ¹Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France;²Toyota Technological Institute, Nagoya, Japan

We report the experimental generation of midinfrared supercontinuum in tellurite and chalcogenide suspended-core fibers pumped close to their zerodispersion in femtosecond regime. The resulting supercontinua extend until 2.8μ m in tellurite and 3.2μ m in chalcogenide fibers.

CK-1.5 SUN (Invited)

10:00

Ultra-Narrowband Nonlinear Wavelength Conversion Using Coupled Photonic Crystal Nanocavities

•N. Matsuda^{1,2}, E. Kuramochi^{1,2}, H. Takesue¹, K. Shimizu¹, Y. Tokura¹, and M. Notomi^{1,2}; ¹NTT Basic Research Laboratories, Atsugi, Japan; ²NTT Nanophotonics Center, Atsugi, Japan

We demonstrate four-wave-mixing nonlinear wavelength conversion using multiple resonances of resonantly-coupled 10 high-Q silicon photonic crystal nanocavities. An idler optical field was successfully generated with a conversion bandwidth as small as 500 MHz.

Institute for the Science of Light, Erlangen, Ger many; ²University of Lille1, Lille, France; ³University of Rennes I, Rennes, France; ⁴IMRA America, Inc., Ann Arbor, United States; ⁵Otto Schott Institute, Jena, Germany; ⁶*Institute of Photonic Technology, Jena, Germany* We explore the use of a silica fiber with a sub-wavelength chalcogenide glass core and an inversely tapered launch "spike" for efficient supercontinuum generation out to the mid infrared.

9:45

10:00

aveguides ¹, T. Benvattou¹, Fedeli², and C. de Lyon (INL), ice

We report the linear characterization of photonic crystal waveguides realized in a CMOS compatible platform based on hydrogenated amorphous silicon. This platform is highly promising for compact and low power alloptical signal processing on-chip.

10:15

CM-1.5 SUN 10:15 Femtosecond Laser Pulse Absorption at the Surface of

Dielectrics •M. Lebugle, N. Sanner, R. Clady, D. Grojo, O. Utéza,

and M. Sentis; Aix Marseille Université, CNRS, LP3 UMR 7341, MARSEILLE, France

We present experimental results concerning the energy balance of a 30 fs pulse of moderate intensity (10 TW.cm-2 to 1 PW.cm-2) focused on dielectrics. Absorption is retrieved and linked with damage and ablation phenomena.

53

11:00

11:00 - 12:30

CC-2.1 SUN

Germany

lifetime distributions.

Japan

ROOM 1

11:00 - 12:30

CF/IE-2: CEP Control and Attosecond Phenomena

Chair: Günter Steinmeyer, MBI Berlin, Berlin Germany

CF/IE-2.1 SUN

High spatio temporal quality, CEP controlled, sub10fs frontend light source based on XPW

A. Ricci^{1,2}, •A. Jullien¹, J.-P. Rousseau¹, and R. Lopez-Martens¹; ¹Laboratoire d'Optique Appliquée, Palaiseau, France; ²Thales Optronique SA, Elancourt, France 300uJ, sub-10fs pulses with excellent spectro-temporal quality are produced by XPW filtering. High-fidelity of this injector is highlighted. Measured CEP drift is 170mrad rms. Complex spatio-temporal dynamics of XPW pulse shortening XPW is investigated.

CF/IE-2.2 SUN

11:15 from a KI M Vb:VAG

11:00

Towards CEP stabilized pulses from a KLM Yb:YAG thin-disk oscillator

 O. Pronin¹, M. Seidel², J. Brons², F. Lücking¹, I. Angelov², V. Kalashnikov³, V. Pervak¹, A. Apolonski^{1,2}, T. Udem², and F. Krausz^{1,2}; ¹Ludwig-Maximilians-University, Munich, Garching, Germany; ²Max-Planck-Institute of Quantum Optics, Garching, Germany; ³Vienna University of Technology, Vienna, Austria

The 45 W output from a KLM thin-disk laser is spectrally broadened and compressed below 30 fs. The first experiment on carrier-envelope phase stabilization of a thindisk laser is performed via control of the pump-diodecurrent.

CF/IE-2.3 SUN

Broadband phase coherence between an ultrafast laser and an OPO using lock-to-zero CEO stabilization

•R. McCracken¹, J. Sun², C. Leburn¹, and D. Reid¹; ¹Heriot Watt University, Edinburgh, United Kingdom; ²Huazhong University of Science & Technology, Wuhan, China, People's Republic of (PRC)

The carrier-envelope-offset frequencies of the pump, signal, idler and related sum-frequency mixing pulses have been locked to 0 Hz in a 20-fs-Ti:sapphire-pumped optical parametric oscillator, satisfying a critical prerequisite for optical attosecond pulse synthesis.

ROOM 4a

11:00 - 12:30

IF-2: New Approaches in Nonlinear Light Propagation

Chair: Christope Finot, Université de Bourgogne, Dijon, France

IF-2.1 SUN

IF-2.2 SUN

Optics

pump.

Vortex Light Bullets in Fibre Arrays - Properties, Decay and Experimental Schemes

K. Prater¹, •F. Eilenberger¹, S. Minardi¹, U. Röpke², J. Kobelke², K. Schuster², H. Bartelt², S. Nolte¹, A. Tünnermann¹, and T. Pertsch¹; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität, Jena, Germany; ²Institute of Photonic Technology, Jena, Germany

We present first results on the observation of discrete Vortex Light Bullets, spatiotemporal, solitary waves with stabilizing angular momentum. We present simulations of their evolution behavior, discuss excitation and display first experimental findings.

Generalized Dispersive Wave Emission in Fiber

of Auckland, Auckland, New Zealand

K. Webb, Y. Xu, M. Erkintalo, and •S. Murdoch; University

We demonstrate, both numerically and experimentally,

how a pump in the normal dispersion regime can emit

a dispersive wave via the same mechanism that allows

standard dispersive wave emission from an anomalous

11:15 CC-2.2 SUN

Development and evaluation of high-sensitivity terahertz camera

•N. Nemoto¹, N. Kanda^{2,3}, K. Konishi³, S. Kurashina⁴, T. Sasaki⁴, N. Oda⁴, and M. Kuwata-Gonokami^{1,3}; ¹Development of Physics, The University of Tokyo, Tokyo, Japan; ²RIKEN Advanced Science Institute, Wako, Japan; ³Photon Science Center, The University of Tokyo, Tokyo, Japan; ⁴Guidance and Electro-Optics Division, Tokyo, Japan

ROOM 4b

Chair: Kazuo Kadowaki, University of Tsukuba, Tsukuba,

high-resolution contact-free imaging of large-scale

•M. Nagel¹, A. Safiei², C. Matheisen¹, S. Sawallich¹, T.M.

Pletzer², and H. Kurz^{1,2}; ¹AMO GmbH, Aachen, Ger-

many; ²Institute of Semiconductor Electronics, Aachen,

A novel non-destructive contact-free measurement tool

for sheet-conductivity imaging with up to 3 micrometre

resolution is presented. Based on photoconductive THz

near-field transmission probing it is especially attrac-

tive for large-scale samples with inhomogeneous carrier-

CC-2: Terahertz Imaging and Sensing

Photoconductive terahertz microprobes for

sheet conductivity distributions

We have developed THz camera consisting of uncooled microbolometer focal plane arrays and evaluated sensitivity of the new THz camera. Its sensitivity is three times larger than that of commercially available THz camera called IRV-T0830.

CC-2.3 SUN

Detection of a 2.8 THz quantum cascade laser with a semiconductor nanowire FET

•M. Ravaro^{1,2}, M. Locatelli^{1,2}, L. Viti³, M.L. Pea³, D. Ercolani³, L. Consolino^{1,2}, S. Bartalini^{1,2}, A. Tredicucci³, L. Sorba³, M.S. Vitiello³, and P. De Natale^{1,2}; ¹INO, Istituto Nazionale di Ottica - CNR, Florence, Italy; ²LENS, European Laboratory for NonLinear Spectroscopy, Sesto Fiorentino, Italy; ³NEST, Istituto Nanoscienze - CNR and Scuola Normale Superiore, Pisa, Italy

We report a THz system composed by an InAs nanowire FET detector and a 2.8 THz bound-to continuum QCL. We demonstrate transmission imaging with high resolution and signal-to-noise ratio.

ROOM 13a

11:00 - 12:30

CA-2: Visible Lasers *Chair: Mauro Tonelli, University of Pisa, Pisa, Italy*

11:00 CA-2.1 SUN

11:00

11:15

Tunable Intracavity Blue/Violet Light Generation in a Cr:LiCAF+BiBO Solid-state External-cavity Laser

•H. Maestre, A.J. Torregrosa, and J. Capmany; Communications Engineering Dept. Universidad Miguel Hernández, Elche, Alicante, Spain

In this communication we present a tunable source of blue/violet light based on intracavity second harmonic generation in a BiBO crystal inside a Cr:LiCAF laser obtaining second harmonic tunability between 390-415 nm.

CA-2.2 SUN

11:15

11:30

High power single-crystal fiber CW 946 nm laser and blue generation based on Rubidium-doped PPKTP

•L. Deyra¹, C. Liljestrand², J. Diderjean³, C. Canalias², F. Laurell², F. Balembois¹, and P. Georges¹; ¹Laboratoire Charles Fabry, Institut Optique, CNRS, Univ Paris-Sud, Palaiseau, France; ²Royal Institute of Technology, Roslagstullsbacken, Stockholm, Sweden; ³Fibercryst SAS, Villerbanne, France

We present a 11.5W, CW and polarized 946 nm laser based on Nd:YAG single-crystal fiber and its extracavity second harmonic generation in periodically-poled, rubidium-doped KTP (PPRKTP.We obtain 800mW of 473nm blue power.

CA-2.3 SUN

11:30

Anisotropic Absorption and Luminescence and Quasi-CW Laser Operation of Eu3+:KGd(WO4)2 Monoclinic Crystal

•P. Loiko¹, V. Dashkevich², S. Bagaev³, V. Orlovich², A. Yasukevich¹, K. Yumashev¹, N. Kuleshov¹, S. Vatnik³, and A. Pavlyuk⁴; ¹Center for Optical Materials and Technologies, Belarusian National Technical University, Minsk, Belarus; ²B.I. Stepanov Institute of Physics, National Academy of Sciences of Belarus, Minsk, Belarus; ³Institute of Laser Physics, Siberian Branch of RAS, Novosibirsk, Russia; ⁴A.V. Nikolaev Institute for Inorganic Chemistry, Siberian Branch of RAS, Novosibirsk, Russia

Anisotropic absorption and luminescence of Eu3+doped potassium gadolinium tungstate crystal was investigated. Quasi-cw Eu:KGd(WO4)2 laser operating at room temperature at the wavelength of 703nm (5D0-7F4 transition) was demonstrated for the first time.

11:30 IF-2.3 SUN

Nonparaxial Soliton Refraction at Optical Interfaces with $\chi^{(3)}$ and $\chi^{(5)}$ Susceptibilities

•J. Christian¹, E. McCoy¹, G. McDonald¹, J. Sanchez-Curto², and P. Chamorro-Posada²; ¹University of Salford, Manchester, United Kingdom; ²Universidad de Valladolid, Valladolid, Spain

We give an overview of recent research results for the arbitrary-angle refraction of bright solitons. A new Snell's law for cubic-quintic nonlinearity will be derived and tested, and predictions of giant Goos-Hänchen shifts also presented.

11:30

ROOM 13b

11:00 - 12:45

CB-2: Quantum Cascade Lasers and Long Wavelength Emitters II

Chair: Guido Giuliani, University di Pavia, Pavia, Italy

CB-2.1 SUN

Broadband tunable quantum cascade lasers for external cavity

•N. Akikusa¹, K. Fujita², T. Dougakiuchi², A. Ito¹, and T. Edamura²; ¹Hamamatsu Photonics Development Bureau, Hamamatsu, Japan; ²Hamamatsu Photoniocs Central Research Labs, Hamamatsu, Japan

A homogeneous broad gain bandwidth quantum cascade laser for external cavity is demonstrated. Spectrally homogeneous gain of anticrossed dual-upper state (DAU) design provide wide and stable wavelength tunability with external cavity configuration.

CB-2.2 SUN

Distributed-Feedback Quantum Cascade Laser at 3.2 μm

¹J.M. Wolf¹, A. Bismuto², M. Beck¹, and J. Faist¹; ¹Institute for Quantum Electronics, Zurich, Switzerland; ²Alpes Lasers SA, Neuchâtel, Switzerland

We present single mode emission from Distributed-Feedback QCL done via optical lithography ranging from 3.19 to 3.3μ m with peak power of up to 120mW at -20 °C. Threshold current densities of 4.8kA/cm² were measured.

CB-2.3 SUN

11:30

11:00

11:15

Polarization Versatility of Surface Emitting Ring Cavity Quantum Cascade Lasers

•C. Schwarzer, R. Szedlak, L. Burgstaller, A. Genner, T. Zederbauer, H. Detz, A.M. Andrews, W. Schrenk, and G. Strasser, Vienna University of Technology, Vienna, Austria

We present our resent investigations on far field characteristics of ring cavity quantum cascade lasers. Depending on the device design, an azimuthally, radially or linearly polarized far field can be realized.

ROOM 14a

11:00 - 12:30

CM-2: Future Applications of Laser

Chair: Boris Chichkov, Laser Zentrum, Hannover, Germany

CM-2.1 SUN (Tutorial) 11:00

Resource Efficiency Improvements through Laser Processing of Designer Materials

•W. O'Neill; University of Cambridge, Cambridge, United Kingdom

This tutorial explores the laser technologies and processes that can effect change in the resource efficiencies of production operations. Three basic visions are presented along with case studies to demonstrate their implementation.

ROOM 14b

11:00 - 12:30

CD-2: Nonlinear Wave Mixing Phenomena

Chair: Tamas Nagy, Leibniz University, Hannover and Laser-Laboratorium, Göttingen, Germany

CD-2.1 SUN

Four Wave Mixing efficiency in hydrogenated amorphous silicon waveguides

•C. Lacava¹, P. Minzioni¹, E. Baldini¹, J.M. Fedeli², and I. Cristiani¹; ¹Dipartimento di Ingegneria Industriale e dell'Informazione, Università di Pavia, Pavia, Italy; ²CEA-Leti Minatec Campus, Grenoble, France

Four-Wave-Mixing efficiency and conversion bandwidth in hydrogenated amorphous silicon waveguides fabricated by PECVD is reported. Measuring a large number of samples, a reliable value of the nonlinear parameter y=790 W-1m-1 was obtained

CD-2.2 SUN

Phase-matched Cascaded of Nonlinear Bragg Scattering

Y. Xu¹, M. Erkintalo¹, G. Genty², and •S. Murdoch¹; ¹University of Auckland, Auckland, New Zealand; ²Tampere University of Technology, Tampere, Finland We demonstrate, both numerically and experimentally, how a nonlinear Bragg scattering cascade can mimic the direct phasematching of a higher-order nonlinearity. The cascade is shown to significantly relax the phasematching requirements for nonlinear Bragg scattering.

CD-2.3 SUN

Continuous-wave optical modulation at the frequency of molecular motion

•S.-i. Zaitsu^{1,2,3} and T. Imasaka^{1,3}; ¹Department of Applied Chemistry, Graduated School of Engineering, Kyushu University, Fukuoka, Japan; ²PRESTO, Japan Science and Technology Agency, Saitama, Japan; ³Division of Optoelectronics and Photonics, Center for Future Chemistry, Kyushu University, Fukuoka, Japan

We demonstrate highly efficient generation of a continuous-wave sideband with a frequency spacing of over 10 THz. This scheme is based on the phase-matched interaction with gaseous molecules in a dispersion-compensated high-finesse optical cavity.

ROOM 21

<u>11:00 – 12:30</u> CK-2: Silicon Photonics

CK-2.1 SUN

Chair: Peter Smith, University of Southampton, Southampton, United Kingdom

11:00

Silicon micro-ring resonators with tunable Q-factor for ultra-low power parametric signal generation

•M.J. Strain¹, P. Orlandi², C. Lacava³, F. Morichetti⁴, A. Mellont⁴, P. Bassi², I. Cristiani³, and M. Sorel¹; ¹University of Glasgow, Glasgow, United Kingdom; ²Università di Bologna, Bologna, Italy; ³Università di Pavia, Pavia, Italy; ⁴Politecnico di Milano, Milan, Italy A compact micro-ring resonator incorporating a tunable coupler section is presented for active control of the device Q-factor. Four wave mixing signal generation is demonstrated with sub-mW input powers.

CK-2.2 SUN

11:00

11:15

11:30

11:15

Mid-Infrared Difference-Frequency Generation in Silicon Waveguides Strained by Silicon Nitride

•F. Bianco¹, M. Cazzanelli¹, A. Yeremyan¹, M. Ghulinyan², G. Pucker², D. Modotto³, S. Wabnitz³, and L. Pavesi¹; ¹University of Trento, Trento, Italy; ²Bruno Kessler Foundation, Trento, Italy; ³Università di Brescia, Brescia, Italy

We experimentally demonstrate and theoretically model mid-infrared difference-frequency generation in silicon waveguides where a quadratic nonlinear response is introduced through straining by a silicon nitride overlayer.

CK-2.3 SUN

11:30

Ultrafast optical modulation using slow light photonic crystal waveguides

•A. Opheij¹, N. Rotenberg¹, D.M. Beggs¹, I.H. Rey², T.F. Krauss², and K. Kuipers¹; ¹FOM Institute AMOLF, Amsterdam, The Netherlands; ²University of St Andrews, St Andrews, United Kingdom

By optically pumping a silicon photonic crystal waveguide the bandstructure can be shifted in an ultrafast manner. Using this phenomenon we demonstrate how a slowlight photonic crystal waveguide can function as an ultrafast modulator.

11:45

12:00

12:15

ROOM 1

11:45

12:00

CF/IE-2.4 SUN

Optimizing phase matching of high-order harmonic radiation in the range up to 1 keV

•J. Seres¹, E. Seres^{1,2}, B. Landgraf^{1,2}, B. Ecker^{2,3}, B. Aurand^{2,3}, T. Kühl^{2,3}, and C. Spielmann^{1,2}; ¹Friedrich Schiller University, Jena, Germany; ²Helmholtz Institute Jena, Jena, Germany; ³GSI Helmholtz Centre for Heavy Ion Research, Darmstadt, Germany

We present a detailed experimental study to predict guidelines for maximizing the short wavelength highorder harmonic generation signal without perfect phase matching in helium in the 0.2-1 keV spectral range using 800 nm light pulses.

CF/IE-2.5 SUN (Invited)

Generation of Gigawatt-scale Isolated Attosecond Pulses

•E. Takahashi; RIKEN, Wako, Japan

We successfully generated a microjoule isolated attosecond pulse (IAP) for investigating attosecond nonlinear phenomena in atoms and molecules. Our generation method paves the way of the applications of IAP for the next attosecond frontier.

ROOM 4a

IF-2.4 SUN

Trapping of dispersive waves in solitonic resonators and its role in supercontinuum generation

•A. Yulin¹, R. Driben^{2,3}, B. Malomed², and D. Skryabin⁴; ¹Centro de Física Teórica e Computacional, Faculdade de Ciências, Universidade de Lisboa, Lisbon, Portugal; ²Department of Physical Electronics, Faculty of Engineering, Tel Aviv University, Tel Aviv, Israel; ³Department of Physics & CeOPP, University of Paderborn, Paderborn, Germany; ⁴Centre for Photonics and Photonic Materials, Department of Physics, University of Bath, Bath, United Kingdom

It is shown that dispersive waves can be trapped between optical solitons during supercontinuum generation. The dispersive waves mediated inter-soliton interactions and the modification of the spectrum of the trapped waves are studied in detail.

IF-2.5 SUN

Understanding the fission of higher-order solitons under the action of the higher-order dispersion.

•R. Driben^{1,2}, B. Malomed⁷, D. Skryabin³, and A. Yulin⁴; ¹Department of Physical Electronics, Faculty of Engineering, Tel Aviv University, Tel-Aviv, Israel; ²Department of Physics & CeOPP, University of Paderborn, Paderborn, Germany; ³Centre for Photonics and Photonic Materials, Department of Physics, University of Bath, Bath, United Kingdom; ⁴4Centro de Física Teórica e Computacional, Faculdade de Ciências, Universidade de Lisboa, Lisboa, Portugal

A mechanism of creating an optical Newton's cradle in the form of a chain of solitons is proposed for understanding fission of higher-order soliton in optical fibers caused by higher-order dispersion.

IF-2.6 SUN

Long-range incoherent solitons

C. Michel¹, B. Kibler², •G. Xu², J. Garnier³, and A. Picozzi²; ¹Laboratoire de Physique de la Matiere Condensee, Nice, France; ²Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France; ³Laboratoire de Probabilites et Modeles Aleatoires, Paris, France

We show that a highly nonlocal or noninstantaneous nonlinear response prevents the natural process of thermalization of incoherent optical waves: The field selforganizes into long-range incoherent solitons, which constitute nonequilibrium stable states of the system.

ROOM 4b

CC-2.4 SUN

Radiation-Harvesting Resonant Superconducting sub-THz Metamaterial Bolometer

•V. Savinov¹, V.A. Fedotov¹, P.A.J. de Groot², and N.I. Zheludev^{1,3}; ¹Optoelectronics Research Centre & Centre for Photonic Metamaterials, University of Southampton, Southampton, United Kingdom; ²School of Physics and Astronomy & Centre for Photonic Metamaterials, University of Southampton, Southampton, United Kingdom; ³Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore, Singapore

We demonstrate a sub-THz superconducting metamaterial bolometer with selective response that exploits intermolecular electromagnetic interactions in the electrically interconnected network of superconducting resonators, and superconducting phase-transition edge sensitivity of the electrical interconnect.

CC-2.5 SUN

Super thin planar lens for terahertz beam control

•Y. Zhang, J. Ye, D. Hu, X. Wang, S. Feng, and W. Sun; Department of Physics, Capital Normal University, Beijing, China, People's Republic of (PRC)

A new approach is proposed to fabricate terahertz elements. A lens with 4mm focus length for 0.75THz is design, fabricated, and experimentally demonstrated. The thickness of the lens is only 1/4000 of the illuminating wavelength.

CC-2.6 SUN

THz-Comb-Assisted Molecular Spectroscopy

L. Consolino¹, •S. Bartalini¹, A. Taschin², P. Bartolini², M.S. Vitiello^{1,3}, H. Beere⁴, D. Ritchie⁴, A. Tredicucci³, P. Cancio Pastor¹, R. Torre², and P. De Natale¹; ¹Istituto Nazionale di Ottica - CNR, Firenze, Italy; ²European Laboratory for Non-Linear Spectroscopy, Sesto Fiorentino, Italy; ³NEST, Istituto Nanoscienze - CNR, Pisa, Italy; ⁴Cavendish Laboratory, University of Cambridge, J J Thomson Avenue, Cambridge, United Kingdom We report on the first measurements of the absolute frequency of a molecular transition in the THz domain, performed by a CW THz quantum cascade laser (QCL) and assisted by a THz Frequency Comb Synthetizer.

ROOM 13a

11:45

Q-Switched and Mode-Locked 639-nm Pr:YLF Laser with Cr :YAG Saturable Absorber

•R. Abe, J. Kojou, K. Masuda, K. Hirosawa, and F. Kannari; Department of Electronics and Electrical Engineering, Keio University, 3-14-1, Hiyoshi, Kohoku-ku, Yokohama, Japan

We demonstrated the first Q-switched mode-locking of Pr3+:YLF laser using a Cr4+:YAG saturable absorber at 639 nm. The highest Q-switched mode-lock laser power was 475 mW at an absorbed pump power of 4 W.

CA-2.5 SUN

CA-2.4 SUN

11:45

12:00

12:15

12:00

Novel Rare Earth Solid State Lasers with Emission Wavelengths in the Visible Spectral Range

•P.W. Metz¹, F. Moglia¹, F. Reichert¹, S. Müller¹, D.-T. Marzahl¹, N.-O. Hansen¹, C. Kränkel^{1,2}, and G. Huber^{1,2}; ¹Institute of Laser-Physics, Hamburg, Germany; ²The Hamburg Center For Ultrafast Imaging, Hamburg, Germany

We present a 2.9-W Pr^{3+} :LiYF₄ cw-laser with a record optical-to-optical efficiency of 71% and the first laser operation of Sm³⁺:LiLuF₄ (606 nm, 649 nm), Dy³⁺:LiLuF₄ (578 nm, 661 nm), and Tb³⁺:LaF₃ (543 nm).

CA-2.6 SUN

12:15

Multi-Watt Diode-Pumped Alexandrite Laser Operation

•M. Damzen, G. Thomas, and A. Minassian; Imperial College London, London, United Kingdom

We demonstrate the world's first multi-Watt (6.4W) diode-pumped Alexandrite laser operating with high pulse energy (23.4mJ) and high efficiency, offering break-through potential as a future remote sensing source or compact ultrafast amplifier.

ROOM 13b

11:45

12:00

12:15

12:30

CB-2.4 SUN

Quantum cascade laser spectrometer for frequency metrology and high accuracy molecular spectroscopy around 10 µm

S. Mejri, P.L.T. Sow, O. Lopez, S.K. Tokunaga, A. Goncharov, B. Argence, B. Chanteau, C. Chardonnet, A. Amy-Klein, •B. Darquié, and C. Daussy; Laboratoire de Physique des Lasers, Université Paris 13, Sorbonne Paris Cité, CNRS, Villetaneuse, France

We are developing a ~10 μ m quantum cascade laser (QCL) based spectrometer suitable for precision molecular spectroscopy. We have measured a record ~200-kHz free-running linewidth and phase-locked a QCL to an ultra-narrow stabilized CO₂ laser.

CB-2.5 SUN

Nonlinear dynamics and Modulation Properties of **Optically Injected Ouantum Cascade Lasers**

•C. Wang¹, F. Grillot², V. Kovanis³, and J. Even¹; ¹Université Européenne de Bretagne, INSA, CNRS FO-TON, Rennes, France; ²Telecom Paristech, Ecole Nationale Supérieure des Télécommunications, CNRS LTCI, Paris, France; ³3ElectroScience Laboratory, Ohio State University, Columbus, United States

The bifurcation scenarios and modulation properties of injection-locked quantum cascade lasers are theoretically investigated. No frequency dip occurs in the modulation response while both positive and negative detunings enhance the modulation bandwidth.

CB-2.6 SUN

Transverse-electric polarized intersubband electroluminescence from quantum cascade structures based on InAs/AlInAs quantum dashes

•V. Liverini¹, L. Nevou¹, F. Castellano^{1,2}, A. Bismuto¹, M. Beck¹, F. Gramm³, and J. Faist¹; ¹Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland; ²CNR, Istituto Nanoscienze, Pisa, Italy; ³Electron Microscopy ETH Zurich (EMEZ), ETH Zurich, Zurich, Switzerland

We demonstrate room-temperature transverse-electric electroluminescence from a quantum cascade structure based on InAs/AlInAs guantum dashes. The 110meV electroluminescence originates from a laterally-confined dash state, confirmed by its dependence on crystallographic orientation and intersubband absorption measurements.

CB-2.7 SUN

Robust, frequency-stable and accurate mid-IR laser spectrometer based on frequency comb metrology of quantum cascade lasers up-converted in orientation-patterned GaAs

•S. Schiller¹, M. Hansen¹, I. Ernsting¹, S. Vasilyev¹, A. Grisard², E. Lallier², and B. Gerard³; ¹Heinrich-Heine-Universität, Düsseldorf, Germany; ²Thales Research and

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ROOM 14b

CD-2.4 SUN

Filter-driven four wave mixing dual-mode mode-locked laser based on an integrated nonlinear microring resonator

•M. Peccianti¹, A. Pasquazi², B.E. Little³, S.T. Chu⁴, D.J. Moss⁵, and R. Morandotti²; ¹Institute for Complex Systems-CNR, Rome, Italy; ²INRS-EMT, Varennes, Canada; ³Infinera Ltd, Sunnyvale, United States; ⁴Department of Physics and Materials Science, City University of Hong Kong, Hong Kong, Hong Kong; ⁵CUDOS and IPOS, School of Physics, University of Sydney, Sydney, Canada

We demonstrate a mode-locked laser based on a nonlinear microring resonator embedded in a filter-driven four wave mixing design capable of generating a 200GHz train of short pulses, auto-modulated with a monochromatic radiofrequency sub-carrier.

CD-2.5 SUN

Modulational Instability Phase-matched by Higher-order Dispersion Terms in Dispersion-oscillating Optical Fibers

M. Droaues¹, •A. Kudlinski¹, G. Bouwmans¹, G. Martinelli¹, A. Mussot¹, A. Armaroli², and F. Biancalana²; ¹Laboratoire PhLAM UMR CNRS 8523, IRCICA, Université Lille 1, Villeneuve d'Asca, France; ²Max Planck Research Group 'Nonlinear Photonic Nanostructures' Max Planck Institute for the Science of Light, Erlangen, Germany

We experimentally demonstrate that higher-order dispersion phase-matching process also occurs in optical fiber with oscillating dispersion and that it leads to the generation of new modulation instability frequencies.

CD-2.6 SUN

Nonlinear beam shaping by non-collinear interactions

•A. Shapira¹, I. Juwiler², and A. Arie¹; ¹Tel Aviv University, Tel Aviv, Israel; ²Sami Shamoon College of Engineering, Ashdod, Israel

A new method for one and two dimensional efficient beam shaping is presented, employing a non-collinear quasi phase-matched interaction in a crystal whose quadratic nonlinear coefficient is encoded by a computer generated hologram pattern.

ROOM 21

CK-2.4 SUN

Small-footprint Integrated Bragg Gratings in SOI Spiral Waveguides

•A.D. Simard¹, Y. Painchaud², and S. LaRochelle¹; ¹Centre d'optique, photonique et laser (COPL), Université Laval, Québec, Canada;² TeraXion, Québec, Canada We fabricated 2-mm long Bragg gratings in SOI spiral waveguides without any spectral degradation by compensating in the design the effective index variations caused by the curvature. Devices had a small footprint of 200x190 um2.

CK-2.5 SUN

11:45

12:00

12:15

12:00

12:15

11:45

Integrated Four-Wave Mixing Source for Coherent anti-Stokes Raman Scattering Based on Silicon Nitride

•J. Epping¹, M. Kues², P. van der Slot¹, C. Lee^{1,3}, C. Fallnich², and K. Boller¹; ¹University of Twente, Enschede, The Netherlands; ²Westfälische Wilhelms-Universität, Münster, Germany; ³FOM Institute DIFFER, Niuwegein, The Netherlands

We propose and theoretical investigate a light source for CARS based on seeded four-wave mixing in silicon nitride waveguides. A wide tuning range $(1290-2750 \text{ cm}^{-1})$ is expected via pumping at a wavelength of 1058nm.

CK-2.6 SUN

Low loss SiGe waveguides in the MID-IR

•C. Grillet^{1,2}, P. Ma³, B. Luther-Davies³, D. Hudson², C. Monat¹, S. Madden³, D. Moss², M. Brun⁴, P. Labeye⁴, S. Ortiz⁴, and S. Nicoletti⁴; ¹Institut des Nanotechnolgies de Lyon, Ecully, France; ²Centre for Ultrahigh bandwidth Devices for Optical Systems, Sydney, Australia; ³Centre for Ultrahigh bandwidth Devices for Optical Systems, Canberra, Australia; ⁴CEA-LETI, Grenoble, France

We report low propagation loss in Si/SiGe waveguides in the mid-infrared with losses as low as 0.5 dB/cm at wavelength 4.75 μ m. SiGe represents a truly promising CMOS-compatible integrated photonic platform for the mid-IR.

57

12:00

Neural Tissue Engineering •E. Stratakis^{1,2}, C. Simitzi^{1,2}, A. Ranella¹, P. Eustathopoulos², I. Pediaditakis², I. Charalampopoulos²,

CM-2.2 SUN

I. Athanasakis², A. Gravanis^{1,2}, and C. Fotakis^{1,2}; ¹Institute of Electronic Structure and Laser, Foundation for Research & Technology Hellas (IESL-FORTH), Heraklion, Greece; ²University of Crete, Heraklion 714 09, Greece., Heraklion, Greece

Direct Laser Texturing of Biomimetic Surfaces for

We present the differential response of primary neuronal cells on direct laser textured biomimetic micro/nano structured surfaces for neural tissue engineering applications. The role of surface energy to tune neuron cells behaviour is emphasized.

CM-2.3 SUN 12:15 Femtosecond laser structuring and plasma polishing

of AlN ceramics

•K. Kurselis¹, T. Burgermeister², K. Pyka², J. Keller², H. Partner², T. Mehlstäubler², R. Kiyan¹, C. Reinhardt¹, and B. Chichkov¹; ¹Laser Zentrum Hannover e.V., Hannover, Germany;²Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

Novel two-stage technique to micromachine AlN ceramics by femtosecond laser is demonstrated. Based on ablation and plasma polishing, it enables up to 400 cubic micrometers per pulse removal rate and 350 nm Ra surface roughness.

	CLEO®/E	urope-IQEC 2013 · Sunday 12	2 May 2013	
ROOM 1	ROOM 4	la F	ROOM 4b	ROOM 13a
ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
14:30 - 16:00				
14:30 – 10:00 CF/IE-3: Pulse Shaping and Characterization Chair: Eberhard Riedle, Ludwig-Maximilians Universität, Munich, Germany	14:30 – 16:00 IF-3: Nonlinear Light Interactions in Quantum Systems <i>Chair: Jens Biegert, ICFO, Castelldefels, Bar-</i> <i>celona, Spain</i>	14:30 – 16:00 CC-3: Terahertz Sources Chair: Thomas Dekorsy, Konstanz University, Konstanz, Germany	14:30 – 16:00 CA-3: Mid-IR-Lasers Chair: Christian Kränkel, University of Ham- burg, Hamburg, Germany	14:30 – 16:00 CL-1/ECBO: Biophotonics and Applications I (Session jointly held with ECBO) Chair: Kishan Dholakia, University of St. An-
CF/IE-3.1 SUN14:30Pulse Shaping in the Mid-Infrared by a Deformable MirrorA. Cartella ¹ , •C. Manzoni ² , S. Bonora ³ , M. Först ¹ , G. Cerullo ² , and A. Cavalleri ¹ , ¹ Max- Planck Institute for the Structure and Dy- namics of Matter, CFEL, University of Ham- burg, Hamburg, Germany; ² IFN-CNR, Di- partimento di Fisica - Politecnico di Milano, Milan, Italy; ³ IFN-CNR, LUXOR, Padova, ItalyWe present a pulse shaping scheme operating in the mid-infrared range at wavelengths up to 20 microns. The spectral phase is controlled by a suitably designed deformable mirror in a grating-based 4f-configuration.	 IF-3.1 SUN 14:30 Nonlinear magneto-optical effects and quantum coherences in cold rubidium atoms in an optical dipole trap A. Wojciechowski, K. Sycz, A. Stabrawa, M. Piotrowski, J. Zachorowski, and W. Gawlik; Institute of Physics, Jagiellonian University, Krakow, Poland We investigate nonlinear magneto-optical effects in cold atoms. Nonlinearity results from creation of Zeeman coherences and thus can be controlled by magnetic fields or, alternatively, used for high-precision magnetometry. 	CC-3.1 SUN (Invited)14:30Room-temperature terahertz generation using vertical-external-cavitysurface-emitting lasersM. Wichmann ¹ , A. Chernikov ¹ , M.K. Shakfa ¹ , M. Scheller ² , J.V. Moloney ² , S.W. Koch ¹ , and •M. Koch ¹ ; ¹ Faculty of Physics and Material Sciences Center, Philipps- Universität Marburg, Marburg, Germany; ² College of Optical Sciences, The University of Arizona, Tucson, United States We present a terahertz source based on intracavity difference frequency generation within a dual color vertical-external-cavity surface-emitting laser. In addition, we study the temporal stability of this source via streak-camera measurements.	CA-3.1 SUN (Invited)14:30Mid-IR Solid-State Lasers forSpectroscopy and Metrology Applications•G. Galzerano, N. Coluccelli, A. Gambetta, M. Cassinerio, and P. Laporta; Istituto di Fo- tonica e Nanotecnologie - CNR and Diparti- mento di Fisica del Politecnico di Milano, Mi- lan, Italy We report on the generation of wide band- width coherent radiation in the mid-infrared spectral region from 2.1 to 2.6 um based on room-temperature Cr2+:ZnSe laser crystals.	drews, Fife, U.K. & Andreas H. Hielscher, Columbia University, New York, NY, USA CL-1/ECBO.1 SUN (Tutorial) 14:30 Photoacoustic Tomography: Ultrasonically Breaking through the Optical Diffusion and Diffraction Limits •L. V. Wang; Washington University, Depart- ment of Biomedical Engineering, St. Louis, MO, United States Photoacoustic tomography provides in vivo multiscale functional, metabolic, molecular, and histologic imaging across the scales of organelles, cells, tissues, and organs with consistent contrast. Penetration and resolu- tion have reached 7 cm and 90 nm, respec- tively.
CF/IE-3.2 SUN14:45Characterization of sub-two-cycle pulsesfrom a hollow-core fiber compressor inthe spatiotemporal and spatio-spectral	IF-3.2 SUN 14:45 Transverse self-organization in cold atoms due to opto-mechanical coupling •G. Labeyrie ¹ , P. Gomes ² , E. Tesio ² , R.			

domains

domains B. Alonso^{1,2}, M. Miranda², F. Silva², V. Pervak^{3,4}, J. Rauschenberger³, J. San Román¹, •Í. Sola¹, and H. Crespo²; ¹Grupo de Investigación en Óptica Extrema (GIOE), Universidad de Salamanca, E-37008, Salamanca, Spain; ²IFIMUP-IN and Departamento de Física e Astronomia, Universidade do Porto, Rua do Campo Alegre 687, 4169-007, Porto, Portu-gal; ³UltraFast Innovations GmbH, Am Coulombwall 1, 85748, Garching, Germany; ⁴Ludwig-Maximilians-Universität München, Department für Physik, Am Coulombwall 1, 85748, Garching, Germany We characterized the full spatiotemporal and spatio-spectral amplitude and phase of

*Kaiser*¹, *W. Firth*², *G. Robb*², *G.-L. Oppo*², and *T. Ackemann*²; ¹*Institut Non Linéaire de Nice, Sophia Antipolis, France*; ²*University of* Strathclyde, Glasgow, United Kingdom We report the observation of transverse selforganization in cold atoms under the action of a single, retro-reflected pump laser beam. The instability, resulting in hexagonal light and density patterns, is driven by optomechanical coupling.

ROOM 13b

Technology, Palaiseau, France; ³III-V Labs, Campus Polytechnique, Palaiseau, France

We demonstrate a robust and simple method for measurement, stabilization and tuning of the frequency of cw mid-infrared lasers. We demonstrate 100kHz-level frequency inaccuracy, frequency instability <10 kHz, controlled frequency tuning and long-term stability

ROOM 14a

14:30 - 16:00

CI-1: Fibres and Components

Chair: Mathias Jäger, Institute of Photonic Technology, Jena, Germany

CJ-1.1 SUN

All-fiber Kilowatt Signal Combiners for High Power Fiber Lasers

•A. Braglia, A. Califano, M. Olivero, A. Penna, and G. Perrone; Politecnico di Torino, Department of Electronics and Telecommunications, Torino, Italy

The fabrication of multi-kilowatt fiber-fused signal combiners for fiber laser power scaling is presented. Characterization results up to 2kW have validated the manufacturing procedure and highlight the suitability for further power increases.

many; ²Laser-Laboratorium Göttingen e.V., Göttingen, Germany

14:30

Long stretched flexible hollow fibers were used for spectral broadening of multi-mJ femtosecond pulses. Spectra supporting 3.4fs pulses with excellent beam quality were achieved at 65% transmission. The scalability of the approach will be discussed.

ROOM 14b

CD-3: Nonlinear Optics in Photonic

Chair: Daniil Kartashov, Photonics Institute

Efficient spectral broadening of multi-mJ

T. Rohrlapper¹, P. Simon², U. Morgner¹, and

•T. Nagy^{1,2}; ¹Institut für Quantenoptik, Leib-

niz Universität Hannover, Hannover, Ger-

14:30 - 16:00

Crystal Fibers

CD-3.1 SUN

Vienna, Vienna, Austria

pulses in long hollow fibers

CJ-1.2 SUN

Side Pumping Scheme for All-Fiber **Counter-Pumping of High Power Single-Frequency Fiber Amplifiers**

•T. Theeg^{1,2}, H. Sayinc^{1,2}, J. Neumann^{1,2}, L. Overmeyer^{1,3}, and D. Kracht^{1,2}; ¹Laser Zentrum Hannover e.V., Hannover, Germany; ²Centre for Quantum Engineering and Space-Time Research - QUEST, Hannover, Germany; ³Institut für Transport- und Automatisierungstechnik, Hannover, Germany We focus on the impact of an all-fiber pump combiner on a counter-pumped singlefrequency Ytterbium fiber amplifier with an output power of 300 W. The all-fiber system is designed for very narrow linewidth amplification.

CD-3.2 SUN 14:45

Broadband Cherenkov Radiation by Using Group-velocity-matching in Index-guiding Photonic Crystal Fiber

•X. $Zeng^{1,2}$, S. $Wang^2$, H. Guo^1 , and M. Bache¹; ¹Technical University of Denmark, Kgs. Lyngby, Denmark; ²Shanghai University, Shanghai, China, People's Republic of (PRC)

We numerically investigate broadband optical Cherenkov radiation in small-core solid index-guiding photonic crystal fibers with three zero dispersion wavelengths. Group velocity matching between the soliton and radiation enables broad conversion bandwidth and enhances the efficiency.

CK-3.2 SUN

Reconfigurable Metamaterials Controlled by Lorentz, Ampere and Coulomb forces: Towards GHz Bandwidth

•J. Valente¹, E. Plum¹, J.-Y. Ou¹, and N. Zheludev^{1,2}; ¹Optoelectronics Research Centre, Southampton, United Kingdom; ²Centre for Disruptive Photonic Technologies, Singapore, Singapore

We demonstrate a family of nanostructured reconfigurable metamaterials, optical properties of which can be modulated in the visible and near-IR parts of the spectrum with external stimuli such as magnetic fields, electric currents and voltages.

ROOM 21

14:30

14:45

14:30 - 16:00

CK-3: Novel Materials and Structures

Chair: Tapio Niemi, Tampere University of Technology, Tampere, Finland

CK-3.1 SUN

ROOM 14a

14:30

14:45

Experimental Demonstration of Photonic Floquet Topological Insulators

•J.M. Zeuner¹, Y. Plotnik², M.C. Rechtsman², Y. Lumer², M. Segev², and A. Szameit¹; ¹Institute of Applied Physics, Friedrich-Schillier-Universität Jena, Jena, Germany; ²Technion, Israel Institute of Technology, Haifa, Israel

We experimentally demonstrate the first photonic Floquet topological insulator, which brings the striking concept of a completely new phase of matter with an insulating bulk and a conducting edge from electronics to optics.

IH-1.2 SUN

ROOM 14b

14:30 - 16:00

IH-1.1 SUN

Magnetic Surprise

Bristol, United Kingdom

Chair:

Near-field characterization of a plasmonic antenna based on fluorescence photocounts and decay rate measurements

ROOM 22

Fritz Keilmann,

Maximilians-Universität, Munich, Germany

•B. le Feber¹, N. Rotenberg¹, D. Beggs^{1,2}, and

K. Kuipers¹; ¹FOM Institute AMOLF, Ams-

terdam, The Netherlands; ²Bristol University,

We find that an aperture probe collects sig-

nal not only from the electric near-field, but

also from the magnetic near-field. We show

how we can identify both electric and mag-

netic contributions in our measurements.

Mapping Nanoscale Optical Fields: a

Ludwig-

14:30

14:45

IH-1: Mapping Near Fields

•V. Krachmalnicoff¹, D. Cao¹, A. Cazé¹, E. Castanié¹, R. Pierrat¹, N. Bardou², S. Collin², R. Carminati¹, and Y. De Wilde¹; ¹Institut Langevin, ESPCI ParisTech, CNRS, Paris, France; ²Laboratoire de Photonique et Nanostructures (LPN-CNRS), Marcoussis, France We report on the experimental and theoretical study of the local density of states and intensity fluctuations of the electro-magnetic field at the surface of a plasmonic nanoantenna. Theory and experiments are in good agreement.

NOTES

ROOM 21

$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Sunday 12 May 2013

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ROOM 1 4.5-fs post-compressed pulses by combining d-scan and STARFISH techniques, which enabled studying the spatial chirp of the post-compression in the temporal and spec- tral domains.	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
CF/IE-3.3 SUN15:00Spatio-temporal metrology of high power femtosecond lasers•V. Gallet; Commissariat à l'énergie atomique et aux énergies alternatives, Saclay, France We demonstrate three approaches for the spatiotemporal characterization of femtosecond lasers. Partial information is obtained through the spatially-resolved spectrum. We use interferometers based on optical fibers, in scanning or single shot mode, for complete reconstruction.CF/IE-3.4 SUN15:15Complete Spatial Characterization of an Optical Wavefront Using a Variable-Separation Pinhole Pair - D. Lloyd, K. O'Keeffe, and S. Hooker; De- partment of Physics, University of Oxford, Clarendon Laboratory, Oxford, United King- domWe present a technique for the complete	15:00 15	CC-3.2 SUN15:00A continuous-wave, solid-state Stimulated Polariton THz Source•A. Lee and H. Pask; Macquarie University, Sydney, AustraliaWe present a diode end-pumped solid-state source which generates frequency-tunable continuous-wave (CW) terahertz (THz) ra- diation through stimulated polariton scat- tering (SPS) in a Mg-doped LiNbO3 crys- tal with low pump power requirements (3.76 W).CC-3.3 SUN15:15Conter-Propagating Difference-Frequency Generation in Diamond with Terahertz Fields M. Clerici ^{1,2} , L. Caspani ¹ , E. Rubino ^{1,3} , M. Peccianti ⁴ , M. Cassataro ^{1,5} , A. Busacca ⁵ , T. Ozaki ¹ , D. Faccio ² , and •R. Morandotti ¹ ; ¹ INRS-EMT, Varennes, Canada; ² School of Engineering and Physical Sciences, Heriot- Watt University, Edinburgh, United King- onogia, Università degli Studi dell' Insubria, Como, Italy; ⁴ Institute for complex Systems- CNR, Roma, Italy; ⁵ DIEET, Università di	CA-3.2 SUN15:00High-Pulse-Energy Cryogenic Ho:YLF Laser Pumped by a Tm:fiber Laser-H. Fonnum, E. Lippert, and M. Haakestad; Norwegian Defence Research Establishment (FFI), Kjeller, NorwayA cryogenically cooled Ho:YLF oscillator delivering Q-switched pulses of 550 mJ and beam quality M2 = 1.5 is demonstrated. The pump is a 100-W-Tm-fiber laser, giving a pulse energy to power efficiency of 5.5 J/kW.CA-3.3 SUN15:15 D-band Pumped Ho3+:KY3FI02 μm Laser15:15 M . Schellhorn ¹ , D. Parisi ² , S. Veronesi ² , G. Bolognesi ² , M. Eichhorn ¹ , and M. Tonelli ² ; ¹ French-German Research Institute, ISL, Saint-Louis, France; ² NEST-Istituto Nanoscienze-CNR, and Dipartimento di Fisica Universita di Pisa, Pisa, Italy	
characterization of the transverse spatial properties of an optical wavefront. Recovery of the spectrally-resolved profiles of phase, intensity, and spatial coherence is achieved in a single scan. CF/IE-3.5 SUN 15:30	IF-3.4 SUN 15:30	Palermo, Palermo, Canada We show that both sum- and difference- frequency generation occur when overlap- ping an intense terahertz field with op- tical pulses in diamond. Remarkably, the difference-frequency generation pro- cess is naturally phase-matched for counter- propagating waves. <u>CC-3.4 SUN (Invited)</u> 15:30	A maximum laser power of 2.4 W was ob- tained at a wavelength of ~ 2040 nm for 23 W of absorbed pump power with a slope ef- ficiency of 21.6 % with respect to absorbed power. CA-3.4 SUN 15:30	CL-1/ECBO.2 SUN (Invited) 15:30
 Pulse measurement from near to mid-IR using third harmonic generation dispersion scan in multilayer graphene F. Silva^{1,2}, M. Miranda^{1,3}, S. Teichmann², M. Baudisch², M. Massicotte², F. Koppens², J. Biegerl^{2,4}, and H. Crespo¹; ¹IFIMUP-IN and Departamento de Física e Astronomia, Porto, Portugal; ²ICFO-Institut de Ciencies Fotoniques, Barcelona, Spain; ³Department of Physics, Lund University, Lund, Sweden; ⁴ICREA-Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain 	Demonstration of reconfigurable optical functions inspired by quantum effects •C. Ciret ^{1,2} , V. Coda ^{1,2} , A.A. Rangelov ³ , and G. Montemezzani ^{1,2} ; ¹ Université de Lorraine, LMOPS, Metz, France; ² Supélec, LMOPS, Metz, France; ³ Department of physics, Sofia University, Sofia, Bulgaria Properly designed photoinduced waveguide structures possess direct analogies with quantum effects, which are useful for novel optical functions. The analogy of three- waveguide systems with Electromagneti-	 THz Emission from Intrinsic Josephson Junctions in High-Tc Superconductors for Imaging Applications •K. Kadowaki^{1,2,3,4}, M. Tsujimoto^{2,3,4}, K. Delfanazari^{2,3,4}, T. Kitamura^{2,3,4}, K. Ishida^{2,3,4}, C. Watanabe^{2,3,4}, S. Sekimoto^{2,3,4}, H. Minami^{1,2,3,4}, and T. Kashiwagi^{1,2,3,4}; ¹Faculty of Pure & Applied Sciences, University of Tsukuba, Tsukuba, Japan; ²Graduate School of Pure & Applied Sciences, University of Tsukuba, Tsukuba, Japan; ³CREST-JST, Tokyo, Japan; ⁴National 	In-band diode pumped high power Ho:YLF laser •K. Scholle ¹ , S. Lamrini ¹ , F. Gatzemeier ¹ , P. Koopmann ² , and P. Fuhrberg ¹ ; ¹ LISA laser products OHG, Katlenburg, Germany; ² Institute of Laser-Physics, University of Hamburg, Hamburg, Germany We present the first directly in-band pumped Ho:YLF laser using a GaSb diode stack with a center wavelength of 1930 nm as pump source. 8.7 W cw output power at room tem- perature were achieved.	Improved Precision in Optical Tweezers via Squeezed Light •W. Bowen, M.A. Taylor, J. Janousek, V.R. Daria, J. Knittel, B. Hage, and H. Bachor; The University of Queensland, Brisbane, QLD, Australia Squeezed light is used to improve the preci- sion of particle tracking in living yeast cells. This first biological application of squeezed light allows the cytoplasm viscoelasticity to be determined 64% faster than equivalent classical experiments.

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Graphene, Plasmonic and Silicon Optical

•V. Sorger; George Washington University,

Here we present two demonstrations of

electro-optic modulators (EOM)based on

emerging materials, namely Graphene and

Indium-Tin-Oxide(ITO). These devices fea-

ture high performance (ER=1dB/mm), low

insertion loss (<1dB/mm) and broadband

CK-3.3 SUN (Invited)

Washington, United States

operation (>300nm).

Modulators

ROOM 14a

ROOM 14b

ROOM 21

ROOM 22

NOTES

CJ-1.3 SUN

514 W monolithic fiber laser with a

femtosecond inscribed fiber Bragg grating •R.G. Krämer¹, A. Liem², C. Voigtländer¹, J.U. Thomas¹, D. Richter¹, T. Schreiber², A. Tünnermann^{1,2}, and S. Nolte^{1,2}; ¹Institute of Applied Physics, Jena, Germany; ²Fraunhofer Institute of Applied Optics and Precision Engineering, Jena, Germany

We report on a monolithic cw fiber laser realized via fiber Bragg grating inscribed directly into the active core by ultrashort pulses with an output power of 514W in an Yb-doped large mode area fiber.

CJ-1.4 SUN

Evolution of lasing during FBG-inscription in a Yb-Al-doped laser fiber

•J. Fiebrandt, M. Leich, S. Jetschke, M. Rothhardt, M. Jäger, and H. Bartelt; Insitute of Photonic Technology, Jena, Germany We report on the inscription of a fiber Bragg grating in a Yb-Al-doped fiber under pumping conditions and on the spectral properties of a laser operating with such a grating.

CJ-1.5 SUN

Inverse laser drilling of transparent materials for the production of optical components

•M. Werner, D. Esser, and H.-D. Hoffmann; Fraunhofer Institute for Laser Technology, Aachen, Germany

Investigations of laser driven 3D volume glass processing are presented. The process allows for high flexibility in geometry compared to conventional Stack and Draw technique. A Photonic fiber preform has been manufactured.

15:00 CD-3.3 SUN

Frequency-dissymmetric nonlinear sideband generation in a photonic crystal fibre

•M. Barbier¹, P. Leproux², P. Roy², and P. Delaye¹; ¹Laboratoire Charles Fabry, Institut d'Optique, CNRS, Université Paris-Sud, Palaiseau, France; ²XLIM, Université de Limoges, CNRS, Limoges, France

We observe an unexpected frequencydissymmetric sideband generation due to the combination of self-phasemodulation-induced spectral broadening and spontaneous four-wave mixing in the normal dispersion regime of a photonic crystal fibre.

CD-3.4 SUN

15:15

15:30

Photoionization-induced Nonlinear Phenomena in Gas-filled Photonic Crystal Fibers

•M. Saleh¹ and F. Biancalana^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom

We have developed a model to describe pulse propagation in gas-filled photonic crystal fibers. We have shown that the photoionization process can induce soliton selffrequency blue-shift, asymmetric self-phase modulation, and universal modulational instability.

15:30

15:00

15:15

Impulsive Raman-induced spectral broadening in hydrogen-filled HC-PCF

CD-3.5 SUN

•F. Belli¹, A. Abdolvand¹, J.C. Travers¹, W. Chang¹, A.M. Walser¹, and P.S.J. Russell^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Department of Physics, University of Erlangen-Nuremberg, Erlangen, Germany

Strong and asymmetrical spectral broadening is reported in hydrogen-filled HC-PCF excited impulsively with 40 fs pulses. Experimental and numerical results confirm that

CK-3.4 SUN

Dielectric particles can behave as dual metamaterials

•X. Zambrana-Puyalto^{1,2}, X. Vidal¹, M.L. Juan^{1,2}, and G. Molina-Terriza^{1,2}; ¹Department of Physics&-Astronomy, Macquarie University, 2109 NSW, Australia; ²ARC Center of Excellence for Engineered Quantum Systems, Macquarie University, 2109 NSW, Australia

We unveil the role of cylindrical and duality symmetry to obtain metamaterials that can fulfill the zero forward or backscattering

IH-1.3 SUN

15:00

Single NV Centers in Nanodiamond as Three Dimensional Scanning Lifetime Probe

15:00

15:15

15:30

•A.W. Schell, P. Engel, and O. Benson; Humboldt-Universität zu Berlin - AG Nanooptik, Berlin, Germany

A single NV center in nanodiamond as scanning probe is used for 3D single photon lifetime microscopy. The change in the LDOS in the vicinity of silver nanowires is measured with high resolution.

IH-1.4 SUN

Plasmonic scattering from single subwavelength holes: separating the electric and magnetic contributions

•N. Rotenberg¹, B. le Feber¹, M. Spasenovic¹, T.L. Krijger¹, J.F. Garcia de Abajo², and K. Kuipers¹; ¹FOM Institute AMOLF, Amsterdam, The Netherlands; ²IQFR-CSIC, Madrid, Spain

A series of near-field measurements are used in conjunction with theoretical calculations to determine the electric and magnetic polarizabilities of single subwavelength holes in metal films. The results explain plasmonic scattering from these nanoscopic objects.

IH-1.5 SUN

15:30

A gold nanotip enhanced optical fibre device for plasmonic near-field microscopy

•P. Uebel¹, S. Bauerschmidt¹, M. Schmidt^{3,1}, and P. Russell^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Department of Physics, University of Erlangen-Nuremberg, Erlangen, Germany; ³Institute of Photonic Technology, Jena, Germany

We developed a device for detecting nearfields using a plasmonic nanotip-enhanced



	CLLO /L	uiope-ique zu.	LS · Sunday IZ May	2013			
ROOM 1	ROOM 4a	ROOI	vl 4b	ROOM 13	a	ROOM 13	3b
	cally Induced Transparency and the Autler- townes effect is demonstrated.	Institute for Material Japan A recent developmer from high temperat Bi2Sr2CaCu2O8+d no damental aspect of the but also from the asp imaging applications w	t of THz radiation ure superconductor t only from the fun- radiation mechanism pects on the various				
CF/IE-3.6 SUN 15:45	IF-3.5 SUN 15:45		CA-3	.5 SUN	15:45		
measurements <i>M. Rhodes</i> ¹ , •G. Steinmeyer ² , J. Ratner ¹ , and <i>R. Trebino</i> ¹ ; ¹ Georgia Institute of Technology, <i>Atlanta, United States</i> ; ² Max-Born-Institut, <i>Berlin, Germany</i> Dynamically unstable pulse trains may give rise to artifacts in modern pulse character- ization techniques similar to the coherence	Laser Light Condensation Phenomenon G. Oren, A. Bekker, and •B. Fischer; Technion- Israel Institute of Technology, Haifa, Israel We present a classical laser light condensa- tion phenomenon based on weighting the modes in a loss-gain scale rather than in photon-energy, and discuss the problems to observe regular photon Bose-Einstein con- densation in laser cavities.		Based Epitax S. Va Mateo V. Pet Laser birsk, Materr Univer ona, S Optics Max-E We st 5% Tm CW re plify d	trik ¹ , I. Vedin ¹ , M. s ² , M.C. Pujol ² , M. Agg rov ³ , and U. Griebner ² Physics, av Lavrentjeva Russia; ² Física i Cri ials i Nanomaterials (Fi rsitat Rovira i Virgili (1 Spain; ³ -Born-Institute and Short Pulse Spa Born-Street, D-12489, Ba udy the power scalin 1-doped KLu(WO4)2 ep gime for use in thin-dis rastically the pump geoi lection at the highly ref	Lu(WO4)2 Segura ² , •X. <i>iiló</i> ² , F. Díaz ² , ¹ , ¹ Institute of 13/3, Novosi- stallografia de CMA-FiCNA), URV), Tarrag- for Nonlinear exctoscopy, 2A erlin, Germany g potential of bitaxy in quasi- k lasers to sim- metry to a sim-		
ROOM 1	ROOM 4	la	ROOM	4b		ROOM 13a	
16:30 - 18:00	16:30 - 18:00		16:30 - 18:00		16:30 - 18:	00	
CF/IE-4: High-energy Ultrafast Sources <i>Chair: Claus Ropers, Georg-August Universität, gen, Germany</i>			CC-4: Terahertz Field Ma Chair: Jérôme Faist, ETH - In: tronics, Zurich, Switzerland		CA-4: Yb-D Chair: Andreas many	oped Lasers S Voss, Universität Stuttgar	•t, Stuttgart, Ger
CF/IE-4.1 SUN	16:30 IF-4.1 SUN (Keynote)	16:30	CC-4.1 SUN	16:3	30 CA-4.1 SUN	(Invited)	16:30

Compact gigawatt-class sub-picosecond Yb:YAG thin-disk regenerative chirped-pulse amplifier with high average power at up to 800 kHz

•R. Fleischhaker, R. Gebs, A. Budnicki, M. Wolf, J. Kleinbauer, and D. Sutter; TRUMPF Laser GmbH + Co. KG, Schramberg, Germany

We present sub-picosecond pulses obtained from a single-disk regenerative amplifier based on an industrial laser system $(0.6 \text{ m}^2 \text{ footprint})$. We use chirped-pulse amplification with a very compact single-pass grating compressor at up to 160 W average power.

Optical data storage with diffraction-unlimited resolution

•M. Gu; Swinburne University of Technology, Hawthorn, Australia

We show our recent progress on optical data storage with superresolution optics of lamda/24 and lamda/26 in newly designed photopolymerisation and photoreduction materials, respectively.

Nonlinear Intersubband Dynamics in Quantum Wells Driven by Intense Few-Cycle Terahertz Pulses

•D. Dietze, J. Darmo, and K. Unterrainer; Photonics Institute, Vienna University of Technology, Vienna, Austria We demonstrate the direct observation of nonequilibrium intersubband dynamics in quantum wells induced by intense terahertz pulses and further discuss coherent electron population transfer, THz induced undressing of intersubband plasmons, and the THz Stark effect.

CA-4.1 SUN (Invited)

16:30

Solid State Optical Crycoolers: Developments and Prospective

•M. Sheik-Bahae¹, S. Melgaard¹, M. Ghasemkhani¹, A. Albrecht¹, R. Epstein¹, and D. Seletskiy^{1,2}; ¹University of New Mexico, Albuquerque, United States; ²University of Konstanz, Konstanz, Germany

Recent progress in laser cooling of solids has led to the first demonstration of an all-solid-state cryocooler. Cooling to 115K from room temperature and heat lifts of 100 mW has been achieved in high purity 10% Yb:YLF crystals.

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CIEOR/Europe IOEC 2013, Sunday 12 May 2013

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ROOM 14a	ROOM 14b the non-instantaneous Raman response of the gas plays a key role.	ROOM 21 condition. Excitation with vortex beams is essential to achieve it.	ROOM 22 fibre. The device is fabricated without using any sophisticated nanostructuring equip- ment and can be connected to standard opti- cal devices such as spectrometers or analyz- ers.	NOTES
CJ-1.6 SUN 15:45 Fundamental Gaussian mode content measurements on active large core CCC fibers •M. Karow ^{1,2} , C. Zhu ³ , D. Kracht ^{1,2} , J. Neumann ^{1,2} , A. Galvanauskas ³ , and P. Weßels ^{1,2} ; ¹ Laser Zentrum Hannover e.V., Hannover, Germany; ² Centre for Quantum- Engineering and Space-Time Research - QUEST, Hannover, Germany; ³ Department of Electrical Engineering and Computer Science, Ann Arbor, United States The overlap of single-frequency laser beams, amplified in active chirally coupled core fibers, with the TEM00-mode is investigated using a non-confocal scanning ring cavity. Up to 186W TEM00-mode power were ex- tracted.	CD-3.6 SUN15:45Nonlinear optics in hollow core PCF filled with gaseous and supercritical xenon•M. Azhar ¹ , N. Joly ^{2,1} , J. Travers ¹ , F. Tani ¹ , and P. Russell ^{1,2} ; ¹ Max Planck Institute for the Science of Light, Erlangen, Germany; ² Dept. of Physics, Friedrich-Alexander Universitat, Erlangen, Germany Wagomé-style hollow-core photonic crystal fiber filled with high pressure gaseous or su- percritical Xe offers a nonlinearity compa- rable to that of fused silica, together with pressure-tunable dispersion. Spectral broad- ening and intermodal four-wave mixing are reported.	CK-3.5 SUN15:45Mode Symmetries Required for Creating Photonic Dirac Cones in the Brillouin-Zone Center•K. Sakoda; National Institute for Materials Science, Tsukuba, JapanThe mode-symmetry requirement for creat- ing photonic Dirac cones in the Brillouin- zone center by accidental degeneracy is ex- amined by a degenerate perturbation theory newly developed for the vector electromag- netic field of periodic structures.	IH-1.6 SUN15:45Biomedical imaging by infrared nanoscopy (nano-FTIR)•S. Amarie ¹ , A. Cernescu ² , T. Geith ³ , S. Milz ⁴ , F. Bamberg ⁴ , and F. Keilmann ² ; ¹ Neaspec GmbH, Martinsried, Germany; ² Ludwig-Maximilians-University München and Center for NanoScience, Munich, Germany; ³ Department of Clinical Ra- diology, Ludwig-Maximilians-University, Großhadern Campus, Munich, Germany; ⁴ Anatomische Anstalt, Ludwig-Maximilians- University, Munich, Germany We recently applied the principles of FTIR to scattering-type Scanning Near-field Op- tical Microscopy (s-SNOM). Results on hu- man bone sections show detail at a resolu- tion of 20 nm (i.e. two orders of magnitude improved resolution).	
ROOM 13b 16:30 - 18:00	ROOM 14 16:30 – 18:00	ła R(16:30 – 18:00	OOM 14b	ROOM 21 18:00

CL-2/ECBO: Biophotonics and Applications II (Session jointly held with ECBO)

Chair: Kishan Dholakia, University of St. Andrews, Fife, U.K. & Jürgen Popp, University of Jena, Germany

CL-2/ECBO.1 SUN (Invited)

Noninvasive Fluorescence Imaging through Strongly Scattering Layers

•J. Bertolotti^{1,2}, E. van Putten¹, C. Blum³, A. Lagendijk^{1,4} W. Vos¹, and A. Mosk¹; ¹Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ²University of Florence, Dipartimento di Fisica, Florence, Italy; ³Nanobiophysics, MESA + Institute for Nanotechnology University of Twente, Enschede, The Netherlands; ⁴FOM Institute for Atomic and Molecular Physics (AMOLF) Amsterdam, The Netherlands

We retrieve the image of a small fluorescent object hidden behind an opaque screen without any need to access the back nor any a-priori knowledge about either the object or the screen itself.

16:30 - 18:00

16:30

CJ-2: Mode-locked Fiber Lasers Chair: Ammar Hideur, CNRS-UMR, Rouen, France

CJ-2.1 SUN

Passively mode-locked laser based on an ultra-large dispersion Yb-doped fiber

•A. Hideur¹, C. Lecaplain¹, H. Wang¹, S. Février², and K. Qian¹; ¹CORIA UMR CNRS 6614, Rouen, France; ²Xlim UMR 6172 CNRS, Limoges, France

We report on the first realization of a passively modelocked oscillator featuring a resonant dispersion Ybdoped Bragg fiber. The laser delivers 950 mW average power at a repetition rate of 34 MHz which corresponds to more than 27 nJ energy.

16:30 - 18:00

CD-4: Nonlinear Imaging and Spectroscopy Chair: Gregor Knopp, Paul Scherrer Institut, Villigen, Switzerland

CD-4.1 SUN

Using a single-beam-CARS setup for the full characterization of the third-order susceptibility and elimination of strong two-photon excited fluorescence •A. Wipfler, J. Rehbinder, T. Buckup, and M. Motzkus; Physikalisch-Chemisches Institut, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany

We present an approach to characterize the third-order susceptibility of molecules using shaped femtosecond laser pulses. Beyond that a slight modification of our scheme allows for the elimination of strong two-photon excited fluorescence in CARS measurements.

16:30 - 18:00

16:30

CK-4: Micro-nanostructured Optical Fibers Chair: Stefano Pelli, CNR-IFAC "Nello Carrara", Sesto Fiorentino, Italy

CK-4.1 SUN	
CK-4.1 30N	

16:30

Theory of optical activity in twisted photonic crystal fibers

•T. Weiss¹, X. Xi¹, G. Wong¹, F. Biancalana^{1,2}, S. Barnett³, M. Padgett⁴, and P. Russell^{1,5}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²School of Engineering & Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom; ³Department of Physics, University of Strathclyde, Glasgow, United Kingdom; ⁴Department of Physics, University of Glasgow, Glasgow, United Kingdom; ⁵Department of Physics, University of Erlangen-Nuremberg, Erlangen, Germany

Using a perturbative approach and symmetry, a theoretical model is developed to model optical activity in continuously twisted photonic crystal fibers. The results are in excellent agreement with both numerical calculations and experimental measurements.

63

16:30

ROOM 1

16:45

17:00

CF/IE-4.2 SUN

1 mJ, 380 fs ultrashort pulses from an Yb:YAG single crystal fiber power amplifier

•X. Délen¹, Y. Zaouter², I. Martial³, N. Aubry³, J. Didierjean³, C. Hönninger², E. Mottay², F. Balembois¹, and P. Georges¹; ¹Laboratoire Charles Fabry, Palaiseau, France; ²Amplitude Systemes, Pessac, France; ³Fibercryst, Villeurbanne, France

We demonstrate the amplification of femtosecond pulses in Yb:YAG single crystal fiber pumped by a 75 W high brightness diode. 1 mJ, 380 fs pulses were obtained at 10 kHz with an excellent beam quality.

CF/IE-4.3 SUN

Flexible 500W Innoslab laser system with pulse durations from 0.5ps to 7.5ps and 300μ J pulse energy

•T. Mans, J. Dolkemeyer, and C. Schnitzler; Amphos GmbH, Aachen, Germany

We present a 500W average power ultrafast laser system with fs and ps pulse durations with full integration of all components necessary for remote operation integrated in a sealed-off housing.

CF/IE-4.4 SUN

High-energy Mid-infrared Cr:ZnS Chirped-pulse Oscillator

•N. Tolstik¹, E. Sorokin², and I. Sorokina¹, ¹Department of Physics, The Norwegian University of Science and Technology, Trondheim, Norway; ²Photonics institute, TU Wien - Vienna University of Technology, Vienna, Austria Mid-IR Cr:ZnS chirped-pulse oscillator with 8.5 nJ pulse energy was demonstrated. The laser output power reached 0.88 W at 2.35 um wavelength. This is the highest chirped pulse energy directly from the oscillator in mid-IR

CF/IE-4.5 SUN

17:30

Dual-Beam Ultra High Temporal Contrast Ti:Sa Laser System Based on a Double CPA Technique •M. Kalashnikov, L. Ehrentraut, G. Priebe, M. Schnürer, H. Schönnagel, S. Steinke, and W. Sandner; Max-Born-Institut, Berlin, Germany

A dual-beam Ti:sapphire laser system with a front end that implements XPW temporal filtering runs at 10Hz

17:15 IF-4.2 SUN

Nonlinear Cerenkov radiation from a single ferroelectric domain wall

•Y. Sheng¹, V. Roppo², K. Kalinowski¹, and W. Krolikowski¹; ¹Australian National University, Canberra, Australia; ²Laboratoire de Photonique et de Nanostructures CNRS UPR 20, Marcoussis, France We report on the observation of Cerenkov-type second-harmonic generation in the vicinity of the ferroelectric domain wall. We discuss the physics origin of this effect and demonstrate its application in three-dimensional visualization of ferroelectric-domain structures.

ROOM 4a

IF-4.3 SUN

Discharge Mechanism and Threshold in Second Harmonic Generation by Periodically Poled LiTaO3

•O. Louchev¹, H. Hatano², S. Wada¹, and K. Kitamura²; ¹*RIKEN, Wako, Japan*; ²*NIMS, Tsukuba, Japan* Combined theoretical and experimental study of the damage threshold for high-repetition pulsed second harmonic generation by periodically poled LiTaO3 is done

CC-4.2 SUN

ROOM 4b

M. Sato^{1,2}, •T. Higuchi^{2,3,4}, N. Kanda^{2,3,5,6}, K. Konishi^{2,6}, K. Yoshioka^{2,4}, T. Suzuki^{1,2,7}, K. Misawa^{1,2,7}, and M. Kuwata-Gonokami^{2,3,4,6}; ¹Department of Applied

Physics, Tokyo University of Agriculture and Technology,

Tokyo, Japan; ²CREST, Japan Science and Technology

Agency, Tokyo, Japan; ³Department of Applied Physics, The University of Tokyo, Tokyo, Japan; ⁴Department of

Physics, The University of Tokyo, Tokyo, Japan; ⁵Extreme

Photonics Research Group, RIKEN Advanced Science In-

stitute, Tokyo, Japan; ⁶Photon Science Center, The University of Tokyo, Tokyo, Japan; ⁷Interdisciplinary Reserch Unit in Photon-nano Science, Tokyo University of Agricul-

We proposed and demonstrated terahertz polarization

pulse shaping by tailoring the incident laser pulse for the

desired terahertz waveform through optical rectification

in a nonlinear optical crystal along its threefold axis.

Graphene Metamaterials Based Terahertz Devices •A. Andrvieuski¹, F. Pizzocchero², T. Booth², P. Bøggild²,

and A. Lavrinenko¹; ¹DTU Fotonik, Technical University

of Denmark, Kongens Lyngby, Denmark; ²DTU Nanotech,

Technical University of Denmark, Kongens Lyngby, Den-

We propose a description of graphene metamaterials properties through the effective surface conductivity. On the example of tunable absorber we demonstrate that this

approach allows for fast and efficient design of functional

Terahertz antireflection properties of sub-wavelength

•V. Paeder, J. Darmo, and K. Unterrainer; Vienna Univer-

The potential of metallic double wire grid structures as

anti-reflection coatings for the terahertz frequency range

is theoretically and experimentally demonstrated. Us-

ing a semi-analytical model, structures with nearly 100%

transmission for GaAs and cyclo-olefin copolymer sub-

Directionality Control of the THz Radiation from

STA/CNRS/Ecole Polytechnique, Palaiseau, France

•S. Mitryukovskiy, Y. Liu, A. Houard, B. Prade, and

A. Mysyrowicz; Laboratoire d'Optique Appliquée, EN-

We demonstrate that it is possible to control the direc-

tionality of the Terahertz radiation emitted by two adja-

metallic double wire grid structures

sity of Technology, Vienna, Austria

Effective Surface Conductivity Approach for

The Terahertz Polarization Pulse Shaping

ture and Technology, Tokyo, Japan

CC-4.3 SUN

terahertz devices.

strates are reached.

CC-4.5 SUN

Two Filaments

CC-4.4 SUN

mark

17:15

17:30

ROOM 13a

CA-4.2 SUN

16:45

17:00

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17:00

17:15

17:30

First laser operation from diode-pumped highly doped Yb:Gd2O3 and Yb:Y2O3 crystals grown by flux method

•F. Druon¹, M. Velazquez², P. Veber², S. Janicot¹, O. Viraphong², G. Buse², M. Abdou Ahmed³, T. Graf³, D. Rytz⁴, and P. Georges¹; ¹Laboratoire Charles Fabry, Institut d'Optique, Palaiseau, France; ²Institut de Chimie de la Matière Condensée de Bordeaux, Pessac, France; ³Institut für Strahlwerkzeuge, Stuttgart, Germany; ⁴gmbh, Idar-Oberstein, Germany

We present, the first laser experiments ever demonstrated with Yb:Gd2O3 and with Yb:Y2O3 crystals grown by new flux method. These highly doped crystals are diode pumped in the watt range with very good effciency.

CA-4.3 SUN

High power Yb:CALGO multi-crystal oscillator

•A.-L. Calendron¹, M. Lederer², H. Cankaya¹, and F.X. Kaertner^{1,3,4}; ¹Center for Free-Electron Laser Science, Deutsches Elektronen-Synchrotron DESY, Hamburg, Germany; ²European XFEL, Hamburg, Germany; ³Physics Department and Hamburg Center of Ultrafast Imaging, University of Hamburg, Hamburg, Germany; ⁴Dept. of EECS and Research Laboratory of Electronics, MIT, Cambridge, United States

We report on nearly 23W continuous wave output power out of 88W absorbed pump power from a dual-crystal Yb:CaAlGdO4 laser resonator, with a good beam quality.

17:30 CA-4.4 SUN

High power amplification in Yb:YAG single crystal fibers

•S. Piehler¹, X. Delen², N. Aubry³, J. Didierjean³, T. Graf⁴, M. Abdou Ahmed¹, F. Balembois², and P. Georges²; ¹Institute für Strahlwerkzeuge, University of Stuttgart, Stuttgart, Germany; ²Laboratoire Charles Fabry, Institut d'Optique, Paris, France; ³Fibercryst SAS, Lyon, France

17:00

ROOM 13b

ROOM 14a

16:45

Ultra-high repetition-rate-selectable passive harmonic mode locking of a fiber laser

•*C.* Lecaplain and *P.* Grelu; Laboratoire Interdisciplinaire Carnot de Bourgogne, U.M.R. 6303 C.N.R.S., Dijon Cedex, France

We demonstrate a passive harmonically mode-locked erbium-doped fiber laser that operates stably at selectable harmonics spanning from the 209th to the 920th, which corresponds to repetition rates ranging from 5 to 22 GHz.

ROOM 14b

CD-4.2 SUN

Cross-polarized Femtosecond Stimulated Raman Scattering Spectroscopy

•S. Dobner¹, P. Groß², and C. Fallnich¹; ¹Institut für Angewandte Physik, Westfälische Wilhelms-Universität, Münster, Germany; ²Institut für Physik, Carl von Ossietzky Universität, Oldenburg, Germany

We present cross-polarized femtosecond stimulated Raman scattering (xFSRS), a method to measure the spectral Raman intensity and phase over a broad spectral range, potentially in a single shot.

17:00 CJ-2.3 SUN (Invited)

CJ-2.2 SUN

Holographic approach for optical poration and Investigations on Positively Chirped Pulses in a trapping of developing embryos •M.L. Torres-Mapa¹, M. Antkowiak^{2,3}, H. Cizmarova¹,

17:15

Thulium-doped Fiber Laser •*F.* Haxsen^{1,2}, *D.* Wandt^{1,2}, *U.* Morgner^{1,2,3}, *J.* Neumann^{1,2}, and *D.* Kracht^{1,2}; ¹Laser Zentrum Hannover e.V., Hannover, Germany; ²Centre for Quantum Engineering and Space-Time Research - QUEST, Hannover, Germany; ³Institut für Quantenoptik, Leibniz Universität Hannover, Hannover, Germanv

We present investigations on positively chirped pulse operation of a hybridly mode-locked thulium-doped fiber laser. The experimentally observed results could be reproduced well and provided deeper insight into the pulse evolution.

CD-4.3 SUN

Balanced-detection Raman Induced Kerr Effect Microscopy

V. Kumar, E. Molotokaite, C. Manzoni, •D. Polli, G. Cerullo, and M. Marangoni; Politecnico di Milano, Milan, Italy

We demonstrate a novel coherent Raman imaging technique which is background-free, scales linearly with concentration, is absent of non-resonant background and accesses both real and imaginary parts of the non-linear response, enabling vibrational phase imaging.

CD-4.4 SUN

Scanless two-photon microscopy with a 30 fs laser by means of a diffractive dispersion compensation module

J. Pérez-Vizcaíno¹, O. Mendoza-Yero¹, G. Mínguez-Vega¹, R. Martínez-Cuenca¹, •P. Andrés², and J. Lancis¹; ¹GROC-UII, Institut de Noves Tecnologies de la Imatge, Castellón de la Plana, Spain;²Universitat de València, Valencia, Spain

We demonstrate real-time efficient generation of widefield fluorescence signals in scanless two-photon microscopy with a 30 fs laser pulse by exploiting diffractive optical elements encoded into a spatial light modulator and a three-lens dispersion-compensated module.

CD-4.5 SUN (Invited)

Label free nonlinear imaging in microscopy and endoscopy

•H. Rigneault; Institut Fresnel, CNRS, Aix-Marseille University, Ecole Centrale Marseille, Marseille, France

We review the assets and constrains of coherent Raman scattering imaging (CARS and SRS) and the reduction of their associated artifacts in microscopy and endoscopy.

ROOM 21

16:45

An azimuthally polarized light source for the optical near field

•D. Ploss¹, A. Kriesch¹, H. Pfeifer¹, P. Banzer², and U. Peschel¹; ¹Institute of Optics, Information and Photonics, University of Erlangen-Nuremberg, Erlangen, Germany; ²Max Planck Institute for the Science of Light, Erlangen, Germany

We introduce a novel method to create a predominantly azimuthally polarized mode for nanoscale probing in the near field. The polarization is generated inside a modified NSOM tip, whose aperture acts as efficient modal filter.

CK-4.3 SUN

CK-4.2 SUN

16:45

17:00

17:15

17:30

17:00

17:15

17:30

Transverse Excitation of Plasmonic Slot Nano-Resonators Embedded in Gold-Coated Microfiber Tips

•M. Ding, M. Zervas, and G. Brambilla; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

A plasmonic slot rectangular nano-resonator embedded in metal-coated optical microfiber tip is theoretically and experimentally demonstrated for the first time, which shows strong localization in three dimensions and strong enhancement factor (7.24x103)

CK-4.4 SUN

Microsphere resonator integrated inside a microstructured optical fiber

•K. Kosma¹, G. Zito¹, K. Schuster², and S. Pissadakis¹; ¹Foundation for Research and Technology-Hellas (FORTH), Institute of Electronic Structure and Laser (IESL), Heraklion, Greece; ²Institute of Photonic Technology Jena, Jena, Germany

An integrated in-fiber microresonator coupler is presented, consisting of a dielectric microsphere encapsulated inside the capillary of a Microstructured Optical Fiber. Whispering-Gallery Modes of this microcavity are demonstrated and studied for different excitation schemes.

CK-4.5 SUN

SUSY fibers for integrated optical angular momentum multiplexing

•M.-A. Miri¹, M. Heinrich¹, R. El-Ganainy², and D.N. Christodoulides¹; ¹CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, United States; ²Department of Physics, University of Toronto, Toronto, Canada

We demonstrate a holographic approach using a Ti:Sapphire laser and spatial light modulator for optical injection and trapping of developing embryos. Our results show that optical tools maybe useful for embryo manipulation.

D. Ferrier², K. Dholakia¹, and F. Gunn-Moore^{2,3}; ¹SUPA,

School of Physics and Astronomy, University of St An-

drews, Fife, United Kingdom; ²School of Biology, Univer-

sity of St Andrews, Fife, United Kingdom; ³SULSA, Fife,

CL-2/ECBO.3 SUN

CL-2/ECBO.2 SUN

United Kingdom

Microparticle manipulation using modal

superpositions in air-filled hollow-core photonic crvstal fiber

•O.A. Schmidt, X. Jiang, F. Babic, T.G. Euser, and P.S.J. Russell; Max Planck Institute for the Science of Light, Erlangen, Germany

Coherent superpositions of the two lowest order modes of a soft glass photonic crystal fiber are used to control the axial and radial position of dielectric particles optically trapped inside the air-filled hollow core.

CL-2/ECBO.4 SUN (Invited)

Combination of Optical Micromanipulation with

Raman Spectroscopy for Cell Sorting •C. Krafft¹, S. Dochow¹, and J. Popp^{1,2}; ¹Institute of Pho-tonic Technology, Jena, Germany; ²Institute of Physical Chemistry and Abbe Center of Photonics, Jena, Germany Raman activated cell sorting (RACS) offers prospects to complement the widely applied fluorescence activated

CJ-2.4 SUN 17:30

Study of a high power self mode locked ytterbium rod-type fiber laser with tunable pulse duration

P. Deslandes^{1,2}, •M. Perrin², J. Saby¹, D. Sangla¹, F. Salin¹, and E. Freysz²; ¹Eolite Systems, Pessac, France; ²University of Bordeaux I, Talence, France We have designed and modeled a new ytterbium rodtype fiber laser. The pulse duration is adjusted with a

17:30

and generates optical pulses with temporal contrast in excess of 10^11 at the power level of 100 TW.	revealing the mechanism of generation and heating of the conductive band electrons and discharge.	cent femtosecond laser filaments formed in air.	In this paper, we present a power scaling experiment of Yb:YAG Single crystal fiber amplifiers. A maximum power of 140 W is obtained for a seed and pump powers of 40 W and 515W respectively.
CF/IE-4.6 SUN 17:45 High Power Top-Hat Pulses for Efficient OPA Pumping •G. Fan, T. Balciunas, G. Andriukaitis, A. Pugzlys, and A. Baltuska; Vienna University of Technology, Vienna, Aus- tria We demonstrate phase-only shaping of high-energy broadband Yb amplifier pulses using acousto-optic pro- grammable dispersion filter (AOPDF) for the genera- tion of a top-hat temporal profile that provides efficient pumping of an optical parametric amplifier.	IF-4.4 SUN 17:45 High symmetry orders probed by polarized Coherent Anti Stokes Raman Scattering and Four Wave Mixing • J. Duboisset, FZ. Bioud, P. Gasecka, P. Ferrand, H. Rigneault, and S. Brasselet; Institut Fresnel, Marseille, France We implement incident polarizations tuning in FWM and CARS to probe molecular order, using a generic method to read-out symmetry information in crystalline and less organized samples.	CC-4.6 SUN 17:45 Evanescent-Wave Proton Post-accelerator Driven by Intense THz Pulses • <i>L. Pálfalvi</i> ¹ , <i>J. Fülöp</i> ^{2,3} , <i>G. Tóth</i> ¹ , and <i>J. Hebling</i> ^{1,2} ; ¹ Department of Experimental Physics, University of Pécs, <i>Pécs, Hungary</i> ; ² MTA-PTE High-Field Terahertz Research Group, Pécs, Hungary; ³ ELI-HU Mkft, Szeged, Hungary A compact, cost effective solution is proposed for post- acceleration and monochromatization of protons leaving a laser driven accelerator. The evanescent field of intense THz pulses is used for acceleration and monochromatization.	CA-4.5 SUN17:45 12W efficient air cooled diode-pumped activelyQ-switched Yb:KGd(WO4)2 laser V.E. Kisel ¹ , •A.S. Rudenkov ¹ , A.E. Gulevich ¹ , N.V.Kondrtyuk ¹ , •A.S. Rudenkov ¹ , A.E. Gulevich ¹ , N.V.Kondrtyuk ² , •Center for Optical Materials and Technologies,Belarusian National Technical University, Minsk, Belarus; ² Nikolaev Institute for Inorganic Chemistry, SiberianBranch of Russian Academy of Sciences, Novosibirsk, RussiaCompact diode-pumped actively Q-switched Yb:KGWlaser is demonstrated with optical-to-optical efficiency of50%. Output power of 12.2 W with repetition rate up to50 kHz and pulse duration of 10-24 ns was obtained.
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ROOM 4a

ROOM 1

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ROOM 4b

ROOM 13a

	CLEO [®] /Europe-IQEC 20	13 · Sunday 12 May 2013	
ROOM 13b	ROOM 14a	ROOM 14b	ROOM 21
cell sorting. Raman spectra of optically trapped cells are collected in microfluidic chips and are used for their identification.	spectral filter from picoseconds to femtoseconds, with 10W average power, at 104 MHz.		Supersymmetry provides a versatile platform in synthe- sizing a new class of optical structures with desired func- tionalities. Here we extend SUSY to two-dimensional fiber geometries that could facilitate integrated optical angular momentum multiplexing schemes.
	CJ-2.5 SUN 17:45		CK-4.6 SUN 17:45
	 7 nJ High-Fidelity 60 fs Pulses at 1035 nm from an Integrated Ytterbium Fiber Oscillator with a Higher-Order-Mode Fiber •A. Fernandez¹, L. Zhu¹, V. Kalashnikov¹, A. Verhoef¹, K. Jespersen², D. Lorenc¹, L. Grüner-Nielsen², and A. Baltuska¹; ¹Institut für Photonik, Technische Universitiät Wien, Wien, Austria; ²OFS Denmark, Brøndby, Denmark We present a mode-locked Ytterbium-doped fiber oscil- lator operating in the net normal-dispersion regime, de- livering 7 nJ pulses that can be dechirped down to 62 fs. A higher-order mode fiber is used for intracavity disper- cion comparation 		 Enhanced Second Harmonic Generation in Microfiber Loop Resonators •R. Ismaeel, T. Lee, M. Gouveia, and G. Brambilla; Opto- electronics research centre, Southampton, United Kingdom Resonantly enhanced surface second harmonic genera- tion was experimentally demonstrated by fabricating a loop resonator from a 770nm diameter silica microfiber. The conversion efficiency was enhanced by a factor of 5.7 compared to the straight microfiber.

NOTES

rmonic Generation in onators

sion compensation.

Hall B0

13:30 - 14:30

IF-P: IF Poster Session

IF-P.1 SUN

Second harmonic generation and two-photon excitation fluorescence from individual nanocrystals of pyrazoline derivatives

•P. Karpinski¹, A. Szukalski¹, L. Sznitko¹, J. Mysliwiec¹, A. Miniewicz¹, P. Ferrand², H. Rigneault², and S. Brasselet²; ¹Wroclaw University of Technology, Wroclaw, Poland; ²University Aix Marseille, Fresnel Institut, Marseille, France

We investigate the quadratic nonlinear optical properties of individual nanocrystals of different derivatives of pyrazoline. We measure angular polarization dependence of second harmonic and two-photon fluorescence signals and their relation with a possible crystallographic structure.

IF-P.2 SUN

Pressure tunable cascaded third order nonlinearity and temporal pulse switching

•F. Eilenberger¹, M. Bache², S. Minardi¹, and T. Pertsch¹; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität, Jena, Germany; ²DTU Fotonik, Department of Photonics Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark We investigate the impact of phase-mismatched, cascaded third harmonic generation on pulse propagation in noble-gas filled Kagome fibers. The pressure tunable cascade facilitates temporal switching even in the presence of intrinsic higher order Kerr effect.

IF-P.3 SUN

Optomechanical Nonlinearity and Bistability in Dielectric Metamaterials

J. Zhang¹, •K.F. MacDonald¹, and N.I. Zheludev^{1,2}; ¹University of Southampton, Southampton, United Kingdom; ²Nanyang Technological University, Singapore, Singapore

We introduce a new type of dielectric metamaterial, inherently free of Joule losses, which exhibits a strong optomechanical nonlinearity, asymmetric transmission and optical bistability at optical intensities of less than $0.2 \text{ mW}/\mu\text{m2}$.

IF-P.4 SUN

Negative-frequency resonant radiation in quadratic media

•M. Conforti¹, N. Westerberg², F. Baronio¹, S. Trillo³, and D. Faccio²; ¹University of Brescia, Brescia, Italy; ²Heriot-Watt University, Edinburgh, United Kingdom; ³University of Ferrara, Ferrara, Italy We show that the extremely blue-shifted dispersive wave emitted in Kerr media owing to the coupling with the negative-frequency branch can be observed in quadratic media via second-harmonic generation.

IF-P.5 SUN

Kerr frequency combs in the normal and anomalous regimes

•A. Coillet, R. Henriet, I. Balakireva, L. Larger, and Y. Chembo; FEMTO-ST, Besançon, France

High-Q crystalline whispering-gallery mode resonators are used to generate optical frequency combs through four-wave-mixing in both normal and anomalous regimes of dispersion. A modal description provides analytical insight into these two phenomenologies.

IF-P.6 SUN

Study of multilayer nonlinear dielectric-metal structures: towards low power plasmon-solitons in realistic waveguides

W. Walasik^{1,2}, Y. Kartashov², and •G.R. Renversez¹; ¹Institut Fresnel & Université d'Aix-Marseille, Marseille, France; ²ICFO, Universitat Politecnica de Catalunya, Castelldefels, Spain

Using several improved vector models we study plasmon-soliton waves in multilayer monlinear dielectric-metal planar structures. For the first time we obtain low power plasmon-solitons in structures compatible with fabrication technology of chalcogenide waveguides.

IF-P.7 SUN

Experimental observation of the spectral Gouy phase shift

•E.R. Andresen¹, C. Finot², D. Oron³, and H. Rigneault¹; ¹Institut Fresnel, CNRS, Aix-Marseille Université, École Centrale Marseille, Marseille, France; ²Laboratoire Interdisciplinaire Carnot de Bourgogne, CNRS, Université de Bourgogne, Dijon, France; ³Department of Physics of Complex Systems, Weizmann Institute of Science, Rehovot, Israel

Using interferometry based on a 4-f pulse shaper, we experimentally observe the Gouy phase shift of a parabolic pulse subjected to spectral focusing in an optical fiber.

IF-P.8 SUN

Optical Kerr effect in nematic doped with azo-benzene functionalized POSS nanoparticles

•A. Miniewicz¹, B. Mossety-Leszczak², J. Girones¹, P. Karpinski¹, H. Galina², and M. Dutkiewicz³; ¹Wroclaw University of Technology, Wroclaw, Poland; ²Rzeszow University of Technology, Rzeszow, Poland; ³Adam Mickiewicz University of Poznan, Poznan, Poland

Light-induced refractive index changes in nematic LC doped by azo-benzene functionalized POSS nanoparticles are reported. Optical Kerr effect experiment proves that nematic doped with polyhedral silsesquinoxane shows all-optical switching at low cw laser power.

IF-P.9 SUN

Soliton delay driven by cascading and Raman responses

•H. Guo¹, X. Zeng^{1,2}, B. Zhou¹, and M. Bache¹; ¹Group of Ultrafast Nonlinear Optics, DTU Fotonik, Technical University of Denmark (DTU), Kgs. Lyngby, Denmark; ²Key Laboratory of Special Fiber Optics and Optical Access Networks, Shanghai University, Shanghai, China, People's Republic of (PRC)

We analytically and numerically study the soliton pulse delay driven by the first order of cascading and Raman responses and demonstrate a potential delay balance by tuning the cascading delay time through phase mismatch.

IF-P.10 SUN

Influence of Phase Coherence on Seeded Supercontinuum Generation

•S.T. Sørensen¹, C. Larsen¹, U. Møller¹, P.M. Moselund², C.L. Thomsen², and O. Bang^{1,2}; ¹DTU Fotonik, Technical University of Denmark, Kgs. Lyngby, Denmark; ²NKT Photonics A/S, Birkerød, Denmark

The supercontinuum noise properties can be controlled by modulating the pump with a seed pulse. We investigate the influence of the seed's phase-coherence and demonstrate the need to seed coherently to achieve a low-noise supercontinuum.

IF-P.11 SUN

Nonlinear magneto-optical rotation with amplitude-modulated light

•P. Anielski¹, J. Sudyka¹, W. Gawlik¹, and S. Pustelny^{1,2}; ¹Center for Magneto-Optical Research, M. Smoluchowski Institute of Physics, Jagiellonian University, Krakow, Poland; ²Department of Physics, University of California at Berkeley, Berkeley, United States

Various quantum superpositions states between Zeeman sublevels are created on demand in warm 85Rb vapour with the use of amplitude-modulated laser excitation. The coherence lifetime on the order of 1s is measured.

IF-P.12 SUN

Tuning Curve of Type-0 Spontaneous Parametric Down-Conversion

•S. Lerch, B. Bessire, C. Bernhard, A. Stefanov, and T. Feurer; Institute of Applied Physics, Bern, Switzerland We study the tuning curve of entangled photons generated by type-0 spontaneous parametric down-

conversion in a PPKTP crystal. We demonstrate the X-shaped spatiotemporal structure of the spectrum by means of measurements and numerical simulations.

IF-P.13 SUN

Trans-spectral orbital angular momentum transfer via 4WM in Rb vapor

G. Walker¹, E. Riis², S. Franke-Arnold¹, and •A. Arnold²; ¹University of Glasgow, Glasgow, United Kingdom; ²University of Strathclyde, Glasgow, United Kingdom

We transfer orbital angular momentum (OAM) from near-infrared pump light (780+776nm) to blue light (420nm) using a highly efficient single-pass nearresonant four-wave-mixing process in Rb vapour.

IF-P.14 SUN

Nonlinear Conversion between Ultrashort Radiallyand Azimuthally-Polarized Pulses in an Anisotropic Media

•M. Suzuki¹, K. Yamane^{1,2}, Y. Toda^{1,2}, and R. Morita^{1,2}; ¹Hokkaido University, Sapporo, Japan; ²JST, CREST, Sapporo, Japan

Nonlinear conversion between ultrashort radially- and azimuthally-polarized pulses in an anisotropic crystal is investigated. It is analyzed with the spatially-extended Stokes parameters, which are the integrals of the Stokes parameters in a beam cross section.

IF-P.15 SUN

Effect of Domain Shape on Noncollinear Second-

Harmonic Emission in Disordered Quadratic Media •*M. Ayoub*¹, *M. Passlick*¹, *P. Roedig*¹, *K. Koynov*², *S. Kroesen*¹, *J. Imbrock*¹, and *C. Denz*¹; ¹*Institute of Applied Physics, Muenster, Germany*; ²*Max Planck Institute for Polymer Research, Mainz, Germany*

The effect of the individual domain shape in nonlinear photonic structures on the noncollinearly emitted second-harmonic signal is experimentally studied and numerically proved in different size distributions, ranging from the nano to the micro scale.

13:30 - 14:30

CL-P: CL Poster Session

CL-P.1 SUN

PNA-modified photonic crystal fibers for DNA detection

•A. Candiani¹, S. Giannetti¹, A. Bertucci², R. Mwad Naife⁴, H. Al-Janabi⁴, M. Konstantaki³, A. Cucinotta¹, S. Pissadakis³, R. Corradini², and S. Selleri¹; ¹Information Engineering Department, University of Parma, Parma, Italy; ²Department of Chemistry, University of Parma, Parma, Italy; ³Institute of Electronic Structure and Laser (IESL), Foundation for Research and Technology - Hellas (FORTH), Heraklion, Greece; ⁴Institute of Laser for Postgraduate Studies, University of Baghdad, Baghdad, Iraq Functionalized photonic crystal fibers Bragg gratings for specific DNA detection are presented. Spectral measurements in reflection mode show a clear wavelength shift of the resonant peaks when specific DNA targets are detected

CL-P.2 SUN

Towards refractive index corrected optical coherence tomography as a navigation tool for bone surgery

•M. Rahlves¹, J. Diaz Diaz², J. Thommes², O. Majdani³, B. Roth¹, T. Ortmaier², and E. Reithmeier¹; ¹Hannover Center for Optical Technologies, Leibniz Universität Hannover, Hannover, Germany; ²Institute of Mechatronic Systems, Leibniz Universität Hannover, Hannover, Germany; ³Clinic for Laryngology, Rhinology and Otology, Hannover Medical School, Hannover, Germany We present a strategy for geometrical calibration and re-

fractive index correction for Optical Coherence Tomography in bone. This enables quantitative measurements inside bone materials and forms the basis for optical navigation in robot aided surgery.

CL-P.3 SUN

Enhancing Two-Photon Excited Fluorescence by Using Thermal Light

•A. Jechow^{1,2}, M. Seefeldt², H. Kurzke², A. Heuer², and R. Menzel²; ¹Centre for Quantum Dynamics, Griffith University, Brisbane, Australia; ²University of Potsdam, Institute of Physics and Astronomy, Photonics, Potsdam, Germany

The photon bunching effect of thermal light is exploited to enhance the efficiency of two-photon excited fluorescence in a common fluorophore and water soluble quantum dots. This has potential applications in microscopy.

CL-P.4 SUN

Second Harmonic Generation imaging of collagen fibrillogenesis

S. Bancelin¹, C. Aimé², V. Machairas³, E. Decencière³, C. Albert², G. Mosser², T. Coradin², and •M.-C. Schanne-Klein¹; ¹Ecole Polytechnique - LOB (CNRS, Inserm), Palaiseau, France; ²Lab. for Chemistry of Condensed Matter, UPMC-Collège de France - CNRS, Paris, France; ³Centre of Mathematical Morphology -Mines ParisTech, Fontainebleau, France

We visualized collagen fibrillogenesis using time-lapse Second Harmonic Generation microscopy and obtained reproducible kinetics of the fibril 3D density. Correlation to Transmission Electron Microscopy showed that SHG detect fibrils down to 30-50 nm diameter.

CL-P.5 SUN

Determination of axial fluorophore distributions without strong focusing apertures using noncollinear optical parametric amplification

•M. Gräfe¹, A. Hoffmann¹, and C. Spielmann^{1,2}; ¹Institute of Optics and Quantumelectronics, Abbe Center of Photonics, Jena, Germany; ²Helmholtzintitut, Jena, Germany

A new method is presented for investigation of structured fluorescence samples using low numerical apertures for ophthalmologic application. It is used to determine the axial fluorophore distribution along the propagation direction of an excitation pulse.

CL-P.6 SUN

Nonparaxial Circular and Weber beams from caustics • A. Mathis, F. Courvoisier, L. Froehly, R. Giust, L. Furfaro, M. Jacquot, and J. Dudley; Universite de Franche-Comte, BESANCON, France

Using a caustic-based approach and an appropriate modeling of high-numerical aperture microscope objectives with Debye integral, we report analytical solutions for different nonparaxial accelerating beams and experimental realization actually in the nonparaxial regime.

CL-P.7 SUN

Optical tweezers assembly line for the

micro-assembly of functional zeolite nanocontainer structures

•Á. Barroso¹, M. Woerdemann¹, M. Veiga-Gutiérrez², L. De Cola², and C. Denz¹; ¹Institute of Applied Physics, University of Muenster, Muenster, Germany; ²Physics Institute and Center for Nanotechnology (CeNTech), University Münster, Muenster, Germany

We present an optical tweezers assembly line that enables the construction of sophisticated 2D and 3D photonic functional structures of zeolite L crystals nanocontainers.

Hall B0

CL-P.8 SUN

Microscopic Second-order Susceptibility Tensor Analysis

•M.J. Huttunen¹, L. Naskali¹, M. Virkki¹, G. Bautista¹, A. Dér², and M. Kauranen¹; ¹Department of Physics, Tampere University of Technology, Tampere, Finland; ²Institute of Biophysics, Biological Research Centre of the Hungarian Academy of Sciences, Szeged, Hungary We demonstrate microscopic tensor analysis technique based on polarized second-harmonic generation microscopy and genetic algorithms. The technique is applied to characterize nonlinear responses of bacteriorhodopsin chromoproteins, and could provide a new diagnostic tool of tissues.

CL-P.9 SUN

On-chip microparticle detection and sizing using a dual-wavelength waveguide laser

E.H. Bernhardi, K.O. van der Werf, A.J.F. Hollink, K. Wörhoff, R.M. de Ridder, V. Subramaniam, and •M. Pollnau; University of Twente, Enschede, The Netherlands An integrated intra-laser-cavity microparticle sensor based on a dual-phase-shift, dual-wavelength distributed-feedback channel waveguide laser in ytterbium-doped aluminium oxide is presented. Single micro-particles with diameters ranging between 1 μ m and 20 μ m are detected.

CL-P.10 SUN

Adapted AWG Design for Localised Spectroscopic Measurements

•Z. Hu¹, H. Yin², A. Glidle², and J. Cooper²; ¹Division of Medical and Biological Measurements, National Institute of Metrology, Beijing, China, People's Republic of (PRC); ²School of Engineering, University of Glasgow, Glasgow, United Kingdom

For localised spectroscopic measurements, AWG design was modified to work with microfluidic system. Lens curvatures were incorporated into the ends of the integrated waveguides and the controllable focusing properties were evaluated by fluorescence measurements.

CL-P.11 SUN

Laser Diode Vibrometry for Non-Contact Monitoring of the Arterial Stiffness: Detection of the Heart Beat and Measurement of the Pulse Wave Velocity

G. Capelli¹, M. Benedetti^{1,2}, M. Norgia^{1,3}, and •G. Giuliani^{1,2}; ¹University of Pavia, Pavia, Italy; ²Julight S.r.l., Pavia, Italy; ³Politecnico di Milano, Milano, Italy We demonstrate the simultaneous use of two diode laser vibrometers to measure the heart rate and arterial Pulse Wave Velocity without contact. This tool can be applied to cardiovascular risk prevention on a large scale.

CL-P.12 SUN

Optical Injector of Particles for X-ray Diffractive Imaging

•R. Kirian¹, N. Eckerskorn², A. Rode², J. Kupper^{1,3,4}, D. DePonte¹, and H. Chapman^{1,3,4}; ¹Center for Free-Electron Laser Science, DESY, Hamburg, Germany; ²Laser Physics Centre, Research School of Physics and Engineering, Australian National University, Canberra, Australia; ³Department of Physics, University of Hamburg, Hamburg, Germany; ⁴The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

We apply a high aspect-ratio first order Bessel beam, formed by imaging a vortex beam through an axicon, to guide biological macromolecules and viruses to the focus of femtosecond x- ray free-electron-laser for coherent diffractive imaging.

CL-P.13 SUN

Cell Material interaction investigated by Digital Holographic Microscopy •L. Miccio¹, P. Memmolo^{1,2}, F. Merola¹, S. Fusco², V.

•L. Miccio¹, P. Memmolo^{1,2}, F. Merola¹, S. Fusco², V. Embrione², P. Netti², and P. Ferraro¹; ¹Istituto Nazionale di Ottica del CNR, Pozzuoli, Italy; ²Istituto Italiano di Tecnologia, Napoli, Italy

Investigation of the interaction between cells and substrates is performed by Digital Holographic Microscopy. The potentiality of this well known interferometric technique is exploited to investigate the cross talk interaction between cell and biomaterials.

CL-P.14 SUN

High-resolution phase and amplitude modulation using a digital micromirror device

•S.A. Goorden, J. Bertolotti, H. Yilmaz, D. Akbulut, W.L. Vos, and A.P. Mosk; Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands

We demonstrate a new phase and amplitude modulation method using a digital micromirror device. This provides the high level of control, high resolution and high speed required by many wavefront shaping applications.

CL-P.15 SUN

Monolithic Y-branch dual wavelength DBR diode laser at 671 nm for Shifted Excitation Raman Difference Spectroscopy

•M. Maiwald, J. Fricke, A. Ginolas, J. Pohl, B. Sumpf, G. Erbert, and G. Tränkle; Ferdinand-Braun-Institut, Berlin, Germany

A monolithic dual wavelength diode laser at 671 nm will be presented. Electro-optical and spectral properties will be given. Raman experiments demonstrate the suitability of these devices for shifted excitation Raman difference spectroscopy (SERDS).

CL-P.16 SUN

All-Fiber Nanosecond Laser System Generating Supercontinuum Spectrum for Photoacoustic Imaging

S. Yavas¹, E.A. Kipergil², O. Akcaalan¹, Y.B. Eldeniz³, U. Arabul², H. Erkol², M.B. Unlu², and •F.O. Ilday¹; ¹Bilkent

13:30 - 14:30

CM-P: CM Poster Session

CM-P.1 SUN

Ciliary white light generated during femtosecond laser ablation on transparent dielectrics

•Y. Liu¹, Y. Brelet¹, Z. He², L. Yu³, S. Mitrykovskiy¹, A. Houard¹, B. Foresiter¹, A. Couairon⁴, and A. Mysyrowicz¹; ¹Laboratoire d*Optique Appliquée, Palaiseau, France; ²University of Antwerp, Antwerp, Belgium; ³Laboratoire de Physique des Interfaces et des Couches Minces, Palaiseau, France; ⁴Centre de Physique Théorique, Ecole Polytechnique, Palaiseau, France

We report on a new nonlinear optical phenomenon, coined as ciliary white light, during laser ablation on transparent dielectrics. It is universally observed on 14 different dielectrics including glasses, crystals and polymers.

CM-P.2 SUN

Pulsed Laser Generation of Novel Nanomaterials for Organic Electronics

•E. Stratakis^{1,2}, M.M. Stylianakis^{2,3}, K. Savva^{1,2}, C. Fotakis^{1,2}, and E. Kymakis³; ¹Institute of Electronic Structure and Laser, Foundation for Research & Technology Hellas, (IESL-FORTH), P.O. Box 1527, Heraklion 711 10, Greece., Heraklion, Greece; ²University of Crete, Heraklion 714 09, Greece., Heraklion, Greece; ³Center of Materials Technology and Photonics & Electronic Engineering Department, Technological Educational Institute (TEI) of Crete, Heraklion, 71003, Greece, Heraklion, Greece We present the application of ultrafast lasers for the photochemical reduction [1], functionalization and doping of graphene oxide sheets for organic electronics applications. [1] E. Kymakis et al. Adv. Funct. Mater. 2013, DOI: 10.1002/adfm.201202713.

CM-P.3 SUN

Highly Antibacterial UHMWPE Surfaces by Pulsed Laser Ablation of Titanium Targets

•D. Delle Side^{1,2}, P. Alifano³, V. Nassisi^{1,2}, A. Talà³, S.M. Tredici³, and L. Velardi^{1,2}; ¹Leas, Dipartimento di Matematica e Fisica, Università del Salento, Lecce, Italy; ²INFN section of Lecce, Lecce, Italy; ³Laboratorio di Microbiologia, DiSTeBA, Università del Salento, Lecce, Italy Results about an highly antibacterial UHMWPE implanted with Ti ions obtained by Laser Ablation are presented. Morphological and elemental analysis and antibacterial tests show substantial enhancements with respect to the blank material.

University, Ankara, Turkey; ²Bogazici University, Istan-

We demonstrate an integrated fiber-laser system to

be used in photoacoustic-imaging. It is producing

nanosecond-pulses, covering from 600-1100 nm, which

bul, Turkey; ³Ankara University, Ankara, Turkey

CM-P.4 SUN

Nanosecond pulsed laser irradiation of silver-doped nanocomposite glass

•L. Fleming and A. Abdolvand; School of Engineering, Physics and Mathematics, University of Dundee, Dundee, United Kingdom

Glass embedded with silver nanoparticles is modified using a nanosecond pulsed laser at 532 nm. The modified areas show a broadening and red shift of the SPR band, in accordance with the Maxwell-Garnett theory.

CM-P.5 SUN

Creating metallic films by laser irradiation of silver ion exchanged glasses

•S. Wackerow and A. Abdolvand; School of Engineering, Physics & Mathematics, University of Dundee, Dundee, United Kingdom

Glass with silver ions was fabricated and irradiated at scanning speed of 14 mm/s using a nanosecond laser at 355 nm, leading to spatially-selective one-step precipitation of silver particles and fabrication of glass-silver composite.

CM-P.6 SUN

Fabrication of a DFB Laser in SU-8 by Direct Femtosecond Laser Writing

W. Horn, •S. Kroesen, and C. Denz; University of Muenster, Muenster, Germany

We demonstrate the fabrication of a DFB laser in Rhodamin 6G doped SU-8 by femtosecond laser writing. We characterize spectral emission, threshold and lifetime by optically pumping the device with a pulsed Nd:YAG laser source.

CM-P.7 SUN

Dental Tissue Ablation by means of a Picoseconds Laser

•M. Sozzi¹, C. Fornaini², A. Cucinotta¹, E. Merigo², P. Vescovi², and S. Selleri¹; ¹Department of Information Engineering, University of Parma, Parma, Italy; ²Oral medicine and Laser-assisted Surgery Unit, Dental School, Parma, Italy

An "in vitro" study of dental surfaces ablation, by means of a 1064nm picoseconds laser, has been carried out. High quality holes have been drilled, avoiding cracks, carbonization, and high temperature rise by proper cooling.

allows independent complete control over pulse dura-

tion, energy, and pulse train through custom-developed

CM-P.8 SUN

FPGA electronics.

Study of the Stress-Strain State in Glass-Carbon Plates after Ultrafast Laser Processing

•T. Sokolova, Y. Chebotarevsky, E. Surmenko, A. Konyushin, I. Popov, and D. Bessonov; Gagarin Saratov State Technical University, Saratov, Russia

Paper describes the theoretical simulation of the mechanical stresses that occur in a glass-carbon plate under the influence of a series of ultrashort laser pulses with high energy density.

CM-P.9 SUN

Laser-assisted Microstructuring and Blackening of Copper

•G. Tang, A. Hourd, and A. Abdolvand; School of Engineering, Physics and Mathematics, University of Dundee, Dundee, United Kingdom

Large-area microstructures have been induced on copper surfaces using a 532 nm nanosecond laser to produce black copper, which absorbs 97% of light from 250-750 nm, and over 80% between 750-2500 nm.

CM-P.10 SUN

Multiple-wavelength DFB laser based on 3D surface relief gratings

•X. Wu^{1,2}, D. Sun², I. Ledoux-Rak¹, C.T. Nguyen¹, and N.D. Lai¹; ¹Labotoire de Photonique et Moléculaire, UMR CNRS 8537, Ecole Normal Supérieure de Cachan, Cachan, France; ²Condensed Matter Physics, East China Normal University, 3663 Zhongshan Road North, Shanghai, China, People's Republic of (PRC)

Polymer-based 3D structures are fabricated by holographically assembling multiple 1D surface relief gratings. By varying the period of each 1D layer, these structures allow to realize multiple-wavelength distributed feedback lasers.

CM-P.11 SUN

Laser Induced Plasma Detection by Flat and Circular Interdigital Electrodes in Laser Material Processing •Y.-J. Chang, C.-T. Chen, C.-C. Ho, J.-C. Hsu, and C.-L. Kuo; National Yunlin University of Science and Technology, Douliou, China, Republic of (ROC)

We propose flat and circular interdigital electrode designs to increase the detection signal of laser-induced plasma for monitoring laser material processing. The results indicated the signal increase by 2.5 times and 3.3 time, respectively.

CM-P.12 SUN

Microfabrication of notches for electric contacts in the conductive ceramic fiber by femtosecond pulses

A. Alesenkov, L. Mažule, G. Choževskis, K. Stankevičiute,
 D. Paipulas, and V. Sirutkaitis; Laser Research Centre,
 Villnius, Lithuania

With the help of femtosecond laser micromachining technology we demonstrate fabrication of micronotches in conductive ceramic fibres. The notches, with 60-200 um width are intended to attach electrical wires in the metallic mould wear sensor.

CM-P.13 SUN

Time Resolved and Spectral Analysis of Solar Absorber Cu-Al and Al-Al Laser Weld Emission

•P. Siozos; Institute of Electronic Structure and Laser -Foundation for Research and Technology Hellas, Heraklion, Greece

The time resolved and spectral analysis of emission during laser welding in the fabrication of solar heat collectors is presented. The results provide significant information concerning laser welding, for the optimization of the weld quality.

CM-P.14 SUN

Ultrafast laser ablation giving unstructured surface roughness prior to the emergence of LIPSS

•M. Ardron and D. Hand; Heriot Watt University, Edinburgh, United Kingdom

Ultrafast laser pulses around the ablation threshold form LIPSS on metal regardless of surface preparation. Experimental results suggest initial ablation gives unstructured roughness allowing further pulses to couple with plasmons via scattering and grating-like interaction.

CM-P.15 SUN

Direct laser fabrication of composite material 3D microstructured scaffolds

•S. Rekstyte¹, E. Balciunas^{1,2}, D. Baltriukiene², V.

Rutkunas³, V. Bukelskiene², R. Gadonas¹, and M. Malinauskas¹, ¹Vilnius University, Faculty of Physics, Department of Quantum Electronics, Laser Research Center, Vilnius, Lithuania; ²Vilnius University, Institute of Biochemistry, Department of Biological Models, Vilnius, Lithuania; ³Vilnius University, Institute of Odontology, Faculty of Medicine, Vilnius, Lithuania

We present manufacturing of 3D microporous composite material scaffolds for tissue engineering applications. We use the advantage of flexible direct laser fabrication to create biologically inert rigid support structures filled with a biodegradable fine mesh.

CM-P.16 SUN

Direct femtosecond laser writing of waveguide structures and Bragg gratings for integrated NIR optics using multi scan technique

M. Thiel, •G. Flachenecker, M. Köhring, and W. Schade; Fraunhofer Heinrich-Hertz-Institute, Goslar, Germany We present a multi scan technique to produce integrated optics for NIR light sources. Basic element is a bundle of parallel, slightly overlapping single waveguides. The waveguide bundles are very well suited for implementing Bragg gratings.

CM-P.17 SUN

Fabrication of ridge waveguides by femtosecond-laser structuring of (Yb,Nb):RTP/RTP using beam multiplexing with a Spatial Light Modulator

•A. Ruiz de la Cruz¹, J. Cugat², R. Solé², A. Ferrer³, J. Massons², X. Mateos², J.J. Carvajal², M. Aguiló², G. Lifante², F. Díaz², and J. Solís¹; ¹Laser Processing Group, Instituto de Óptica (CSIC), Madrid, Spain; ²Física i Cristal*lografia de Materials i Nanomaterials (FiCMA-FiCNA). Universitat Rovira i Virgili, Tarragona, Spain; ³Ultrafast Dynamics Group, Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland

We fabricated ridge waveguides, inscribing trenches in a (Yb,Nb): RTP epilayer with a fs-laser using the approximation scanning technique multiplexing the beam with a SLM. We achieved propagation losses lower than 4 dB/cm for λ =972 nm.

CM-P.18 SUN

Basic mechanisms and main types of reliefs in laser direct nanostructuring technological materials

•V. Tokarev, V. Artemov, A. Galstyan, A. Obidin, I. Randoshkin, and V. Shmakov; A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia

Experimental study of direct laser surface nanostructuring of a number of technological materials by nanosecond excimer laser irradiation, combined with our previous theoretical study of basic mechanisms of nanostructures formation, have shown that 5 main types of reliefs are possible.

CM-P.19 SUN

Fabrication of SERS active surface structures on rotating polyimide sample by excimer laser irradiation

•T. Csizmadia, Z. Bengery, J. Kopniczky, I. Hanyecz, and B. Hopp; Department of Optics and Quantum Electronics, University of Szeged, Szeged, Hungary

In this study the fabrication of polyimide nanostructures by excimer laser irradiation is presented and the suitability of the produced morphologies in surface enhanced Raman scattering spectroscopy applications is demonstrated.

CM-P.20 SUN

Optimized hydrogen sensing properties of nanocomposite NiO:Au and NiO:Pd thin films at ppb-concentration levels

•M. Kandyla¹, C. Chatzimanolis^{1,2}, C. Charitidis², M. Guziewicz³, and M. Kompitsas¹; ¹National Hellenic Research Foundation, Athens, Greece; ²National Technical University of Athens, Athens, Greece; ³Institute of Electron Technology, Warsaw, Poland

We present results on the fabrication of p-type NiO:Au and NiO:Pd thin-film electrochemical sensors, which are able to detect hydrogen in air at ppb-level concentrations, operating at low temperatures.

CM-P.21 SUN

Alleviating the mechanical tolerances in femtosecond laser micromachining by diffractive focusing

•S. Torres-Peiró, J. González-Ausejo, O. Mendoza-Yero, G. Mínguez-Vega, and J. Lancis; GROC-UJI, Institut de Noves Tecnologies de la Imatge (INIT), Castellón, Spain Demonstration of the alleviating mechanical tolerances in micromachining processes employing 30fs pulses and diffractive lenses by means of the study of the ablation region along the axial direction

CM-P.22 SUN

Laser-Induced Forward Transfer-Assisted Flip-Chip Bonding of Optoelectronic Components

•K. Kaur¹, J. Missinne¹, B. Vandecasteele¹, G. Steenberge¹, S. Perinchery², R. Mandamparambil², and E. Smits²; ¹Centre for Microsystems Technology, IMEC/Ghent University, Gent, Belgium; ²TNO/Holst Centre, Eindhoven, The Netherlands

We report the Laser-Induced Forward Transfer (LIFT) of micro-bumps of silver nanoparticle and solder based paste for flip-chip bonding of single VCSEL chips. The electrical characterization results of the bonded chips are also presented.

CM-P.23 SUN

Experimental and numerical study of cw green laser crystallization of a-Si:H thin films

O. García¹, D. Munoz-Martin¹, J.J. García-Ballesteros¹, Y. Chen¹, •M. Morales¹, J. Cárabe², J.J. Gandía², and C. Molpeceres¹; ¹Centro Láser UPM, Universidad Politécnica de Madrid, Madrid, Spain; ²CIEMAT, Madrid, Spain In this work, experimental and numerical study results of cw green laser crystallization of a-Si:H thin films are presented.

The process parameters predicted by the numerical model are consistent with those experimentally observed.

CM-P.24 SUN

Self-Assembled Nanostructuring of a-Si:H Films with Ultrashort Light Pulses

•M. Gecevičius¹, M. Beresna¹, A. Kazanskii², and P. Kazansky¹; ¹Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ²Physics Department, M.V. Lomonosov Moscow State University, Moscow, United Kingdom

Dichroism and record high birefringence of femtosecond laser induced nanostructures in oxidized a-Si:H is demonstrated. Ultrafast laser writing can be used for printing integrated polarization optical elements with submicron precision in amorphous silicon thin films.

CM-P.25 SUN

Rapid, low-cost patterning of microstructures in polydimethylsiloxane via mask-less laser-machining C. Sones, I. Katis, B. Mills, M. Feinaeugle, A. Mosayyebi, J. Butement, and R. Eason; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

We report on use of a rapid and mask-less laser machining procedure that enables the creation of micron-scale structures in polydimethylsiloxane (PDMS), used commonly in implementation of lab-on-chip devices and micro-contact printing.

CM-P.26 SUN

Non-thermal Material and Tissue Processing with 100 MHz and 500 MHz Repetition Rate Bursts

•C. Kerse¹, H. Kalaycioglu², Ö. Akçaalan², B. Eldeniz³, F.Ö. Ilday², H. Hoogland⁴, and R. Holzwarth⁴; ¹Department of Electrical and Electronics Engineering, Bilkent University, Ankara, Turkey; ²Department of Physics, Bilkent University, Ankara, Turkey; ³Department of Electrical and Electronics Engineering, Ankara Unversity, Ankara, Turkey; ⁴Menlo Systems GmbH, Munich, Germany

We demonstrate efficient micro-machining results on Cu and dentin samples obtained with high repetition rate

(100 MHz and 500 MHz) pulses in the form bursts from an in-house developed mJ-level Yb integrated fiber amplifier.

CM-P.27 SUN

Hydrogenated amorphous silicon films grown by pulsed laser deposition

•M. Kandyla, A. Mellos, and M. Kompitsas; National Hellenic Research Foundation, Athens, Greece

We employ pulsed laser deposition for the fabrication of a-Si:H solar cells in the p-i-n configuration. Varying the PLD parameters, we optimize the morphology, conductivity, and optical properties of the a-Si:H layers for maximum efficiency.

CM-P.28 SUN

Thermoelectric generator fabricated via laser-induced forward transfer

•M. Feinaeugle¹, C. Sones¹, E. Koukharenko², and R. Eason¹; ¹Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ²School of Physics and Astronomy, ECS, University of Southampton, Southampton, United Kingdom

We report on laser-induced forward transfer as a novel method to fabricate thermoelectric generators on polymer substrates. The thermoelectric voltage and resistance of the device were determined as a measure of the device's thermoelectric performance.

CM-P.29 SUN

Laser-induced forward transfer on compliant receivers

•M. Feinaeugle, P. Horak, C. Sones, and R. Eason; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

We present the role of compliant polymer films on receivers during laser-induced forward transfer of thin solid films. Experiments and finite element simulation show the influence of such films on adhesion and morphology of deposits.

CM-P.30 SUN

The Laser Furnace: A Revolution in Ceramics and Glass Processing?

I. de Francisco, V. Lennikov, R. Lahoz, L.A. Angurel, L.C. Estepa, and •G.F. de la Fuente; ICMA (CSIC-Univ. Zaragoza), Zaragoza, Spain

This work presents a novel processing tool, which combines laser irradiation with a continuous roller furnace, with the aim of processing ceramics and glass products without thermo-mechanical damage.

CM-P.31 SUN

Structural and magnetic characterization of magnetite deposits prepared by infrared pulsed laser deposition •M. Oujja¹, M. Sanz¹, E. Rebollar¹, J.F. Marco¹, J. de

13:30 - 14:30

CC-P: CC Poster Session

CC-P.1 SUN

InGaAs/AlInGaAs THz Quantum Cascade Lasers •K. Ohtani, M. Beck, G. Scalari, and J. Faist; Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland We report on operation of InGaAs/AlInGaAs THz quantum cascade laser. The devices exhibit a low threshold current density (100 A/cm2) with output power (1-2 mW) at 10 K in continuous wave mode.

CC-P.2 SUN

Mid-infrared frequency comb spanning an octave based on an Er fiber laser and difference-frequency generation

•S. Amarie¹ and F. Keilmann²; ¹Neaspec GmbH, Martinsried, Germany; ²LASNIX, Berg, Germany We describe a coherent mid-infrared continuum source (18 - 75 THz) covering the full infrared "fingerprint" molecular vibration region. Application in near-field microscopy will be shown.

CC-P.3 SUN

Multi-cavity terahertz quantum cascade lasers

•D. Bachmann¹, M. Krall¹, M. Martl¹, H. Detz², A.M. Andrews², G. Strasser², K. Unterrainer¹, and J. Darmo¹; ¹Institute of Photonics, Vienna, Austria; ²Institute of Solid-State Electronics, Vienna, Austria

In a systematic investigation, the multi-purpose of sectioned terahertz quantum cascade laser cavities is demonstrated. Dependent on the operation mode, THz amplification, modulation or detection can be achieved concurrently in a single device.

CC-P.4 SUN

Pulsed THz generation from InAs/GaAs quantum dot structures

•N.S. Daghestani¹, M. Alduraibi^{2,3}, M. Missous², T. Ackemann⁴, and M.A. Cataluna¹; ¹University of Dundee, Dundee, United Kingdom; ²University of Manchester, Manchester, United Kingdom; ³King Saud University, Rivadh, Saudi Arabia; ⁴University of Strathclyde, Glasgow, United Kingdom

Pulsed terahertz radiation from surfactant-mediated grown InAs/GaAs quantum-dot based antennas was measured using photoconductive time-domain methods for the first time. The devices combine high resistivity, low dark currents, and sub-picosecond carrier lifetimes.

la Figuera¹, M. Monti¹, A. Bollero², J. Camarero^{2,3}, F.J.

Pedrosa², M. García-Hernández⁴, and M. Castillejo¹;

¹Instituto de Química Física Rocasolano, CSIC, Madrid,

Spain; ²IMDEA Nanoscience, Instituto Madrileño de Es-

tudios Avanzados en Nanociencia, Campus Universidad

CC-P.5 SUN

THz emission from quantum dot-based THz antennas oumped by a tunable quantum-dot laser diode

•R. Leyman¹, D. Carnegie¹, K. Fedorova¹, N. Bazieva¹ S. Schulz², C. Reardon², E. Clarke³, and E. Rafailov¹; ¹University of Dundee, Dundee, United Kingdom; ²University of St Andrews, St Andrews, United Kingdom; ³EPSRC National Centre for III-V Technologies, University of Sheffield, Sheffield, United Kingdom We demonstrate an efficient THz source comprising an InAs quantum dot-based semiconductor antenna optically pumped by a tunable dual-mode quantum-dot semiconductor laser, giving tunable CW THz output signal between around 250 GHz and 3 THz.

CC-P.6 SUN

Generation of broadband terahertz Laguerre-Gaussian beam

R. Imai¹, •N. Kanda^{2,3}, T. Higuchi⁴, Z. Zheng¹, K. Konishi², and M. Kuwata-Gonokami^{1,2,4}; ¹Department of Applied Physics, The University of Tokyo, Tokyo, Japan; ²Photon Science Center, The University of Tokyo, Tokyo, Japan; ³RIKEN Advanced Science Institute, Wako, Japan; ⁴Department of Physics, The University of Tokyo, Tokyo, Japan

We demonstrate a method to generate broadband terahertz Laguerre-Gaussian beam with the topological charge of +1 and -1 by mode conversion from broadband THz radial beam using a quarter wave plate and a polarizer.

CC-P.7 SUN

Efficient Coupling of Broadband Terahertz Radial Beams to Metal Wires

•Z. Zheng¹, N. Kanda^{2,3}, K. Konishi³, and M. Kuwata-Gonokami^{1,3,4}; ¹Department of Applied Physics, The University of Tokyo, Tokyo, Japan; ²RIKEN Advanced Science Institute, Saitama, Japan; ³Photon Science Center, The University of Tokyo, Tokyo, Japan; ⁴Department of Physics, The University of Tokyo, Tokyo, Japan we demonstrate efficient coupling to metal wires from

propagating mode by introducing broadband terahertz

Autónoma de Madrid, Madrid, Spain; ³Departamento de Física de la Materia Condensada, Instituto Nicolás Cabrera, Campus Universidad Autónoma de Madrid, Madrid, Spain; ⁴Instituto de Ciencias Materiales de Madrid, CSIC, Madrid, Spain

Thin films of magnetite were deposited on different single crystal substrates by pulsed laser deposition at 1064 nm and characterized by XRD, AFM, Raman and Möussbauer spectroscopies, MOKE and SQUID.

radial beams, and experimental investigations to determine coupling efficiency are performed, the maximum coupling efficiency is as large as 60%.

CC-P.8 SUN

THz propagation in hybrid hollow core fibers with metal wires inclusion

•R. Leonhardt¹, J. Anthony¹, and A. Argyros²; ¹Physics Dept, University of Auckland, Auckland, New Zealand; ²Institute of Photonic and Optical Sciences (IPOS), School of Physics, The University of Sydney, Sydney, Australia We present novel designs for hollow-core THz waveguides that include metal wires. For the HE11-like mode attenuation in the order of 0.4 cm-1 can be achieved. Experimental results agree well with numerical fullyvectorial finite-difference simulations.

CC-P.9 SUN

Generation and Field-Resolved Detection of Ultrafast Synthetic Multi-THz Transients

•D.V. Seletskiy, C. Schmidt, B. Mayer, A. Pashkin, and A. Leitenstorfer; Department of Physics and Center for Applied Photonics, University of Konstanz, Konstanz, Germanv

Intense fundamental and second harmonic few-cycle multi-THz pulses are combined to generate synthetic waveforms with strongly symmetry-broken temporal envelope. Access to these waveforms sets an exciting platform for novel experiments in THz nonlinear optics.

CC-P.10 SUN

Carrier envelope phase control of monocycle THz pulses using an artificial dispersive medium

M. Nagai, E. Matsubara, Y. Minowa, and •M. Ashida; Osaka Univ., Toyonaka, Japan

We experimentally control carrier envelope phase of intense monocycle THz pulse by passing through an artificial dispersive medium based on the parallel metal plates. This gives us a new field of phase-sensitive THz nonlinear spectroscopy.

CC-P.11 SUN

Nonlinear phase shifts of bichromatic pump waves during terahertz wave generation in air

•K. Steponkevičius, V. Pyragaite, V. Smilgevičius, and V. Vaičaitis; Vilnius university Laser Research Center, Vilnius, Lithuania

It is shown that the properties of terahertz radiation generated in air by tightly focused bichromatic femtosecond laser pulses can be well explained only if the nonlinear phase shifts of both pump waves are considered.

CC-P.12 SUN

Broadband THz-Wave Generation with Organic Crystals OH1 and DSTMS

•M. Jazbinsek, B. Ruiz, C. Medrano, and P. Günter; Rainbow Photonics AG, Zurich, Switzerland

We report on efficient THz-wave generation and detection in a broad THz range 1-12 THz using recently developed OH1 and DSTMS electro-optic crystals and evaluate the corresponding phase-matching configurations for femtosecond and nanosecond pump-laser sources.

CC-P.13 SUN

Influence of the acquisition method on terahertz tomography

J.-P. Guillet¹, B. Recur², L. Frederique², •I. Manek-Hönninger¹, P. Desbarats², and P. Mounaix¹; ¹LOMA, Bordeaux 1 University, CNRS UMR 5798, Talence, France; ²LaBRI, Bordeaux 1 University, CNRS UMR 5800, Talence, France

Terahertz tomography is a technique which allow to recontruct the structure of an object. In this work, we study the influence the acquisition method on the noise of terahertz tomography with different reconstruction algorithms.

CC-P.14 SUN

Understanding and controlling on-axis and off-axis THz emission patterns from 2-color femtosecond laser filaments

•A. Koulouklidis^{1,2}, M. Massaouti¹, A. Gorodetsky¹, and S. Tzortzakis^{1,2}; ¹Institute of Electronic Structure and Laser (IESL), Foundation for Research and Technology -Hellas (FORTH), Heraklion, Greece; ²Department of Materials Science and Technology, University of Crete, Heraklion, Greece

We present new experimental findings coupled with a comprehensive model explaining both on-axis and offaxis components of the far-field spatial distribution of intense broadband THz beams generated by femtosecond laser filaments in gases.

CC-P.15 SUN

Properties and Origin of Frequency Noise in Mid-IR Distributed Feedback Quantum Cascade Lasers

•L. Tombez¹, S. Schilt¹, G. Di Domenico¹, S. Blaser², A. Muller², T. Gresch², B. Hinkov³, M. Beck³, J. Faist³, and D. Hofstetter¹; ¹University of Neuchatel, Neuchatel, Switzerland; ²Alpes Lasers SA, Neuchatel, Switzerland; ³ETH Zurich, Zurich, Switzerland

13:30 - 14:30

CA-P: CA Poster Session

CA-P.1 SUN

Cross-correlator for the Diagnostics of 3D Ellipsoidal Shaped UV Laser Pulses for the Future XFEL Low-emittance Photo-injector

A. Poteomkin¹, A. Andrianov¹, E. Gacheva¹, V. Zelenogorsky¹, S. Mironov¹, E. Khazanov¹, •M. Martyanov², E. Syresin³, M. Krasilnikov⁴, and F. Stephan⁴; ¹Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia; ²European Organization for Nuclear Research, Geneva, Switzerland; ³Joint Institute for Nuclear Research, Dubna, Russia; ⁴Photo Injector Test Facility at Deutsches Electronen-Synchrotron, Zeuthen, Germany As a part of the development the photo-injector laser driver generated 3D ellipsoidal UV pulses a need for en appropriate diagnostic system appeared. For this purpose special ultrafast scanning cross-correlator setup was created.

CA-P.2 SUN

A Continuous-Wave Medical Yellow Laser at 561 nm •J. Gao, X. Dai, L. Zhang, H. Sun, and X. Wu; Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, Suzhou, China, People's Republic of (PRC)

A high power continuous-wave medical yellow laser at 561 nm is presented. The maximum output power is \sim 2.3 W, with a beam quality factor of \sim 2.0 and an instability factor of \sim 2.0%.

CA-P.3 SUN

Efficient Pr³⁺:SrAl₁₂O₁₉ laser pumped with four diode lasers

•D.-T. Marzahl¹, F. Reichert¹, P.W. Metz¹, N.-O. Hansen¹, and G. Huber^{1,2}; ¹Institute of Laser-Physics, Hamburg, Germany; ²The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

In this contribution we report on efficient laser operation of Pr^{3+} -doped $\mathrm{SrAl}_{12}\mathrm{O}_{19}.$ The crystal was excited from both side each with two InGaN laser diodes, which were combined at polarization beam splitter cubes.

We present and compare the frequency-noise properties of ridge and buried-heterostructure DFB-QCLs at 4.55um. The physical origin of the noise is discussed, showing the dominant contribution of internal electrical noise.

Frequency-doubled power-scaled Pr:YAlO3 laser

•M. Fibrich^{1,2} and H. Jelínková¹; ¹Czech Technical

University in Prague, FNSPE, Prague, Czech Republic;

²Institute of Physics of the AS CR, Prague, Czech Republic

Laser-diode pumped continuous-wave frequency-

doubled power-scaled Pr:YAlO3 laser system operating

in the violet spectral range at 373.5 nm wavelength

is described. As a pumping sources, two 1W GaN

C. Wang¹, •X. Zhang¹, Z. Cong¹, Z. Liu¹, W. Wei¹, W.

Wang¹, Z. Wu¹, Y. Zhang¹, L. Li¹, X. Chen¹, P. Li¹, H.

Zhang², and Q. Wang¹; ¹School of Information Science &

Engineering and Shandong Provincial Key Laboratory of

Laser Technology and Application, Shandong University,

Jinan, China, People's Republic of (PRC); ²State Key Lab-

oratory of Crystal Materials, Shandong University, Jinan,

A BaWO4 anti-Stokes Raman laser is investigated. The

first and second order anti-Stokes lasers are obtained

with the highest energies of 0.76 mJ and 0.12 mJ and the

conversion efficiencies of 0.95% and 0.15%, respectively.

Faraday Isolator with 33 dB Isolation Degree at the

•I. Snetkov and O. Palashov; Institute of Applied Physics of

the Russian Academy of Sciences, Nizhny Novgorod, Rus-

Experimentally demonstrate a prototype of a water

cooled Faraday isolator with compensation of thermally

induced depolarization inside the magnetic field with a

record level of 33 dB isolation at the 1.5 kW cw laser

1.5 kW Burst of Picosecond Pulses with Scalable

Energy and Average Power Generated by Diode

Buchvarov; Sofia University, Sofia, Bulgaria

B. Oreshkov, V. Aleksandrov, H. Iliev, A. Trifonov, and •I.

A barium tungstate anti-Stokes Raman laser

generation at 373.5 nm wavelength

CA-P.4 SUN

laser-diodes were used.

China, People's Republic of (PRC)

CA-P.5 SUN

CA-P.6 SUN

sia

power

CA-P.7 SUN

1.5 kW CW Laser Power

Pumped Nd-laser System

Hall B0

CC-P.16 SUN

A coherent quantum cascade laser array for high power emission

•R. Vallon¹, B. Parvitte¹, D. Mammez¹, G.-M. de Naurois², M. Carras², and V. Zéninari¹; ¹Groupe de Spectrométrie Moléculaire et Atmosphérique, UMR 7331 CNRS Université de Reims, Reims, France; ²III-V Lab, GEI Alcatel-Thales-CEA Leti, Palaiseau, France

We report generation of a burst of picoseconds pulses easily scalable using diode pumped Nd-based technology. Burst of 6ps-pulses with duration $(10\mu s-100\mu s)$, 1510-430 W is obtained at 0.5 kHz repetition rate.

CA-P.8 SUN

Hybrid Q-Switched Laser Source With Timing Jitter Lower Than 100 ns at High Repetition Rate (30 kHz) •F. El Bassri^{1,2}, L. Jaffres³, A. Jalocha², D. Pagnoux¹, and V. Couderc¹; ¹Xlim, photonics department, Limoges, France; ²CILAS, Orléans, France; ³Horus Lasers, Limoges, France

We present an active/passive Q-switched laser source based on a dual cavity configuration with modulated pump power, emitting 600 ps pulses at tunable repetition rate up to 30 kHz with timing jitter < 100 ns.

CA-P.9 SUN

Near Diffraction Limited Pulses with 52-mJ, 1.2 ns at 0.5 kHz, Generated by Nd-based MOPA

D. Chuchumishev¹, B. Oreshkov¹, •A. Gaydardzhiev¹, A. Trifonov¹, and I. Buchvarov^{1,2}; ¹Department of Physics, Sofia University, Sofia, Bulgaria; ²Northwestern University Feinberg School of Medicine, Chicago, United States We present Nd-based, diode pumped amplifier system emitting up to 52-mJ pulse energy with 1.2-ns pulse duration and near diffraction limited beam (quality factor <1.3), operating at 0.5-kHz repetition rate.

CA-P.10 SUN

Tunability and CW efficient laser operation in KLa(XO4)2:Nd3+, (X = W or Mo), disordered laser crystals

•M. Rico^{1,2} and X. Han²; ¹Centro de Láseres Pulsados Ultracortos, CLPU, Villamayor, Spain; ²Instituto de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain RT CW laser operation for disordered crystals (Nd3+:KLa(WO4)2 and Nd3+:KLa(MoO4)2) with slope efficiency to > 50% output power (>6 W for KLM) and tunable laser (15 nm range for KLW) are demonstrated in several configurations. In the framework of the ANR project called COCASE, we develop a coherent quantum cascade laser array to obtain high power emission for the development of a photoacoustic spectrometer devoted to trace gas detection.

CA-P.11 SUN

Passive Mode-locking of a Diode Pumped Nd:ScYSiO5 Laser

V. Aleksandrov¹, •H. Iliev¹, L. Zheng², L. Su², J. Xu², G. Aka³, and I. Buchvarov¹; ¹Department of Physics, Sofia University, Sofia, Bulgaria; ²Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China, People's Republic of (PRC); ³Laboratoire de Chimie de la Matière Condensée de Paris, Paris, France Single wavelength, passive mode-locking of Nd:ScYSiO5

disordered laser crystal is demonstrated, achieving output power of 150mW at 99MHz repetition rate and 5.7ps pulse duration as well as dual wavelength mode-locking with output power of 500mW.

CA-P.12 SUN

Control of Spectral Parameters in Vanadate Lasers

•S. Anatoly; Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia We have experimentally investigate, for the first time, an-

gular dependences of the luminescence intensity of Stark transitions in Nd-doped vanadate crystals. We suggest some directions to create active media with new parameters.

CA-P.13 SUN

High Repetition Rate Electro-optical Cavity-dumped Nd:GdVO4 Laser

•Y. Ma, X. Yu, X. Li, C. Wang, R. Yan, and J. Yu; Harbin Institute of Technology, Harbin, China, People's Republic of (PRC)

High repetition rate electro-optical cavity-dumped YVO4/Nd:GdVO4 laser pumped by 808 nm LD and GdVO4/Nd:GdVO4 laser pumped 879 nm LD are presented. The pulse width remained constant at ~3.8 ns for both two lasers.

CA-P.14 SUN

Diode-side-pumped Nd:YAG slab laser with self-adaptive resonator

•J. Jabczynski, W. Zendzian, M. Kaskow, L. Gorajek, J. Kwiatkowski, and K. Kopczynski; Military University of Technology, Warsaw, Poland

Four-wave-mixing inside Nd :YAG slab pumped by 2D laser diode stacks, in self adaptive closed-loop resonator

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Hall B0

was exploited to achieve 250 mJ energy in free-running with parameter M2 < 1.4.

CA-P.15 SUN

High Efficiency Multi-Mode Laser-Diode-Pumped Cavity-Dumped Ytterbium-Doped Yttrium Aluminium Garnet Laser

•N. Shimojo¹, S. Matsubara¹, M. Inoue¹, D. Kimura¹, Y. Sasatani¹, A. Maruko¹, D. Mizuno¹, M. Nishio¹, and S. Kawato^{1,2,3}; ¹Graduate School of Engineering, University of Fukui, Fukui, Fukui, Japan; ²Research and Education Program for Life Science, University of Fukui, Fukui, Japan; ³Japan Synchrotron Radiation Research Institute (JASRI), Fukui, Japan

A laser-diode-pumped cavity-dumped microchip Yb:Y3Al5O12 laser was developed with the slope efficiency of 72% and optical-to-optical conversion efficiency of 56%, which are the highest in laser-diodepumped short pulse lasers.

CA-P.16 SUN

Versatile Pulsed Source using a pulsed diode seed and ultrahigh gain bounce geometry amplifier

•A. Teppitaksak, G. Thomas, and M. Damzen; Imperial College London, London, United Kingdom

A flexible high peak power laser source is investigated with a pulsed diode seed laser (duration 3ns @ 100kHz) experiencing 43dB gain in a Nd:YVO4 bounce amplifier (and gain > 50dB with CW seed) at 1064nm.

CA-P.17 SUN

Tunability of Yb:LuAG Laser with High Dopant Concentration

•J. Šulc¹, J. Měsíček¹, Z. Hubka¹, H. Jelínkova¹, K. Nejezchleb², and V. Škoda²; ¹Czech Technical University in Prague, FNSPE, Prague, Czech Republic; ²Crytur, Ltd. Turnov, Turnov, Czech Republic

Yb:LuAG crystals with Yb-doping concentration 15 and 20 % were investigated as the active medium of tunable diode pumped laser. Using birefringent filter, 35 nm wide tunability was reached (1025-1060 nm for 20 % doping).

CA-P.18 SUN

Efficient performance of Yb:YAG/Cr,Yb:YAG self-Q-switched microchip lasers under high-brightness laser-diode pumping

•J. Dong, Y. Cheng, and Y. Ren; Department of Electronic Engineering, School of Information Science and Technology, Xiamen University, Xiamen, China, People's Republic of (PRC)

We report on highly efficient performance of Yb:YAG/Cr,Yb:YAG self-Q-switched microchip lasers by bonding Yb:YAG to Cr,Yb:YAG crystal under high-brightness laser-diode pumping.

CA-P.19 SUN

Comparative study of Nd:YAG solar laser performance in end-pumping and side-pumping configurations

•J. Almeida, D. Liang, and D. Garcia; CEFITEC, Departamento de Física, FCT, Universidade Nova de Lisboa, Campus de Caparica, Portugal

A comparative study of Nd:YAG solar laser performances in end-pumping and side-pumping configurations is reported. The highest collection efficiency is achieved with end-pumping configuration, while sidepumping approach provides the best beam brightness figure of merit.

CA-P.20 SUN

Approaching the Thermodynamical Limit of Optical Pumping — Intra-cavity Pumped Thin Disk Laser with Very Low Quantum Defect

•C. Vorholt and U. Wittrock; Muenster, University of Applied Sciences, Steinfurt, Germany

We demonstrate the first intra-cavity pumped thin disk laser. The laser has a quantum defect of only 1.74%, a slope efficiency of 8.27% and an average output power of 10.33 W.

CA-P.21 SUN

Radiation-Balanced Thin-Disk Laser System

•G. Nemova¹ and R. Kashyap^{1,2}; ¹Department of Engineering Physics, Polytechnique de Montréal, Montréal, Canada; ²Department of Electrical Engineering, Polytechnique de Montréal, Montréal, Canada

A novel scheme for an athermal laser, which consists of a series of radiation-balanced thin disks placed inside a single resonator, is presented. Heat generated during the amplification process is offset by anti-Stokes emission.

CA-P.22 SUN

Efficiency of Single-Mode Thin-Disk Lasers

•J. Perchermeier and U. Wittrock; Muenster University of Applied Sciences, Photonics Laboratory, Steinfurt, Germany

The thermo-optical aberrations of the gain medium of an Yb:YAG thin-disk laser were measured with high resolution. Moreover, we investigated how the TEM_{00} mode radius affects the beam quality and output power of different resonators.

CA-P.23 SUN

High power femtosecond 1030nm burst-mode front-end and pre-amplifier for the European XFEL pump-probe laser development

•M. Kellert¹, K. Kruse¹, M. Pergament¹, G. Kulcsar², T. Mans³, and M. Lederer¹; ¹European X-Ray Free-Electron Laser-Facility GmbH, Hamburg, Germany; ²Laser Im-

pulse, Heikendorf, Germany; ³Amphos GmbH, Aachen, Germany

We present the 100kHz - 4.5MHz, 400W burst-mode femtosecond Yb:YAG pre-amplifier with Ytterbium-allfiber front-end of the European X-ray Free-Electron Laser Facility (European XFEL) non-collinear optical parametric amplifier development for pump-probe experiments at the European XFEL.

CA-P.24 SUN

Fiber based modulator systems at 1053 nm for *shaped long pulse on LULI2000

•M. Loïc, Z. Ji Ping, B. Erick, and A. Patrick; Laboratoire pour l'utilisation des lasers Intenses, Ecole Polytechnique, Palaiseau, France

LULI2000 is one of the most energetic laser facilities in Europe. We present a new ns fiber-based front-end for upgrading the LULI2000 facility.

CA-P.25 SUN

Wavelength selection, spatial filtering and polarization control of an Er:YAG laser cavity by resonant-grating mirror

•A. Aubourg^{1,2}, M. Rumpel³, M. Abdou-Ahmed³, J. Didierjean², N. Aubry², T. Graf³, F. Balembois¹, and P. Georges¹, ¹Laboratoire Charles Fabry, Institut d'Optique, Palaiseau, France; ²Fibercryst, Villeurbanne, France; ³Institut für Strahwerkzeuge, Stuttgart, Germany A resonant grating mirror concurrently fullfil the task of an etalon, a pinhole and a polarizer inside an Er:YAG cavity, leading to comparable beam characteristics with a simplier design.

CA-P.26 SUN

Diode pumped Er:YAG single crystal fiber laser passively Q-switched with Cr:ZnSe saturable absorber emitting at 1645 nm or 1617 nm

•A. Aubourg^{1,2}, J. Didierjean², N. Aubry², F. Balembois¹, and P. Georges¹; ¹Laboratoire Charles Fabry, Institut d'Optique, Palaiseau, France; ²Fibercryst, Villeurbanne, France

We successfully passively Q-switched a diode pumped Er:YAG cavity emitting at 1645 nm or 1617 nm depending on the inserted losses. Pulse energies went up to 0.5 mJ at 820 Hz.

CA-P.27 SUN

2 μm Diode Pumped Tm:YAG Laser with 180 mJ Pulse Energy

•A. Heinrich¹, M. Harlander¹, T. Bragagna¹, C. Hagen², and B. Nussbaumer²; ¹Pantec Biosolutions AG, Ruggell, Liechtenstein; ²Pantec Engineering AG, Ruggell, Liechtenstein

A pulsed, diode-pumped, monolithic 2 μm laser is pre-

sented. The Tm:YAG laser rod is side-pumped by qcw laser diodes (785 nm) and generates at room temperature 200 μ s pulses at 100 Hz with 180 mJ.

CA-P.28 SUN

InP-Diode Laser Stack Pumped Ho:YAG or Cr:ZnSe Thin Disk Lasers

•G. Renz, J. Speiser, and A. Giesen; German Aerospace Center, Stuttgart, Germany

Direct diode pumping of Ho:YAG or Cr:ZnSe with InPdiode-laser stacks at 1908 nm in thin disk laser concepts lead to 22 W and 4.2 W cw output power at 2090 nm and 2400 nm, respectively

CA-P.29 SUN

Ho³⁺ Lasing at 2060 nm in co-doped (Ho,Tm):KLu(WO₄)₂
•X. Mateos^{1,2}, V. Jambunathan², M.C. Pujol², M. Aguild²,
F. Díaz², U. Griebner¹, and V. Petrov¹; ¹Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy,
2A Max-Born-Street, D-12489, Berlin, Germany; ²Física i Cristallografia de Materials i Nanomaterials (FiCMA-FiCNA), Universitat Rovira i Virgili (URV),, Tarragona,
Spain

Improved operation of the co-doped (Ho,Tm):KLu(WO₄)₂ laser is reported under Ti:sapphire laser pumping with Ho oscillation at 2060 nm and tuning range as wide as 160 nm, presumably related to both ions.

CA-P.30 SUN

Diode-Pumped Dysprosium-doped-PbGa2S4 Mid-Infrared Laser

M. Doroshenko¹, M. Jelinek², J. Sulc², •H. Jelinkova², M. Nemec², V. Osiko¹, V. Badikov³, and D. Badikov³; ¹A M Prokhorov General Physics Institute of RAS, Moscow, Russia; ²Czech Technical University in Prague, Prague, Czech Republic; ³Kuban State University, Krasnodar, Russia Dy:PbGa2S4 laser generating at 4320nm pumped by 1.7um laser-diode was investigated. Slope efficiency 10% and pulsed output power 9.5mW for 120mW absorbed power was reached (5ms, 20Hz). In CW maximum output power was 48mW.

CA-P.31 SUN

Compression of Long-Cavity Ti:sapphire Oscillator Pulses with Large-Mode-Area Photonic Crystal Fibers

•J. Fekete¹, P. Rácz¹, and P. Dombi^{1,2}; ¹Wigner Research Centre for Physics, Budapest, Hungary; ²Max-Planck-Institut für Quantenoptik, Garching, Germany We performed nonlinear compression of transform limited 75-fs laser pulses delivered by a long-cavity Ti:sapphire oscillator to 18-fs, 100-nJ pulses using large mode area photonic crystal fibres and chirped mirrors in a simple, scalable scheme.

Hall B0

CA-P.32 SUN

First Results of ChemCam on Mars and Further Laser

Developments for New Space Programs
B. Faure¹, E. Durand², S. Maurice³, D. Bruneau⁴, and F. Montmessin⁴; ¹CNES, Toulouse, France; ²Thales Optron-

ique S.A., Elancourt, France; ³IRAP, Toulouse, France; ⁴LATMOS, Guyancourt, France

First results of ChemCam (LIBS Instrument onboard Curiosity Martian Rover) are presented. New developments on the solid-state ChemCam laser for new space programs are presented. First results relative to these new developments are presented.

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$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Monday 13 May 2013

ROOM 1

8:30 – 9:15 PL-1: CLEO/Europe 2013 Plenary Talk Chair: W. Andrew Clarkson, University of Southampton, Southampton, United King- dom	PL-1.1 MON (Plenary)8:30Thin Disk Lasers•A. Giesen; DLR, German Aerospace Center, Stuttgart, GermanyThe design ideas of thin disk lasers will be explained. Results for continuous wave op- eration and for pulsed operation show the capability for building high power lasers with high efficiency and good beam quality, simultaneously.	9:30 – 10:45 PL-2: World of Photonics Opening with Plenary Talk Chair: Peter E. Andersen, Technical Univer- sity of Denmark, Roskilde, Denmark	9:30 Words of Welcome by Norbert Bargmann, Deputy CEO Messe Munich International. Honor of exhibitors of the first LASER World of PHOTONICS. Words of Welcome by Prof. Dr. Peter Loosen, President of the Steering Commit- tee World of Photonics Congress, Fraun- hofer Institute for Laser Technology (ILT), Aachen, Germany.	PL-2.1 MON (Plenary)10:00Nanoscopy with Focused Light•S.W. Hell; Max Planck Institute for Biophysical Chemistry, Göttingen, GermanyThroughout the 20th century the resolution of optical microscopy relying on conventional lenses was limited by diffraction. We show how this limit can be radically overcome and how this change impacts various fields of science.
ROOM 1	ROOM 2	ROOM 3	ROOM 4a	ROOM 4b
11:00 - 12:30	11:00 - 12:30	11:00 - 12:30	11:00 - 12:30	11:00 - 12:30
CF/IE-5: Novel Methods in Ultrafast Optics Chair: Roberto Osellame, Politecnico di Mi- lano, Milan, Italy	JSI-1: Nuclear Photonics Chair: Ken Ledingham, University of Strath- clyde, Glasgow, United Kingdom	CH-1: Advances in Spectroscopy I Chair: Krzysztof Abramski, Wroclaw Univer- sity of Technology, Wroclaw, Poland	ID-1: Frequency Standards and Spectroscopy Chair: Livio Gianfrani, Seconda Università di Napoli, Naples, Italy	CI-1: Next Generation Transmission Chair: Liam Barry, Dublin City University, Dublin, Ireland
CF/IE-5.1 MON 11:00	JSI-1.1 MON (Invited) 11:00	CH-1.1 MON 11:00	ID-1.1 MON 11:00	CI-1.1 MON (Invited) 11:00
Acousto-optic Fastscan Delay with Scan Rates exceeding 30 kHz and sub-20-Attosecond Precision •O. Schubert ¹ , M. Eisele ¹ , V. Crozatier ² , N. Forget ² , D. Kaplan ² , and R. Huber ¹ ; ¹ University of Regensburg, Regensburg, Ger- many; ² Fastlite, Valbonne Sophia Antipolis, France We introduce a fastscan-delay based on an acousto-optic programmable dispersive fil- ter. The precision of 20 as and scan rates ex- ceeding 30 kHz make this fiber-compatible device ideally suited for a broad variety of pump-probe experiments.	Nuclear Photonics with Extreme Gamma-ray Sources •C.P.J. Barty; Lawrence Livermore National Laboratory, Livermore, United States Tunable, polarized, mono-energetic, gamma-ray (MEGa-ray) beams can be created via Compton scattering of pulsed lasers off of ultra-bright electron beams.	Mid-infrared frequency comb based-on low threshold optical parametric oscillator Y. Jin, •J. Mandon, S. Cristescu, and F. Har- ren; Institute for Molecules and Materials, Ni- jmegen, The Netherlands We present a low threshold mid-infrared optical-parametric-oscillator based on an Yb-frequency comb. The idler can be con- tinuously tuned from 2.7 to 4.8 um, gener- ating an ideal radiation for frequency comb spectroscopy in the mid- infrared.	Yb ⁺ Single-Ion Optical Frequency Standard with Systematic Uncertainty at the 10 ⁻¹⁷ Level <i>N.</i> Huntemann, B. Lipphardt, M. Okhapkin, <i>C.</i> Tamm, and •E. Peik; Physikalisch- Technische Bundesanstalt, Braunschweig, Germany A frequency standard based on the electric octupole transition in a trapped ¹⁷¹ Yb ⁺ ion is described. Hyper-Ramsey excitation leads to a signal that is immune to the light shift induced by the probe laser.	400G/1T Superchannels Enabling Next Generation Optical Communications •S. Chandrasekhar and X. Liu; Bell Labs, Alcatel-Lucent, Holmdel, United States We review recent advances in the genera- tion, detection, and transmission of high spectral efficiency optical superchannels that utilize both orthogonal-frequency-division- multiplexing for optical carrier modula- tion and/or carrier multiplexing, and non- orthogonal approaches. Optical networking implications are addressed.
CF/IE-5.2 MON11:15Phase-locked pulses for two-dimensional spectroscopy by a birefringent delay line•C. Manzoni ¹ , D. Brida ² , and G. Cerullo ¹ ; ¹ IFN-CNR, Dipartimento di Fisica, Politec- nico di Milano, Milan, Italy; ² Department of Physics and Center for Applied Photonics, University of Konstanz, Konstanz, Germany We introduce a device for the genera- tion of collinear, interferometrically locked ultrashort pulse pairs. Their delay is controlled with attosecond precision and		CH-1.2 MON 11:15 Fully stabilized dual-comb spectrometer based on a mid-IR quantum- cascade-laser frequency • G. Villares ¹ , A. Hugi ¹ , S. Blaser ² , H.C. Liu ³ , and J. Faist ¹ ; ¹ Institute for Quantum Elec- tronics, ETH Zurich, Zurich, Switzerland; ² Alpes Lasers SA, Neuchâtel, Switzerland; ³ Key Laboratory of Artificial Structures and Quantum Control, Department of Physics, Shanghai Jiao Tong University, Shanghai, China, People's Republic of (PRC)	ID-1.2 MON11:15Comparing PTB's optical 171Yb+ ion and 87Sr lattice clock•C. Grebing, S. Falke, N. Huntemann, N. Lemke, B. Lipphardt, U. Sterr, C. Tamm, H. Schnatz, E. Peik, and C. Lisdat; PTB, Braunschweig, GermanyWe present results of an optical frequency comparison between a 171Yb+ ion and a 87Sr lattice clock. The uncertainty was dom- inated by the systematic uncertainty of the clocks, which was in the range of 5x10^-17.	

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ROOM 13a

11:00 - 12:30

IA-1: Strong Coupling Chair: Markus Hennrich, University of Inns-

bruck, Innsbruck, Austria

IA-1.1 MON

Adaptive Quantum Non-Demolition Measurement of Fock States

•B. Peaudecerf¹, T. Rvbarczvk¹, S. Gerlich¹, I. Dotsenko¹, S. Gleyzes¹, M. Brune¹, J.-M. Raimond¹, and S. Haroche^{1,2}; ¹Laboratoire Kastler Brossel, Paris, France; ²Collège de France, Paris, France

Rydberg atoms interacting dispersively with a high-Q cavity field perform quantum nondestructive measurement of its photon number. We report on speeding up this measurement by optimizing in real-time the settings of individual atomic state detections.

IA-1.2 MON

Simulating single-photon-single-atom absorption experiments with an optical resonator

•M. Bader^{1,2}, S. Heugel^{1,2}, A. Chekhov³, M. Sondermann^{1,2}, and G. Leuchs^{1,2}; ¹Max-Planck-Institute for the Science of Light, Erlangen, Germany; ²Institute of Optics, Information and Photonics, University Erlangen-Nuremberg, Erlangen, Germany; ³Department of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia

11:00 - 12:30

IB-1: Photon Pair Sources and Detectors

Chair: Gregor Weihs, University of Innsbruck, Innsbruck, Austria

ROOM 14a

IB-1.1 MON

11:00

11:15

High-efficiency Bragg Grating Enhanced **On-chip Photon-number-resolving** Detectors

•P.L. Mennea¹, B. Calkins², B.J. Metcalf³, T. Gerrits², A.E. Lita², J.C. Gates¹, W.S. Kolthammer³, J.B. Spring³, P. Humphries³ N.A. Tomlin², A.E. Fox², A. Lamas-Linares², R.P. Mirin², S.W. Nam², I.A. Walmsley³, and P.G.R. Smith¹; ¹University of Southampton, Southampton, United Kingdom; ²National Institute of Standards and Technology, Boulder, United States; ³University of Oxford, Oxford, United Kingdom

We present our latest developments in highefficiency telecom-band integrated photonnumber-resolving detectors using superconducting Transition Edge Sensors (TESs), evanescently coupled with a UV-written waveguide. Bragg gratings are utilised both to increase detection efficiency and aid characterisation.

CD-5.2 MON

Idler Energy at 2800 nm

Ultra-bright source of polarization-entangled photons in a linear double-pass configuration

IB-1.2 MON

•F.O. Steinlechner¹, S. Ramelow^{2,3}, M. Jofre¹, M. Gilaberte¹, T. Jennewein⁴, J.P. Torres^{1,4}, M.W. Mitchell^{1,5}, and V. Pruneri^{1,5}; ¹ICFO-Institut de Ciències Fotòniques, Barcelona, Spain; ²Institute for Quantum Optics and Ouantum Information, Austrian Academy of Sciences, Vienna, Austria; ³Quantum Optics, Quantum Nanophysics, Quantum In-

ROOM 14b

11:00 - 12:30

CD-5: Optical Parametric Oscillators

Chair: Harald Schwefel, Max-Planck-Institut für die Physik des Lichtes, Erlangen, Germany

11:00

11:15

CD-5.1 MON

11:00

11:15

Pulse Compression in a Synchronously Pumped Optical Parametric Oscillator with a Graphene Saturable Absorber

C. Laporte¹, \bullet J.-B. Dherbecourt¹, J.-M. Melkonian¹, M. Raybaut¹, C. Drag², and A. Godard¹; ¹ONERA - the French Aerospace Lab, Palaiseau, France; ²Laboratoire Aimé Cotton, CNRS-Université Paris Sud 11, Orsav. France

We report on the first experimental demonstration of pulse length compression in a synchronously pumped optical parametric oscillator by use of an intracavity ultrafast graphene saturable absorber.

Sub-ns OPO based on PPKTP with 1 mJ

•D. Chuchumishev¹, G. Marchev², I.

Buchvarov¹, V. Pasiskevicius³, F. Laurell³,

and V. Petrov²; ¹Department of Physics,

Sofia University, Sofia, Bulgaria; ²Max-

Born-Institute for Nonlinear Optics and

Ultrafast Spectroscopy, Berlin, Germany;

³Department of Applied Physics, Royal

Institute of Technology, Stockholm, Sweden

ROOM 21

11:00 - 12:30

CK-5: Microstructures for Energy and Sensing

Chair: Pietro Ferraro, CNR-INO, Firenze, Italy

CK-5.1 MON (Keynote) 11:00

Optofluidics for Energy Applications •D. Psaltis; Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland We will discuss optofluidic solar fuel systems that rely on microstructured components with combined optical and fluidic functionality to improve the efficiency of solar energy harvesting.

ROOM EINSTEIN

11:00 - 12:30

CE-1: Semiconductor Materials and Devices

Chair: Michael Jetter, University of Stuttgart, Stuttgart, Germany

11:00

CE-1.1 MON

Control of the absorption recovery time in GaSb SESAMs

•*I.* Paaiaste¹, *S.* Suomalainen¹, *A.* Härkönen¹, U. Griebner², G. Steinmeyer^{1,2}, and M. Guina¹; ¹Optoelectronics Research Centre, Tampere University of Technology, Tampere, Finland; ²Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany We report on fabrication and design parameters of GaSb-based SESAMs and their associated absorption recovery time characteristics; SESAMs grown at different temperatures, with different composition and strain, and employing different optical designs.

11:15**Coherent Acoustic Phonons in**

Semiconductor Bragg Mirrors

•F. Schättiger, O. Ristow, M. Hettich, and T. Dekorsy; University of Konstanz, Konstanz, Germany

We report on coherent acoustic phonon spectroscopy of semiconductor Bragg mirrors. Comparing the experimental results with the calculated acoustic phonon dispersions enables a high accuracy determination of the structural parameters.

	CLEO ()/EI	urope-IQEC 2013 · Monday 13	IVIAY 2013	
ROOM 1 stability<λ/360 in the spectral range from UV to mid-IR.	ROOM 2	ROOM 3 We realize a fully stabilized dual-comb spec- trometer covering 14 cm-1 with individual tooth linewidth of 4 MHz by using mid- IR QCL based frequency combs centered at 1430 cm-1.	ROOM 4a	ROOM 4b
CEF/IE-5.3 MON11:30Ultralow Jitter Mode-Locked Lasers at 1.5 micron for a subfemtosecond•M. Xin ¹ , K. Ahmed ¹ , and F. Kärtner ^{1,2} ; ¹ Center for Free-Electron Laser Sci- ence, Deutsches Elektronen-Synchrotron, Hamburg, Germany; ² Department of Electrical Engineering and Computer Science and Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, United StatesThe timing jitter of two femtosecond-pulse- train lasers is characterized by a Balanced Optical cross-correlator with sub-100 as res- olution. The measurement results showed that these two lasers are capable of con- structing a sub-fs timing distribution sys- tem.CEF/IE-5.4 MON11:45Temporal overlapping for HHG seeded EUV-FEL operation by using EOS-based	JSI-1.2 MON (Invited)11:30Nuclear processes and nuclear decay modifications in plasmas•V. Méot; CEA/DAM Ile de France, Arpajon, FranceNuclear processes in plasmas involving the coupling between the atom and the nucleus will be described. Nuclear lifetime modifica- tions generated by the plasma environment and attempts to observe it, will be presented.	 CH-1.3 MON 11:30 Methane sensing at 3.4um using Chirped Laser Dispersion Spectroscopy with DFG source N. Nikodem^{1,2}, K. Krzempek³, G. Plant², K. Abramski³, and G. Wysocki²; ¹Wroclaw Research Centre EIT+, Wroclaw, Poland; ²Princeton University, Princeton, United States; ³Wroclaw University of Technology, Wroclaw, Poland A chirped laser dispersion spectroscopy (CLaDS) system for open-path methane sensing is presented. Differential frequency generation source provides access to the fundamental methane transitions and enables optimal performance of CLaDS technique in mid-infrared. 	11:30 Development of compact lattice optical clocks towards future space clocks • S. Schiller ¹ , A. Görlitz ¹ , G.M. Tino ² , U. Sterr ³ , C. Lisdat ³ , P. Gill ⁴ , E.M. Rasel ⁵ , K. Bongs ⁶ , D. Calonico ⁷ , W. Kaenders ⁸ , S. Bize ⁹ , and R. Holzwarth ¹⁰ ; ¹ Heinrich- Heine-Universität, Düsseldorf, Germany; ² Universita di Firenze, Firenze, Italy; ³ Physikalisch-Technische Bundesanstalt, Braunschweig, Germany; ⁴ National Physical Laboratory, Teddington, United Kingdom; ⁵ Leibniz Universität, Hannover, Germany; ⁶ University of Brimingham, Birmingham, United Kingdom; ⁷ Istituto Nazionale di Ricerca Metrologica, Torino, Italy; ⁸ Toptica GmbH, München, Germany; ⁹ Observatoire de Paris, Paris, France; ¹⁰ Menlo Systems GmbH, München, Germany; ⁹ Ompact, low-power consumption and ro- bust lattice optical clock apparata have been developed, as a first step towards instru- ments for use in space. The clock transitions of both bosonic 88Sr and fermionic 171Yb have been observed	Cl-1.2 MON11:30Highly Scalable Integrated DiscreteFourier Transformation Filter inSilcon-on-Insulator for Next GenerationWDM Systems• A. Rahim ¹ , J. Bruns ¹ , K. Voigt ¹ , K.* Permann ¹ , S. Schwarz ² , and C. Schaeffer ² ;* Technische Universität, Berlin, Germany;* Hemut-Schmidt Universität, Hamburg,GermanyWe present a highly scalable integrated optical filter to perform discrete fourier transformation to demultiplex OFDM sub-carriers in the next generation WDM systems. The performance of a filter fabricated in SOI technology is also presented.
timing-drift controlling system •S. Matsubara ¹ , T. Togashi ¹ , E. Takahashi ² , K. Midorikawa ² , M. Aoyama ³ , K. Yamakawa ³ , T. Sato ^{4,5} , A. Iwasakt ⁵ , S. Owada ⁵ , K. Yamanouchi ⁵ , T. Hara ^{4,1} , K. Ogawa ⁴ , T. Ohshima ^{4,1} , Y. Okayasu ^{1,4} , Y. Otake ^{4,1} , H. Tanaka ^{4,1} , T. Tanaka ^{4,1} , H. Tomizawa ^{4,1} , T. Watanabe ^{1,4} , M. Yabashi ^{4,1} , T. Ishikawa ⁴ , and K. Togawa ^{4,1} ; ¹ Japan Synchrotron Radiation Research Institute, Hyogo, Japan; ² RIKEN Advanced Science Institute, Saitama, Japan; ³ Japan Atomic En- ergy Agency, Kyoto, Japan; ⁵ The University of Tokyo, Tokyo, Japan		CH-1.4 MON11:45Simultaneous spectral and temporal laser pulse characterization in the nanosecond range employing an all-fiber Time-Delay SpectrometerT. Tie β^1 , M. Rothhardt ¹ , •M. Jäger ¹ , and H. Bartelt ^{1,2} ; ¹ Institute of Photonic Technology, Jena, Germany; ² Abbe Center of Photonics, FSU Jena, Jena, GermanyWe demonstrate a novel method for a simul- taneous spectral and temporal characteriza- tion of single light pulses in the nanosecond scale based on the principle of a fiber-based Time-Delay spectrometer.	ID-1.4 MON11:45Asynchronous Mid-IR Optical Parametric Oscillator Frequency CombsZ. Zhang ^{1,3} , X. Fang ^{1,2} , •T. Gardiner ³ , and D.T. Reid ¹ ; ¹ Heriot-Watt University, Edin- burgh, United Kingdom; ² Tianjin Univer- sity, Tianjin, China, People's Republic of (PRC); ³ National Physical Laboratory, Lon- don, United KingdomWe report high-power, carrier-envelope- offset (CEO) frequency stabilized, asyn- chronous dual frequency combs operating at 3.3-micrometer. The two channels, each with 100 mW average power, share all	CI-1.3 MON11:45Optical 36QAM Transmitter based on Two Tandem IQ Modulators with Simplified Driving Electronics•GW. Lu, T. Sakamoto, and T. Kawanishi; National Institute of Information and Com- munications Technology, Tokyo, Japan We propose and demonstrate an optical 36QAM transmitter, consisting of two tan- dem IQ modulators driven by binary and 3- level electronics. Compared with the single- IQ modulator scheme requiring 6-level elec- tronics, the complexity in electronics is re- duced.

	CLEO [®] /E	urope-IQEC 2013 · Monday 13	May 2013	
ROOM 13a The energy storage efficiency inside an opti- cal resonator is an analogue for the dynamics of single-photon-single-atom absorption ex- periments. We present experiments on cou- pling a light pulse to a resonator with high efficiency.	ROOM 14a formation, University of Vienna, Faculty of Physics, Vienna, Austria; ⁴ Department of Sig- nal Theory and Communications, Universitat Politecnica de Catalunya, Barcelona, Spain; ⁵ ICREA-Institució Catalana de Recerca i Es- tudis Avançats, Barcelona, Spain We present the brightest, high-visibility source of polarization entangled pho- tons, based on collinear non-degenerate spontaneous parametric down-conversion emission from a single periodically poled KTiOPO ₄ crystal, in a linear double-pass configuration.	ROOM 14b 380 ps long idler pulses at 2800 nm from a short-cavity singly-resonant 500-Hz OPO employing PPKTP and near-diffraction- limited, single-frequency, sub-nanosecond pump source at 1064 nm	ROOM 21	ROOM EINSTEIN
 IA-1.3 MON 11:30 Strong coupling between single atoms and non-transversal photons J. Volz, C. Junge, D. O'Shea, and A. Rauschenbeutel; Atominstitut, Vienna University of Technology, Vienna, Austria We investigate the interaction between single atoms and non-transversally polarized photons in whispering-gallery-mode microresonators. Our experimental results show that the non-transversal polarization decisively alters the physics of strong lightmatter interaction. 	IB-1.3 MON 11:30 Statial Multiplexing of Monolithic Silicon treated Single Photon Sources • M. Collins ¹ , C. Xiong ¹ , T. Vo ² , A. Clark ¹ , I. Rey ³ , J. He ¹ , S. Shahnia ¹ , C. Reardon ⁴ , M. Steel ⁵ , T. Krauss ⁴ , and B. Eggleton ¹ ; ¹ Centre for Ultrahigh bandwidth Devices for Opti- cal Systems (CUDOS), Institute of Photon- ics and Optical Science (IPOS), School of Physics, University of Sydney, Sydney, Aus- tralia; ² Maritime Operations Division, De- fence Science and Technology Organisation, Sydney, Australia; ³ SUPA, School of Physics and Astronomy, University of St. Andrews, St. Andrews, University of York, York, United Kingdom; ⁵ CUDOS, MQ Photonics Research Centre, Department of Physics and Astron- omy, Macquarie University, Sydney, Australia We present the first demonstration of spa- tial multiplexing of two integrated heralded single photon sources enhancing the single photon rate by > 60%. Photons are generated at telecommunication wavelengths in mono- lithic silicon photonic crystal waveguides.	 CD-5.3 MON 11:30 Dual-wavelength synchronously-pumped femtos encode optical parametric oscillator using antiresonant ring interferometer. A.E. Martin¹, V.R. Badarla¹, and M.E. Zadeh^{1,2}; ¹Institute of Photonic Sciences (ICFO), Barcelona, Spain; ²Institucio Catalana de Recerca i Estudis Avancats (ICREA), Barcelona, Spain We demonstrate a novel technique for coupling of two synchronously-pumped optical parametric oscillators using an antiresonant ring interferometer, providing dualwavelength operation with arbitrary tuning and high intracavity power in each beam without gain coupling. 		CE-1.3 MON 11:30 Ga(As)Sb/GaAs quantum dots for emission around 1300 nm •J. Richter, J. Strassner, T.H. Loeber, and H. Fouckhardt; University of Technology, Physics Department, Kaiserslautern, Germany Steps of optimization to shift the Ga(As)Sb/GaAs quantum dot (QD) photoluminescence and QD laser emission to 1300 nm wavelength by varying the MBE epitaxial growth parameters are reported.
IA-1.4 MON11:45Observation and measurement of interaction-induced dispersive optical nonlinearities in an ensemble of cold Rydberg atomsvV Parini ^{1,2} F Bimbard ¹ L Stanoiavis ¹	IB-1.4 MON 11:45 A highly efficient integrated two-color source for heralded single photons •S. Krapick, H. Herrmann, B. Brecht, V. Quiring, H. Suche, and C. Silberhorn; Applied Physics University of Paderborn, Warburger	CD-5.4 MON 11:45 3.3 - 3.7 micrometer Nested Cavity OPO pumped by an amplified micro-laser for portable DIAL J. Barrientos-Barria ¹ , JB. Dherbecourt ¹ , •J. Barrientos-Barria ¹ , JB. Dherbecourt ¹ , M. Baybayu ¹ A. Godord ¹ L. M. Melkowia ¹	CK-5.2 MON 11:45 Quasi-bidimensional disordered structures for light trapping in thin-film solar cells. M. Burresi ^{1,2} , •F. Pratesi ¹ , K. Vynck ¹ , M. Practicle ³ M. Torman ⁴ and D. Wirrema ^{1,2} .	CE-1.4 MON11:45Modification Of Eu Incorporation SitesBy The Dissociation Of Hydrogen DefectComplexes In Mg and Eu Co-DopedGallium Nitride-R. Mitchell ¹ J. Peplausch ¹ V. Eujimara ²

•V. Parigi^{1,2}, E. Bimbard¹, J. Stanojevic¹, A.J. Hilliard^{1,3}, F. Nogrette¹, R. Tualle-Brouri¹, A. Ourjoumtsev¹, and P. Grangier¹; ¹Laboratoire Charles Fabry, Institut d'Optique, CNRS, Université Paris-Sud, Palaiseau, France; ²Laboratoire Kastler Brossel, Université Pierre et Marie Curie, Ecole Normale Supérieure, CNRS, Paris, France; ³QUANTOP, Institut for Fysik og Physics, University of Paderborn, Warburger Str. 100, 33098 Paderborn, Germany Future quantum network applications will rely on the development of highly efficient single-photon sources with multiple functionalities. We demonstrate an integrated source, which combines parametric downconversion with a wavelength division demultiplexer on one chip.

M. Raybaut¹, A. Godard¹, J.-M. Melkonian¹, M. Lefebvre¹, B. Faure², and G. Souhaité²; ¹Onera, The french aerospace lab, Palaiseau, France; ² Teem Photonics, Meylan, France We present here a new laser transmitter for DIAL LIDAR, based on a 3.3 - 3.7 micrometer nested cavity OPO, pumped by a specifically designed nanosecond micro-laser amplified to 200*J level.

Prasciolu³, M. Tormen⁴, and D. Wiersma^{1,2}; ¹1. European Laboratory for Non-linear Spectroscopy (LENS), Sesto Fiorentino, Firenze, Italy; ²2. Istituto Nazionale di Ottica (CNR-INO), Firenze, Italy; ³3. IOM-CNR, Labo-ratorio TASC, Trieste, Italy; ⁴4. Laboratorio Nazionale TASC-INFM, Basovizza, trieste, Italy

A novel kind of disordered quasi-bidimen-

•B. Mitchell¹, J. Poplawsky¹, Y. Fujiwara², and V. Dierolf¹; ¹Lehigh University, Bethlehem, USA; ²Osaka University, Osaka, Japan To improve the efficiency of Eu:GaN samples, Mg was added as a co-dopant. This resulted in the creation of new incorporation sites with enhanced excitation efficiency, but which are modified under electron beam exposure.

	CLEO®/E	urope-IQEC 2013 · Monday 13	May 2013	
ROOM 1 We have demonstrated HHG-seeded FEL operation in the EUV region with EOS- based timing-drift control to maximize tem- poral overlap between HH-pulses and elec- tron bunches. The seeding operation was successful with a hit rate over 20%.	ROOM 2	ROOM 3	ROOM 4a the components for mid-infrared generation and CEO-frequency detection.	ROOM 4b
CF/IE-5.5 MON12:00Development of active gratings for ultrafast monochromatorsF. Frassetto ¹ , S. Bonora ¹ , G. Brusatin ² , G. Della Giustina ² , S. Stagira ³ , C. Vozzi ¹ , E. Zanchetta ² , and •L. Poletto ¹ ; ¹ CNR-Institute pof Photonics and Nanotechnologies, Padova & Milano, Italy; ² Department of Industrial Engineering, University of Padova, Padova, Italy; ³ Department of Physics, Politecnico di Milano, Milano, ItalyThe design of active deformable gratings to be used in grazing-incidence monochroma- tors for XUV ultrafast pulses is discussed. A double-grating configuration has been real- ized to demonstrate the compensation of the grating front-tilt.	JSI-1.3 MON 12:00 Triggered de-excitation of nuclear isomer in plasma: the case of ^{84m} Rb. •D. Denis-Petit ¹ , V. Bagnoud ³ , T. Bonnet ¹ , M. Comet ² , A. Frank ³ , F. Gobet ¹ , G. Gosselin ² , F. Hannachi ¹ , V. Méot ² , P. Morel ² , M. Tarisien ¹ , and M. Versteegen ¹ ; ¹ Centre d'Etudes Nucléaires de Bordeaux-Gradignan, Gradignan, France; ² CEA, DAM, DIF, Arpa- jon, France; ³ GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany We have undertaken the study of the trig- gered de-excitation of the ^{84m} Rb isomer in laser produced plasma. Preliminary nuclear and atomic physics experiments were con- ducted and the first results will be presented.	CH-1.5 MON 12:00 JDIntegrated Optical Component for SpectroInterferometry A. Saviauk, •S. Minardi, F. Dreisow, S. Nolte, and T. Pertsch; Institute of Applied Physics, Abbe Center of Photonics, Friedrich- SchillerUniversität, MaxWienPlatz 1, Jena, <i>Germany</i> We present a compact setup based on a three-dimensional integrated optical com- ponent, allowing the measurement of the mutual coherence properties of three chan- nels of polychromatic light. Applications to astronomical interferometry and multichan- nel metrology are foreseen. CH-1.6 MON 12:15	1D-1.5 MON 22:00 Comb-assisted precision spectroscopy of NH3 at 9.1 μm • D. Gatti ¹ , A. Mills ² , M. Devizia ³ , I. Hartl ⁴ , I. Gianfrani ³ , M. Marangoni ¹ , and M. Fermann ² ; ¹ Politecnico di Milano and IFN- CNR, Milano, Italy; ² IMRA America Inc., Am Arbor, United States; ³ Seconda Uni- versità di Napoli, Caserta, Italy; ⁴ Deutsches Elektronen-Synchrotron, Hamburg, Germany A coherent phase lock of a quantum- cascade-laser to a thulium-fiber frequency comb is exploited for the investigation of multi-line absorption spectra of ammonia at 9.1 μm with extremely high metrological quality.	CI-1.4 MON 12:00 Traceback Equalization for Non-Uniformly Synthesized Optical QAM Signals •T. Sakamoto, GW. Lu, and T. Kawanishi; National Institute of Information and Tech- nology, Tokyo, Japan QAM signals synthesized from binary data sequences is non-uniformly distorted. We propose a novel equalizing scheme called traceback equalization to solve the problem. By the equalizer, the non-uniform distortion is effectively compensated for.
21:15 Resonance Scanning Interferometer for Group Delay Dispersion Measurements ¹⁰ <i>Arubetskov</i> ^{1,2} , <i>M. von Pechmann</i> ⁴ , ¹¹ <i>Angelov</i> ¹ , <i>O. Razskazovskaya</i> ¹ , <i>K.</i> ¹⁰ <i>Vodopyanov</i> ³ , <i>F. Krausz</i> ^{1,4} , and <i>V. Pervak</i> ^{4,5} ; ¹⁰ <i>Max-Planck Institute of Quantum Optics</i> , ¹⁰ <i>Garching, Germany</i> ; ¹² <i>Research Com-</i> <i>puting Center, Moscow State University</i> , <i>Moscow, Russia</i> ; ³ <i>Univ. Central Florida</i> , <i>CREOL, Orlando, United States</i> ; ⁴ <i>Ludwig-</i> <i>Maximilians-Universitat Muenchen</i> , <i>Garching, Germany</i> ; ⁵ <i>Ultrafast Innovations</i> <i>GmbH, Garching, Germany</i> . We developed a Resonance Scanning Inter- ferometer for group delay and group delay vispersion measurements based on inter- mirror spacer resonances. High resolution is achieved by simultaneous processing of vacue thicknesses.	JSI-1.4 MON 12:15 Search for the Low Energy Nuclear Excitation with a Femtosecond Plasma: an Overview and Perspectives - A. Savelyev; Lomonosov Moscow State Univ, Moscow, Russia Recent experimental attempts to observe the low energy nuclear excitation with femtosec- ond lasers are discussed. An ionized elec- tron motion in the superintense laser field might lead to the nuclear excitation through inverse internal conversion, inelastic scatter- ing and photoexcitation.	 High-resolution integrated photonic micro-spectrographs for radial velocity exoplanet astronomy N. Cvetojevic^{1,2,3}, H. Fernando⁴, N. Jovanovic⁵, J. Lawrence^{1,2,6}, R. Haynes⁴, J. Bland-Hawthorn⁷, and M. Withford^{1,2,3}; ¹MQ Photonics Research Centre, Dept. of Physics and Astronomy, Macquarie University, Sydney, Australia; ²Research Centre in Astronomy, Astrophysics & Astrophotonics, Dept. Physics and Astronomy, Macquarie University, Sydney, Australia; ³Centre for Ultrahigh Bandwidth Devices for Optical Systems (CUDOS), Sydney, Australia; ⁴innoFSPEC, Leibniz-Institut für Astrophysik, Potsdam, Germany; ⁵Subaru Telescope, National Astronomical Observatory of Japan, Hilo, United States; ⁶Australian Astronomical Observatory (AAO), Sydney, Australia; ⁷Sydney Institute for Astronomy, University of Sydney, Sydney, Australia We report on a comprehensive redesign of arrayed waveguide grating architecture to vastly improve the performance of an integrated photonic micro-spectrograph for high-resolution exoplanet astronomy. 	 ID-1.6 MON 22:15 Quantum Limited Measurements with Optical Frequency Combs P. Jian¹, O. Pinel^{1,2}, J. Roslund¹, R. Schmeissner¹, B. Lamine¹, C. Fabre¹, and N. Treps¹; ¹Laboratoire Kastler Brossel, Uriversité Pierre et Marie Curie, ENS, CNRS, Paris, France; ²Centre for Quantum Computation and Communication Technology, Department of Quantum Science, The Australian National University, Canberra, Australia Optical frequency combs are used to achieve quantum limited (in the sense of the quantum Cramér-Rao bound) space-time positioning measurements, in vacuum and in air, by means of pulse shaping techniques and homodyne detection scheme. 	21215 Analytical formulation framework for directly modulated/detected OOFDM systems • C. Sánchez, B. Ortega, and J. Capmany; In- stitute of Telecommunications and Multime- dia Applications (ITEAM), Group of Opti- cal & Quantum Communications, Valencia, Significant physical dynamics/mechanisms on the performance of directly modu- lated/detected OOFDM systems is pre- sented. Results show good agreement be- tween evaluation of theoretical expressions and simulations.

- 80 —

high-resolution exoplanet astronomy.

CLEOR/Europe-IOEC 2013, Monday 13 May 2013

	CLEO [®] /E	urope-IQEC 2013 · Monday 13	3 May 2013	
ROOM 13a Astronomi, Aarhus Universitet, Aarhus, Denmark We measured dispersive optical nonlineari- ties in an ensemble of cold Rydberg atoms placed inside an optical cavity. A simple model explains these by the progressive ap- pearance of a Rydberg blockaded volume within the medium	ROOM 14a	ROOM 14b	ROOM 21 sional photonic structures are presented as light trapping architecture to be applied on thin-film photovoltaic cells. Experimental and numerical results reveal their broad- band and omidirectional absorption proper- ties.	ROOM EINSTEIN
 IA-1.5 MON (Invited) 12:00 Quantum Networks based on Single Atoms in Optical Cavities S. Ritter, C. Nölleke, C. Hahn, A. Reis- erer, A. Neuzner, M. Uphoff, M. Mücke, E. Figueroa, J. Bochmann, and G. Rempe; Max- Planck-Institut für Quantenoptik, Garching, Germany Single atoms in optical cavities are ideally suited as universal quantum network nodes. We demonstrate the reversible exchange of quantum information and the creation of re- mote entanglement between two identical nodes in remote, independent laboratories. 	IB-1.5 MON12:00Decorrelated PDC Source at Telecom Wavelengths with Identical Signal and Idler•G. Harder ¹ , V. Ansari ¹ , B. Brecht ¹ , T. Dirmeier ² , C. Marquardt ² , and C. Silberhorn ^{1,2} ; ¹ Applied Physics, University of Paderborn, Warburger Strasse 100, 33098 Paderborn, Germany; ² Max Planck Institute for the Science of Light, Guenther- Scharowsky-Str. 1, 91058 Erlangen, Germany We realize an ultrafast, efficient type-II para- metric downconversion source in a periodi- cally poled KTP waveguide at telecom wave- lengths producing separable and symmetric photon pairs. Their indistinguishability and purity is verified by Hong-Ou-Mandel inter- ference measurements.	CD-5.5 MON12:00Whispering gallery optical parametric oscillators: coupling is the key•C. Werner ¹ , T. Beckmann ¹ , K. Buse ^{1,2} , and I. Breunig ¹ ; ¹ University of Freiburg - IMTEK, Freiburg, Germany; ² Fraunhofer Institute of Physical Measurement Techniques, Freiburg, GermanyWe show that the coupling strength is the key parameter for the performance of whis- pering gallery optical parametric oscilla- tors. Moving the coupling prism by only 500 nm yields a 4-orders-of-magnitude efficiency change.	CK-5.3 MON12:00Optical hydrogen sensors based on Au/Pd core shell nanorod arrays•M. Nasir, W. Dickson, JS. Bouillard, A. Mansourian, D. O'Connor, G. Wurtz, and A. Zayats; King's College London, London, United KingdomWe describe a novel optical hydrogen sensor based on gold/palladium core-shell nanorod arrays synthesized using highly ordered porous alumina template that provide ex- tremely high sensitivity due to the modifica- tion of plasmonic resonances of the arrays.	CE-1.5 MON (Invited)12:00Nano-scale Characterization of Semiconductors Using Helium Temperature Scanning Transmission Electron Microscopy Cathodoluminescence•J. Christen; Otto-von-Guericke-University, Institute of Experimental Physics, Magde- burg, GermanyLuminescence spectroscopy is one of the most utilized optical characterization techniques. Its combination with the high spatial resolution of transmission electron microscopy, provides a unique, extremely powerful tool for the optical nano-characterization of semiconductors.
	IB-1.6 MON 12:15 Ultra-narrowband Photon Pair Source for Solid State Quantum Memories Based on Widely Non-degenerate Cavity-enhanced Downconversion •D. Rieländer ¹ , J. Fekete ¹ , M. Cristiani ¹ , and H. de Riedmatten ^{1,2} ; ¹ ICFO-The Insti- tute of Photonic Sciences, Castelldefels, Spain; ² ICREA-Institució Catalana de Recerca i Es- tudis Avançats, Barcelona, Spain We report on a photon pair source, ideally suited for long distance quantum communi- cation. One photon of the pair is compatible with a solid state quantum memory and the other photon is at telecommunication wave- length	CD-5.6 MON12:15Optical Parametric Oscillator based detection of hydrogen cyanide for bio-medical applicationsD. Arslanov, Y. Jin, J. Mandon, S. Cristescu, and •F. Harren; Radboud University, Institute for Molecules and Materials, Nijmegen, The NetherlandsVersatile optical parametric oscillator based spectrometer was developed for long-term trace gas emission experiments. The detec- tor was successfully tested for the detection of Hydrogen Cyanide from plants and Pseu- domonas bacteria; next to exhaled human breath.	CK-5.4 MON12:15 3D lithography of polymers for micro-photonic applicationsS. Grilli ¹ , •S. Coppola ^{1,2} , V. Vespini ¹ , F.Merola ¹ , A. Finizio ¹ , and P. Ferraro ¹ ; ¹ CNR-INO, Pozzuoli (NA), Italy; ² Università degliStudi di Napoli "Federico II", Dipartimentodi Ingegneria dei Materiali, Napoli, ItalyWe present a novel approach for fabricatinga wide variety of soft solid-like microstructures, thus leading to a new concept in 3Dlithography. Applications as optical tweezersand active microresonators are reported.	

length.

ROOM 1

14:30 - 16:00

CF/IE-6: Supercontinuum Generation and Filamentation

Chair: Luc Bergé, CEA, Arpajon, France

CF/IE-6.1 MON

Investigation of Plasma Filament Decay in Gases at Different Pressures

14:30

14:45

15:00

•S. Bodrov^{1,2}, A. Murzanev¹, Y. Sergeev¹, Y. Malkov¹, M. Tsarev^{2,1}, N. Aleksandrov³, I. Kochetov⁴, and A. Stepanov¹; ¹Institute of Applied Physics of Russian Academy of Sciences, Nizhny Novgorod, Russia; ²University of Nizhny Novgorod, Nizhny Novgorod, Russia; ³Moscow Institute of Physics and Technology, Dolgoprudny, Russia; ⁴Troitsk Institute of Innovation and Fusion Research, Troitsk, Russia

Plasma filament decay in air, N2 and Ar for pressure range p=1-760 Torr was investigated experimentally by combination of transverse optical interferometry and pulsed terahertz scattering techniques and discussed theoretically.

CF/IE-6.2 MON

Remotely pumped stimulated emission at 337 nm in atmospheric nitrogen •P. Polynkin¹, D. Kartashov², A. Schmitt-

•P. Polynkin¹, D. Kartashov², A. Schmitt-Sody³, S. Alisauskas², A. Pugzlys², A. Baltuska², J. Moloney¹, and W. Roach³; ¹College of Optical Sciences, University of Arizona, Tucson, United States; ²Photonics Institute, Vienna University of Technology, Vienna, Austria; ³Air Force Research Labs, Kirtland Air Force Base, Albuquerque, United States

Stimulated emission at 337nm in atmospheric nitrogen pumped by an energetic picosecond laser pulse at 1,053nm is reported. The gain at 337nm is seeded by the spectral tail of the third harmonic of the pump.

CF/IE-6.3 MON

A New Regime of Femtosecond Mid-Infrared Filamentation in Transparent Solids

•S. Ališauskas¹, D. Kartashov¹, A. Pugžlys¹, D. Faccio², A. Zheltikov^{3,4}, A. Voronin³, and A. Baltuška¹; ¹Photonics Institute, Vienna University of Technology, Vienna, Austria; ²Institute of Photonics and Quantum

ROOM 4a

<u>14:30 - 16:00</u> ID-2: Frequency Combs

Chair: Ekkehard Peik, Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

ID-2.1 MON

Steady-state and instabilities of octave-spanning Kerr frequency combs modeled using a generalized Lugiato-Lefever equation

•M. Erkintalo¹, H. Randle¹, T. Sylvestre², and S. Coen¹; ¹Department of Physics, The University of Auckland, Auckland, New Zealand; ²Institut FEMTO-ST, Universite de Franche-Comte, Besancon, France

A generalized Lugiato-Lefever equation is numerically solved to model Kerr frequency combs. Excellent agreement is obtained with past experiments. Simulations are orders-ofmagnitude faster than with any other technique and reveal different regimes of comb stability.

ID-2.2 MON

Octave-spanning Ti:Sapphire laser with repetition rate >4 GHz

•A. Rolland^{1,2}, T. Fortier², and S.A. Diddams²; ¹Institut de Physique de Rennes, Rennes, France; ²National Institute of Standards and Technology, Boulder, United States

We experimentally develop an octavespanning Ti:Sapphire laser operating at multi-gigahertz repetition rates. By optimizing the total group dispersion delay intracavity, we reach an octave bandwidth for a repetition rate at 4.3 GHz.

ID-2.3 MON

Spectral broadening of microresonator based frequency combs for self-referencing • T. Herr¹, J. Jost¹, V. Brasch¹, M. Pfeiffer¹, C. Wang¹, M. Gorodetsky², and T. Kippenberg¹; ¹Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; ²Faculty of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia

ROOM 4b

14:30 - 16:00

CL-3: Applied Biophotonics Chair: Halina Rubinsztein-Dunlop, University of Queensland, Kenmore, Brisbane, Australia

14:30

14:45

14:30 CL-3.1 MON

Distinguishing immature and mature HIV-1 particles by superresolution optical fluorescence microscopy

 V. Mönkemöller¹, W. Hübner¹, B. Dale², B.K. Chen², G.P. McNerney³, and T. Huser¹;
 ¹Biomolecular Photonics, University of Bielefeld, Germany;
 ²Immunology Institute, Mount Sinai School of Medicine, New York, United States;
 ³NSF Center for Biophotonics Science and Technology, University of California, Davis, United States

Individual HIV particles are characterized by single molecule based superresolution fluorescence microscopy techniques in order to track the position and infection state of individual HIV virions in 4D with a spatial resolution down to 20nm.

CL-3.2 MON

14:45

15:00

Quantifying molecular colocalization in live cell fluorescence microscopy

•F. Humpert¹, I. Yahiaten¹, M. Lummer², M. Sauer³, and T. Huser^{1,4}; ¹Biomolecular Photonics, Bielefeld, Germany; ²Molecular Cellpysiology, Bielefeld, Germany; ³Biotechnology and Biophysics, Würzburg, Germany; ⁴Center for Biophotonics Schience and Technology, Sacramento, United States We introduce a novel, quantitative measure that enables a significantly improved analysis for colocalization in fluorescence microscopy. This analysis can readily be extended to the evaluation of images with more than just two color channels.

CL-3.3 MON (Invited) 15:00

Super Resolution Imaging of Single DNA-Protein Interactions

G. Wuite¹, •E. Peterman¹, S. Hell², G. Sitters¹, and I. Heller¹; ¹VU University, Amsterdam, The Netherlands; ²Max Planck Institute for Biophysical Chemistry, Göttingen, Germany

We developed an optical tweezers combined

ROOM 13a

<u>14:30 – 16:00</u> IA-2: Ouantum Photonics

Chair: Stefan Götzinger, Max Planck Institute for the Science of Light, Erlangen, germany

IA-2.1 MON (Invited) 14:30

Photonic Quantum Technologies

K. Aungskunsiri, D. Bonneau, J. Carolan, D. Fry, J. Hadden, S. Ho, J. Kennard, S. Knauer, E. Martin-Lopez, J. Meinecke, G. Mendoza, J. Munns, M. Piekarek, K. Poulios, X. Qiang, N. Russell, R. Santagati, A. Santamato, P. Shadbolt, P. Sibson, J. Silverstone, O. Snowdon, N. Tyler, J. Wang, C. Wilkes, S.R. Whittaker, J. Barreto, D. Beggs, X. Cai, P. Jiang, A. Laing, J.C.F. Matthews, G.D. Marshall, A. Peruzzo, X.-Q. Zhou, J.G. Rarity, M.G. Thomson, and •J.L. O'Brien; University of Bristol, Bristol, United Kingdom

Quantum photonics will deliver disruptive information, communication and sensor technologies by harnessing quantum effects. We report efforts to develop the key components single photon sources and detectors, and reconfigurable waveguide circuits and their integration.

ROOM 13b

14:30 - 16:00

CB/CC-1: Terahertz Quantum Cascade Semiconductor Lasers

Chair: Thomas Dekorsy, University of Konstanz, Konstanz, Germany

14:30

14:45

15:00

CB/CC-1.1 MON

Phase-locked arrays of surface-emitting terahertz distributed feedback quantum cascade lasers

•G. Xu¹, Y. Halioua¹, R. Colombelli¹, S.P. Khanna², L. Li², E.H. Linfield², A.G. Davies², H. Beere³, and D.A. Ritchie³; ¹Institut d'Electronique Fondamentale, Univ. Paris Sud, Orsay, France; ²School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom; ³Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom

We report phase-locked arrays of surfaceemitting terahertz quantum cascade lasers. Single-mode emission is consistently obtained and the laser emission pattern shows a main central lobe as narrow as 6 degrees in the array direction.

CB/CC-1.2 MON Broadband homogeneous quantum

cascade laser emitting at 2.3 THz

•M. Rösch, G. Scalari, M. Beck, and J. Faist; Institute for Quantum Electronics, ETH Zürich, Zürich, Switzerland We report a broadband homogeneous quantum cascade laser emitting at 2.3 THz with a bandwidth of 765 GHz above the noise level in pulsed mode. The laser operates up to a temperature of 140 Kelvin.

IA-2.2 MON

Measuring higher-order interferences with a five-path interferometer

•T. Kauten, B. Gschösser, P. Mai, Z. Vörös, and G. Weihs; Institut für Experimentalphysik, Innsbruck, Austria

We performed a five-path interferometer experiment to determine an upper bound for possible higher-order interference terms,

CB/CC-1.3 MON

Exceptional points in coupled microdisk THz quantum cascade lasers

•M. Brandstetter, M. Liertzer, C. Deutsch, H. Detz, A.M. Andrews, W. Schrenk, G. Strasser, K. Unterrainer, and S. Rotter; Vienna University of Technology, Vienna, Austria We investigated coupled microdisk terahertz (THz) quantum cascade lasers (QCLs)

15:00 rder interferences

combined

ROOM 14a

14:30 - 16:00

CJ-3: Modal Instabilities in Fibres *Chair: Kent Erik Mattsson, Technical University Denmark, Kgs. Lyngby, Denmark*

14:30

CJ-3.1 MON (Invited)

Mode instabilities in large-mode-area fiber amplifiers

•T. Eidam^{1,2}, C. Jauregui¹, H.-J. Otto¹, F. Jansen¹, F. Stutzki¹, J. Limpert^{1,2,3}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany; ²Helmholtz-Institute Jena, Jena, Germany; ³Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany

Today the onset of mode instabilities is one of the most limiting effects for averagepower scaling of fiber lasers. We give an overview about possible theoretical explanations and discuss first experiments demonstrating mitigation strategies.

ROOM 14b 14:30 - 16:00

CD-6: Frequency Conversion based on Quadratic Nonlinearities Chair: Ulf Peschel, University of Erlangen, Erlangen, Germany

CD-6.1 MON

Narrow-Band, Mid-Infrared, CdSiP₂ Based Seeded Optical Parametric Generator Pumped by 120-ps, Single Mode 1064 nm Laser

A. Tyazhev¹, •F. Pirzio², A. Agnesi², G. Reali², V. Petrov¹, G. Marchev¹, P.G. Schunemann³, and K.T. Zawilski³; ¹Max-Born-Institute, Berlin, Germany; ²Università di Pavia, Pavia, Italy; ³BAE Systems, Inc, Nashua, Italy

We demonstrated low-threshold, efficient optical parametric amplification in $CdSiP_2$ pumping at 1064 nm with 120-ps-long pulses at 230-kHz repetition rate and seeding at the signal wavelength for generation of bandwidth-limited idler pulses at 6100 nm.

CD-6.2 MON

Broad and tunable second harmonic generation from 250 to 430 nm from a 80 MHz picosecond white light source •*M. Bradler and E. Riedle; LS für BioMolekulare Optik, LMU, München, Germany* We show tunable second harmonic generation from 250 to 430 nm from a visible picosecond supercontinuum Megahertz source, study the influence of the numerical

source, study the influence of the numerical aperture on the frequency doubling process, and perform broadband achromatic doubling.

CJ-3.2 MON

On the power threshold of mode instabilities

•C. Jauregui¹, H.-J. Otto¹, F. Stutzki¹, F. Jansen¹, J. Limpert^{1,2}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Jena, Germany; ²Helmholtz-Institute Jena, Jena, Germany; ³Fraunhofer Institute for Applied Optics and Precision

CD-6.3 MON

15:00

Blue-to-red tunable SHG from a diode-pumped PPKTP waveguide

•K. Fedorova¹, G. Sokolovskii^{1,2}, P. Battle³, I. Krestnikov⁴, D. Livshits⁴, and E. Rafailov¹; ¹Photonics & Nanoscience Group, University of Dundee, Dundee, United Kingdom; ²Ioffe Physico-Technical Institute, St. Petersburg, Russia; ³AdvR Inc., Montana, United States;

ROOM 21

14:30 - 16:00

JSIV-1: Quantum Coherent Effects in Biology I Chair: Philipp Kukura, University of Oxford,

Oxford, United Kingdom

JSIV-1.1 MON

14:30

14:45

15:00

High Frequency Vibrational Coherences and Coupling in the Excited State of Polyenic Biochromophores

•T. Buckup, J.P. Kraack, M.S. Marek, and M. Motzkus; Physikalisch-Chemisches Institut, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany

High-frequency vibrational coherences in the excited state of Retinals (RETs) and Carotenoids (CARs) are investigated with pump-DFWM. Newly observed C=C stretching bands in the excited states of RETs and CARS is discussed.

ROOM EINSTEIN

<u>14:30 - 16:00</u> CE-2: Thin Films and

Nanostructures

Chair: Jürgen Christen, Universität Madgeburg, Magdeburg, Germany

CE-2.1 MON

14:30

14:45

15:00

Superhydrophobic Sputtered Al2O3 Coating Films with High Transparency

•D. Tulli¹, P. Mazumder³, D. Infante¹, A. Carrilero¹, and V. Pruneri^{1,2}; ¹ICFO, Barcelona, Spain; ²ICREA, Barcelona, Spain; ³Corning Inc., Sullivan Park, NY, United States

Sputtered Alumina thin film with roughness of 20 to 50 nm was formed by immersion in boiling water. High transparency, low haze and superhydrophobic behaviour create a great potential for an anti-reflection coating on glass.

JSIV-1.2 MON

Femtosecond stimulated Raman spectroscopy in 1D and 2D - direct observation of intramolecular motions and intermolecular interactions

•M. Kloz, R. van Grondelle, and J. Kennis; Free University Amsterdam, Amsterdam, The Netherlands

Femtosecond pump-probe experiments greatly contributed to understanding of elementary events in photosynthesis. Lately also more complex multi-pulse experiments such as femtosecond stimulated Raman spectroscopy were harnessed to study physical nature of life.

JSIV-1.3 MON

On Origin of Coherence Dynamics in Biological Complexes

•D. Zigmantas¹, D. Palecek¹, J. Dostal¹, J. Alster¹, and V. Butkus²; ¹Lund Universty, Lund, Sweden; ²Vilnius University, Vilnius, Lithuania

We employed polarization 2D spectroscopy, Fourier analysis and modelling of beats with

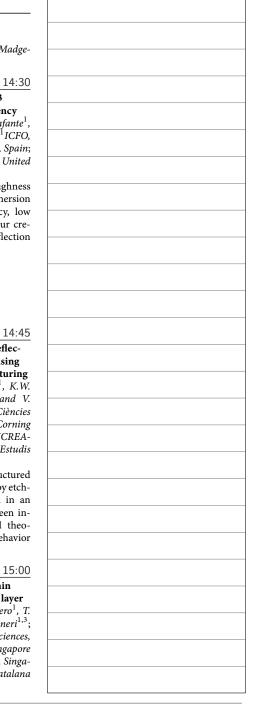
CE-2.2 MON

Durable, Superhydrophobic, Antireflection and Low Haze Glass Surfaces using scalable metal dewetting nanostructuring •D. Infante¹, A. Carrilero¹, D. Tulli¹, K.W. Koch², P. Mazumder², L. Tian², and V. Pruneri^{1,3}; ¹ICFO-Institut de Ciències Fotòniques, Castelldefels, Spain; ²Corning Inc., Corning, United States; ³ICREA-Institució Catalana de Recerca i Estudis Avancats, Barcelona, Spain

Antireflective properties of nanostructured glass substrates, that were fabricated by etching a self-assembled metallic mask in an industrially scalable process, have been investigated both experimentally and theoretically. Moreover, their wetting behavior could be turned superhydrophobic.

CE-2.3 MON

Oxidation-free and ultra-smooth thin silver films grown on a copper seed layer •N. Formica¹, D.S. Ghosh¹, A. Carrilero¹, T. Lai Chen¹, R. Simpson², and V. Pruneri^{1,3}; ¹ICFO, Institute of Photonic Sciences, Castelldefels, Barcelona, Spain; ²Singapore University of Techonology and Design, Singapore, Singapore; ³ICREA,Institucio*Catalana



NOTES

with multicolor confocal and STED fluores-

cence microscopy. It allows visualization of

proteins on DNA with high spatial resolu-

tion (50 nm) and temporal resolution (<50

ROOM 1

Sciences, Heriot-Watt University, Edinburgh, United Kingdom; ³Physics Department, Russian Quantum Center, International Laser Center, M.V. Lomonosov Moscow State University, Moscow, Russia; ⁴Department of Physics and Astronomy, Texas A&M University, College Station, United States

We present experimental and numerical investigation of a new filamentation regime of mid-infrared femtosecond pulses in solids. Efficient emission of dispersive waves without fundamental spectrum broadening and continuum generation is observed in this regime.

15:15

15:30

15:45

CF/IE-6.4 MON

Femtosecond Laser Filaments and Aerodynamics

•*M. Lenzner, J. Yeak, and K. Kremeyer; PM* & AM Research, Tucson, United States The air disturbance generated by a femtosecond laser-induced plasma can significantly alter nonlinear optical effects for these pulses during propagation. For pulse repetition rates above 1 kHz, a pulse consequently affects its successor.

CF/IE-6.5 MON

Compressible octave-spanning supercontinuum generation by two-color excitation in the group velocity horizon •A. Demircan¹, S. Amiranashvili², C. Brée², and G. Steinmeyer³; ¹Invalidenstr. 114, Berlin, Germany; ²Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany; ³Max-Born-Institute, Berlin, Germany

A novel two-color excitation scheme is discussed for generation of broadband white-light continua with superior coherence properties in photonic crystal fibers. These continua enable compression close to single-cycle temporal duration.

CF/IE-6.6 MON

Frequency up-conversion and pulse compression mediated by soliton plasma interactions in gas-filled photonic crystal fiber

•P. Hölzer¹, W. Chang¹, J.C. Travers¹, and P.S.J. Russell^{1,2}; ¹Max Planck Insti-

ROOM 4a

We demonstrate spectral broadening of a low noise, near-infrared, microresonator based frequency comb to close to two thirds of an optical octave. This opens a viable route towards self-referencing of microresonator based comb generators.

ID-2.4 MON

Low phase-noise mid-infrared frequency combs based on microresonators

C. Wang^{1,2}, T. Herr¹, P. Del'Haye^{2,6}, A. Schliesser^{1,2}, R. Holzwarth^{2,3}, T. Hänsch^{2,4}, N. Picqué^{2,4,5}, and •T. Kippenberg¹; ¹École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; ²Max-Planck-Instiut für Quantenoptik, Munich, Germany; ³Menlo Systems GmbH, Martinsried, Germany; ⁴Ludwig-Maximilians-Universität München, Munich, Germany; ⁵Institut des Sciences Moléculaires d'Orsay, CNRS, Orsay, France; ⁶National Institute of Standards and Technology, Boulder, United States We present mid-infrared frequency combs

from crystalline MgF2 micro-resonators at 2.5 micron-wavelength. Low phase-noise is confirmed by both heterodyne beat note and transmission noise measurements.

ID-2.5 MON (Invited) 15:30

Microresonator frequency combs •S. Papp, P. Del'Haye, and S. Diddams; National Institute of Standards and Technology, Boulder, CO, United States

We will describe recent experiments with microresonator-based optical frequency combs that characterize their time- and frequency-domain behavior. Our work explores low-noise operating regimes of microcombs for precision metrology applications.

CL-3.4 MON

ms).

15:15

Experimental observation of synchronization in a biomechanical rotational motors system

•C. Denz, L. Dewenter, Á. Barroso, C. Alpmann, and M. Woerdemann; Institut für Angewandte Physik, Westfälische Wilhelms-Universtität Münster, Münster, Germany We demonstrate the hydrodynamic interaction and synchronization in bio-mechanical systems, as pairs of flagellated bacteria, in dependence of their distance and show first, promising results.

CL-3.5 MON

Maximum control of light propagation through turbid media in the presence of noise

•H. Yilmaz, W.L. Vos, and A.P. Mosk; Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, University of

ROOM 13a

and to test for the possibility of quantum mechanical wavefunctions based on quaternions or octonions rather than complex numbers.

15:15

15:30

15:45

IA-2.3 MON

Single quantum dots as photon pair emitters

•A. Predojević¹, T. Huber¹, M. Ježek², H. Jayakumar¹, T. Kauten¹, G.S. Solomon³, R. Filip², and G. Weihs¹; ¹Institute for Experimental Physics, University of Innsbruck, Innsbruck, Austria; ²Department of Optics, Palacký University, Olomouc, Czech Republic; ³Joint Quantum Institute, National Institute of Standards and Technology and University of Maryland, Gaithersburg, United States We present our measurements performed on a quantum dot system suitable for the generation of time-bin entangled photon pairs.

IA-2.4 MON

15:30

15:45

Bell States Generation on a III-V Semiconductor Chip at Room Temperature

A. Orieux¹, G. Boucher¹, •A. Eckstein¹, A. Lemaître², P. Filloux¹, I. Favero¹, G. Leo¹, T. Coudreau¹, A. Keller³, P. Milman¹, and S. Ducci¹; ¹Université Paris Diderot, Sorbonne Paris Cité, Laboratoire Matériaux et Phénomènes Quantiques, CNRS-UMR 7162, Paris, France; ²Laboratoire de Photonique et Nanostructures, Marcoussis, France; ³Université Paris Sud, Institut des Sciences Moléculaires d'Orsay, CNRS - UMR 8214, Orsay, France

We demonstrate the generation of polarization entangled Bell states at room temperature and telecom wavelength on a 3-5 semiconductor chip. A theoretical model provides ways to understand and control the amount of entanglement.

IA-2.5 MON

Integrated quantum interferometry with three-dimensional geometry

•N. Spagnolo¹, C. Vitelli^{2,1}, L. Aparo¹, P. Mataloni¹, F. Sciarrino¹, A. Crespi^{3,4}, R. Ramponi^{3,4}, and R. Osellame^{3,4}; ¹Dipartimento di Fisica, Sapienza Università

ROOM 13b

showing counter- intuitive behavior under certain operating conditions, which can be attributed to the occurrence of an exceptional point in the laser equations.

CB/CC-1.4 MON

THz quantum cascade lasers operating on radiative states of a 2D Photonic crystals resonator

15:15

15:30

15:45

•Y. Halioua¹, G. Xu¹, S. Moumdji¹, R. Colombelli¹, L. Li², and E. Linfield²; ¹Institut d'Electronique Fondamentale, Univ. Paris Sud, CNRS UMR8622, 91405 Orsay, France, Orsay, France; ²School of Electronic and Electrical Engineering, University of Leeds, Leeds, United Kingdom

We demonstrate a photonic-crystal design which permits to develop photonic-crystal band-edge lasers operating on radiative modes of a 2D photonic structure, with enhanced power extraction efficiency. The approach is demonstrated using THz quantum cascade lasers.

CB/CC-1.5 MON

Terahertz Photonic Crystal Quantum Cascade Laser Coupled to a Second Order Bragg Vertical Extractor

•C. Bonzon¹, Z. Diao², G. Scalari¹, M. Beck¹, J. Faist¹, and R. Houdré²; ¹Eidgenössische Techniche Hochschule Zürich (ETHZ), Institut für Quantenelektronik, Zürich, Switzerland; ²Ecole Polytechnique Fédérale de Lausanne (EPFL), Institut de Physique de la Matière Condensée, Lausanne, Switzerland We present single mode surface emission around 3.1 THz of a Quantum Cascade Laser. A deep etched 2D photonic crystal double metal cavity supports the laser mode and uses second order Bragg gratings as extractors.

CB/CC-1.6 MON

Fabrication and Characterization of Terahertz Emitting GaAs/AlGaAs Micropillar Quantum Cascade Structures in a Double Metal Waveguide

•*M.* Krall^{1,3}, *M.* Brandstetter^{1,3}, *C.* Deutsch^{1,3}, *H.* Detz^{2,3}, *T.* Zederbauer^{2,3},

ROOM 14a

Engineering, Jena, Germany

The latest developments in the theoretical understanding of mode instabilities are presented. A semi-analytical formula for the prediction of the mode-instability threshold is introduced and several mitigation strategies are proposed and discussed.

CJ-3.3 MON

Temperature as a guiding mechanism for high-power very-large-mode-area active fibers

•F. Jansen¹, F. Stutzki¹, H.-J. Otto¹, C. Jauregui¹, J. Limpert^{1,2}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Friedrich-Schiller-University Jena, Jena, Germany; ²Helmholtz-Institute Jena, Jena, Germany; ³Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena, Germany

Temperature is demonstrated to be a viable guiding mechanism for high power very large mode area fibers. An indexantiguiding-core fiber delivering 129W in effective single-mode operation is demonstrated. The relation to gain-guiding-indexantiguiding fibers is discussed.

CJ-3.4 MON

Mitigation Strategies for Mode Instabilities in High-Power Fiber-Laser Systems

•H.-J. Otto¹, C. Jauregui¹, F. Stutzki¹, F. Jansen¹, J. Limpert^{1,2}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Jena, Germany; ²Helmholtz-Institute, Jena, Germany; ³Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany

We present an approach to mitigate mode instabilities based on a dynamic mode excitation scheme. The beam quality was significantly improved at output powers well above the power threshold. Other mitigation strategies will be discussed.

CJ-3.5 MON

Highly Efficient 90 μ m Core Rod fiber Amplifier Delivering >300W Without Beam Instabilities

•M. Laurila¹, M.M. Jørgensen², J. Laegsgaard², and T.T. Alkeskjold¹; ¹NKT Photonics, Birkeroed, Denmark; ²DTU

ROOM 14b

⁴*Innolume GmbH, Dortmund, Germany* We demonstrate all-room-temperature CW second harmonic generation with 174 nm tunability from blue to red (between 478 nm and 652 nm) in a single PPKTP waveguide pumped by broadly-tunable semiconductor laser diodes.

CD-6.4 MON

15:15

15:30

15:45

High-efficiency 5-beam pumped non-collinear parametric amplification

•G. Mennerat¹, B. Trophème², and B. Boulanger³; ¹CEA-Saclay, IRAMIS, Gifsur-Yvette, France; ²CEA-CESTA, Le Barp, France; ³Institut Néel, Grenoble, France We report on beam combining through noncollinear optical parametric amplification in LBO pumped by five beams in nanosecond régime. 27% overall energy tranfer and output signal energy of 63 mJ were measured at 725 nm.

CD-6.5 MON

Thermal challenges in high power optical parametric amplifiers

 S. Demmler¹, J. Rothhardt^{1,2}, S. Hädrich^{1,2}, T. Peschel³, J. Limpert^{1,2}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller University Jena, Jena, Germany; ²Helmholtz-Institute Jena, Jena, Germany; ³Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany Investigations of thermal effects due to residual absoption of BBO in high average power optical parametric amplifiers are presented. Based on the findings guidelines for further power scaling of such nonlinear devices are given.

CD-6.6 MON

5 mJ, Sub-nanosecond PPSLT OPA at 0.5 kHz, Tunable in the Water Absorption Band at 3 microns

D. Chuchumishev¹, A. Gaydardzhiev¹, C.-P. Richter², and •I. Buchvarov^{1,2}; ¹Department of Physics, Sofia University, Sofia, Bulgaria;

ROOM 21

different origin to gain a better understanding of quantum beats phenomenon in biological complexes.

JSIV-1.4 MON

15:15

15:30

15:45

Coherent Electronic and Vibrational Dynamics in the Electronic 2D Spectra of Molecular Dimers

•V. Butkus^{1,2}, D. Abramavicius^{1,3}, and L. Valkunas^{1,2}; ¹Vilnius University, Vilnius, Lithuania; ²Center for Physical Sciences and Technology, Vilnius, Lithuania; ³Jilin University, Changchun, China, People's Republic of (PRC)

Coherent dynamics of simulated 2D electronic spectra of the molecular dimer is considered as the amplitude and phase dependence on resonant coupling and vibrational frequency. Typical signatures for electronic, vibrational or mixed coherences are identified.

JSIV-1.5 MON (Invited) 15:30

Quantum Coherence Explored at the Level of Individual Light-Harvesting Complexes

 B. Hildner^{1,2}, D. Brinks¹, R.J. Cogdell³, and
 N.F. van Hulst^{1,4}; ¹ICFO - the Institute of Photonic Sciences, Castelldefels - Barcelona, Spain; ²Experimentalphysik IV, Universität Bayreuth, Bayreuth, Germany; ³Institute of Molecular, Cell and Systems Biology, University of Glasgow, Glasgow, United Kingdom; ⁴ICREA - Institucio Catalana de Recerca i Estudis Avancats, Barcelona, Spain

We demonstrate ultrafast quantum coherent energy transfer within single lightharvesting complexes (LH2) under physiological conditions: The quantum coherence persists at least 400 fs. Strikingly, changing transfer pathways in individual complexes are revealed on second timescale.

ROOM EINSTEIN

de Recerca i estudis Avançats, Barcelona, Spain

We show an effective method, relying on a 1nm Copper seed layer, to produce the thinnest continuous nano-metric Ag films ever reported and not subjected to any oxidation even after 4 months of storage.

15:15

15:30

15:45

CE-2.4 MON

15:15

Third-harmonic and multiphoton excitation fluorescence microscopy of single and few layer graphene

•A. Säynätjoki¹, L. Karvonen¹, J. Riikonen¹, W. Kim¹, S. Mehravar², R. Norwood², N. Peyghambarian², H. Lipsanen¹, and K. Kieu¹; ¹Aalto University, Department of Micro and Nanosciences, Espoo, Finland; ²University of Arizona, College of Optical Sciences, Tucson, United States

Graphene was studied with simultaneous third-harmonic and multiphoton excitation fluorescence microscopy. Both CVD grown and exfoliated graphene were studied. The method is straightforward and fast, making it efficient in characterization of single- and few-layer graphene.

CE-2.5 MON

Effects of Surface Deep Traps on Thirdand High-Order Optical Nonlinearities in Photopolymerizable Semiconductor CdSe Quantum Dot-Polymer Nanocomposites Y. Adachi¹, R.-i. Yamagami¹, •Y. Tomita¹, T. Nakashima², and T. Kawai²; ¹University of Electro-Communications, Tokyo, Japan; ²Nara Institute of Science and Technology, Nara, Japan

We investigate the effect of surface deep traps on third- and high-order optical nonlinearities at a wavelength of 532 nm in photopolymerizable semiconductor CdSe quantum dot-polymer nanocomposites by means of a degenerate multiwave mixing experiment.

CE-2.6 MON

Highly efficient and photostable bulk and thin film dye lasers based on new pyrromethene derivatives

 L. Cerdán¹, G. Durán-Sampedro², A.R. Agarrabeitia², M.E. Pérez-Ojeda¹, A. Costela¹, I. García-Moreno¹, I. Esnal³,



NOTES

CLEO®/Europe-IQEC 2013 · Monday 13 May 2013

	CLEO®/E	urope-IQEC 2013 · Monday 13	May 2013	
ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
tute for the Science of Light, Erlangen, Ger- many; ² Department of Physics, University of Erlangen-Nuremberg, Erlangen, Germany Photoionization-induced self-frequency blue-shift of fundamental solitons in Ar-filled PCF is numerically studied. For $1.7 \ \mu$ J pulses the wavelength shifts from 1500 to 815 nm while the pulse compresses from 30 to 4 fs.		Twente, P.O. Box 217, 7500 AE, Enschede, The Netherlands We realize maximum control of light through turbid media in noisy conditions. A two-step optimization enables a high degree of control that is only limited by standard quantum noise.	di Roma, Roma, Italy; ² Center of Life NanoScience @ La Sapienza, Istituto Italiano di Tecnologia, Roma, Italy; ³ Istituto di Fo- tonica e Nanotecnologie, Consiglio Nazionale delle Ricerche (IFN-CNR), Milano, Italy; ⁴ Dipartimento di Fisica, Politecnico di Milano, Milano, Italy We report the experimental observation of three-photon interference in an integrated three-port directional coupler realized by ul- trafast laser-writing, and we discuss poten- tial application in the field of quantum in- terferometry.	A.M. Andrews ^{2,3} , W. Schrenk ³ , G. Strasser ² , and K. Unterrainer ^{1,3} ; ¹ Photonics Institute, Vienna University of Technology, Vienna, Austria; ² Institute of Solid State Electronics, Vienna University of Technology, Vienna, Austria; ³ Center for Micro- and Nanos- tructures, Vienna University of Technology, Vienna, Austria We are presenting results from the fabrica- tion and characterization of GaAs/AlGaAs micropillar arrays in a double metal waveg- uide. The micropillar arrays are formed by structuring a terahertz quantum cascade laser heterostructure.
16:30 - 18:00	16:30 - 18:00	16:30 - 18:00	16:30 - 18:00	16:30 - 18:00
CF/IE-7: High Harmonic Generation <i>Chair: Mauro Nisoli, Politecnico di Milano,</i> <i>Milan, Italy</i>	ID-3: Precision Measurements Chair: Stephan Schiller, Heinrich-Heine Uni- versity, Düsseldorf, Germany	CL-4: Structural Imaging Chair: Monika Ritsch-Marte, Innsbruck Medical University, Innsbruck, Austria	IA-3: Quantum Effects Chair: Tatjana Wilk, Max-Planck-Institut für Quantenoptik, Garching, Germany IA-3.1 MON 16:30	CB-3: Ultrafast Semiconductor Lasers I Chair: Maria Ana Cataluna, University of Dundee, Dundee, United Kingdom
CF/IE-7.1 MON (Keynote) 16:30	ID-3.1 MON (Invited) 16:30	CL-4.1 MON 16:30	Time-resolved double-slit interference pattern measurement with entangled	CB-3.1 MON 16:30
Frontiers in Extreme Nonlinear Optics: Attosecond-to-Zeptosecond Coherent Kiloelectronvolt X-rays on a Tabletop • <i>T. Popmintchev; JILA, University of Colorado at Boulder, Boulder, United States</i> We present experimentally and theoretically a unified picture of phase matching of high harmonic generation spanning the electro- magnetic spectrum from the vacuum ultra- violet to the keV X-ray region, combining both microscopic and macroscopic physics.	ID-3.1 MON (Initial) 10.30 Is the electron round? Particle physics with cold and ultracold molecular beams • <i>E.A. Hinds; Centre for Cold Matter, Imperial</i> <i>College, London SW7 2AZ, United Kingdom</i> Micro-Hz resolution spectroscopy of YbF molecules provides a sensitive way to search for the electric dipole moment of the elec- tron. This places strong constraints on pos- sible new particle physics in the 1-100 TeV range	In Vivo Three-Photon Imaging of Subcortical Structures of an Intact Mouse Brain using Quantum Dots • <i>N. Horton, K. Wang, CC. Wang, and C. Xu;</i> <i>Cornell University, Ithaca, United States</i> Three-photon fluorescence microscopy at the 1700 nm spectral window enables in vivo imaging of subcortical structures in an in- tact mouse brain. Subcortical imaging us- ing three-photon excitation of quantum dots may further improve the penetration depth. CL-4.2 MON 16:45	photons •P. Kolenderski ^{1,2} , C. Scarcella ³ , K. Johnsen ¹ , D. Hamel ¹ , C. Holloway ¹ , K. Shalm ¹ , S. Tisa ⁴ , A. Tosi ³ , K. Resch ¹ , and T. Jennewein ¹ ; ¹ Institute for Quantum Computing, Univer- sity of Waterloo, Waterloo, Canada; ² Institute of Physics, Nicolaus Copernicus Univer- sity, Torun, Poland; ³ Politecnico di Mi- lano, Dipartimento di Elettronica e Infor- mazione, Milano, Italy; ⁴ Micro Photon De- vice, Bolzano, Italy There is debate about how individual par- ticles passing through a double slit setup build up the well-known interference pat- tern. We report the pattern formation by photons using time-resolved single-photon	Generation of ultra-high repetition rate optical pulses through external injection in passively mode-locked monolithical semiconductor lasers • V. Pusino, M. Sorel, and M.J. Strain; Univer- sity of Glasgow, Glasgow, United Kingdom Passively mode-locked semiconductor lasers in a Fabry-Pérot configuration show lock- ing at repetition rates up to 910GHz when two external continuous waves are injected in the saturable absorber, with mutual spac- ing multiple of the fundamental frequency.
		Interferometric Second Harmonic Generation microscopy for tissue imaging	sensitive measurements.	
		M. Rivard ¹ , K. Popov ² , M. Laliberté ¹ , A. Bertrand-Grenier ¹ , F. Martin ¹ , H. Pépin ¹ , C.P. Pfeffer ³ , C. Brown ⁴ , L. Ramunno ² , and •F. Légaré ¹ ; ¹ INRS-EMT, Varennes, Canada; ² University of Ottawa, Ottawa, Canada; ³ Ludwig-Maximilians-University Munich, Munich, Germany; ⁴ University of Oxford, Oxford, United Kingdom We combine Second Harmonic Generation (SHG) microscopy and interferometry to image, at the sub-micron scale, the relative orientation of noncentrosymmetric proteins such as collagen in tendon. Our observa-	IA-3.2 MON16:45Demonstration of the Quantum ZenoEffect on the Nitrogen Vacancy Center in Nanodiamond•J. Wolters, M. Strauß, R.S. Schönfeld, and O. Benson; Nano-Optics, Institute of Physics, Humboldt-Universität zu Berlin, Berlin, Ger- manyWe experimentally demonstrate the quantum Zeno effect on a solid state spin, namely the nitrogen vacancy center in nanodia- mond. Our experiment is supported by a detailed analysis of the population dynamics	CB-3.2 MON 16:45 A Fast Time Domain Travelling Wave method for simulation of Quantum Dot Lasers and Amplifiers •M. Gioannini, P. Bardella, and I. Montrosset; . Department of Electronics and Telecommu- nication, Politecnico di Torino, Torino, Italy We present a Fast Time Domain Travelling Wave simulator for Quantum Dot lasers and amplifiers. The method is applied to the simulation of wide band SOAs and single section Fabry Perot lasers emitting optical pulses.

— 86 —

orientation of noncentrosymmetric proteins such as collagen in tendon. Our observa-tions are explained with a numerical model.

detailed analysis of the population dynamics via a semi-classical model.

pulses.

ROOM 14a	ROOM 14b	ROOM 21	ROOM EINSTEIN	NOTES
Fotonik, Kgs. Lyngby, Denmark Fiber designs with resonant structures can be robust to thermal load. We demonstrate 314W of average power from ROD fiber am- plifier using a fiber design with resonant structure.	² Northwestern University, Feinberg School of Medicine, Chicago, United States We demonstrate 5-mJ pulse energy in 580-ps laser pulses from mid-IR, PPSLT based op- tical parametric oscillator-amplifier system, tunable in the highly interesting water ab- sorption band between 3000-nm and 3500- nm, operated at 0.5-kHz repetition rate.		J. Bañuelos ³ , I. López-Arbeloa ³ , and M.J. Ortiz ² ; ¹ Instituto Química-Física Rocasolano (CSIC), Madrid, Spain; ² Facultad de Cien- cias Químicas, Universidad Complutense de Madrid, Madrid, Spain; ³ Facultad de Ciencia y Tecnología, Universidad del País Vasco, Bilbao, Spain Laser materials based on new derivatives of commercial pyrromethene dyes doped into PMMA are evaluated as rods and thin-films. Laser efficiencies up to 53% and 40-fold pho- tostability enhancements when compared to parent dyes are reported.	
16:30 – 18:00	16:30 - 18:00	16:30 - 18:00	16:30 - 18:00	
CJ-4: Coherent Combining <i>Chair: Thomas Schreiber, Fraunhofer IOF, Jena, Germany</i>	CD-7: New Devices for Frequency Conversion based on Quadratic Nonlinearities Chair: Concita Sibilia, Università di Roma La Sapienza, Rome, Italy	JSIV-2: Quantum Coherent Effects in Biology II Chair: Marcus Motzkus, University of Heidel- berg, Heidelberg, Germany	CE-3: Photonic Nanowires - Materials and Applications Chair: Mikhail A. Noginov, Norfolk State University, Norfolk, United States	
CJ-4.1 MON (Keynote) 16:30 Coherent Combining of Fiber and Solid-State Lasers 6. Goodno; Northrop Grumman Aerospace Systems, Redondo Beach, United States We review recent advances in coherent laser combining, including active laser control methods, diffractive optics beam combining, and high coherence fiber and SSL amplifiers that have enabled unprecedented brightness scaling of cw sources.	CD-7.1 MON 16:30 Nonlinear beam splitter based on second-harmonic generation by femtosecond laser-induced phase gratings inlihium niobate J. Imbrock, S. Kroesen, M. Ayoub, W. Horn, and C. Denz; Institute of Applied Physics and Center for Nonlinear Science, Muenster, Ger- many An integrated nonlinear photonic beam splitter device based on noncollinear second-harmonic generation is induced by a directly femtosecond laser written phase grating in lithium niobate. The efficiency, bandwidth, and tuning characteristic are examined.	JSIV-2.1 MON (Invited)16:30Robust design principles for quantum enhanced excitation transportM. Walschaers ^{1,2} , R. Mulet ^{1,3} , T. Wellens ¹ , and •A. Buchleitner ¹ ; ¹ Institute of Physics, Albert-Ludwigs-University, Freiburg i. Brsg., Germany; ² Instituut voor Theoretische Fysica, KU Leuven, Heverlee, Belgium; ³ Complex System Group, Department of Theoretical Physics, University of Havana, Cuba, CubaWe propose a model for highly efficient quantum transport through finite, discord ered systems, which is statistically robust against configurational changes. We discuss the potential relevance thereof for excitation transport in photosynthetic light harvesting complexes.	CE-3.1 MON (Invited)16:30III-V and III-Nitride Nanowires for LED Applications•L. Samuelson; Lund University, Lund, Sweden; Glo AB, Lund, SwedenI will describe the status of our research on the growth of ideal III-V and III-nitride nanowires, and the way these can be used for on-chip infrared LEDs as well as for visible LEDs.	
	CD-7.2 MON16:45 Propagation of second-harmonic generation in LiNbO3 nanowires•A. Sergeyev, R. Geiss, EB. Kley, T. Pertsch, and R. Grange; Institute of Applied Physics, Abbe Center of Photonics, Friedrich Schiller University, Jena, GermanyWe demonstrate propagation of second- harmonic (SH) in a 29 μ m long LiNbO3 nanowire. We show that nanowire length and facets significantly influence the SH sig- nal. We excite fluorescent dyes with the de- livered SH signal.	comprexes.		

ROOM 1

CF/IE-7.2 MON

Intra-cavity extreme ultraviolet light source based on a mode locked Ti:sapphire oscillator with 9.4 MHz repetition rate

•E. Seres^{1,2,3}, J. Seres², and C. Spielmann^{1,2}; ¹Helmholtz Institute Jena, Jena, Germany; ²Friedrich Schiller University, Jena, Germany; ³Vienna University of Technology, Vienna, Austria

A high harmonic source based on the intra-cavity wavelength conversion in a Ti;sapphire oscillator has been realized. Using Xe as nonlinear medium EUV pulses up to 30 eV have been measured at 9.4MHz repetition rate.

CF/IE-7.3 MON

Two-pulse Lensless Imaging With a Broadband High-Harmonic Source

•S. Witte, V.T. Tenner, D.W.E. Noom, and K.S.E. Eikema; LaserLaB Amsterdam, VU University Amsterdam, The Netherlands We demonstrate coherent lensless imaging with broadband extreme-ultraviolet radiation from a table-top high-harmonic source, using a two-pulse Fourier-transform imaging scheme and a multi-wavelength phase retrieval algorithm. We obtain diffractionlimited images at wavelengths below 50 nm.

ID-3.3 MON

17:15

17:30

Laser Spectroscopy of Th+ above 7 eV Excitation Energy for Electronic Bridge Excitation of the Th-229 Nucleus O.A. Herrera Sancho, N. Nemitz, C. Tamm, M. Okhapkin, and •E. Peik; Physikalisch-Technische Bundesanstalt, Braunschweig,

ROOM 4a

•J. Morgenweg and K. Eikema; VU University,

We introduce and experimentally demon-

strate a "Ramsey-comb" based on two am-

plified frequency comb pulses, resulting in

kHz-level accuracy on two-photon transi-

tions in Rb and Cs that challenges traditional

17:00

17:15

17:30

ID-3.2 MON

Ramsey-Comb Spectroscopy

Amsterdam. The Netherlands

frequency comb spectroscopy.

Germany Laser excitation of a nuclear transition in Th-229 is proposed as the basis of an optical clock. Two-photon excitation of electronic levels of Th+ may be used to excite the nucleus via electronic bridge processes.

ID-3.4 MON

Long distance ultra-stable frequency dissemination on a dedicated wavelength channel of a telecommunication network. O. Lopez¹, P.-E. Pottie², B. Chanteau¹, F. Stefani¹, A. Bercy¹, •C. Chardonnet¹, G. Santarelli³, and A. Amy-Klein¹; ¹Laboratoire de Physique des Lasers, Université Paris 13, Villetaneuse, France; ²LNE-SYRTE, Observatoire de Paris, CNRS, Paris, France; ³Laboratoire Photonique, Numérique et Nanosciences, Talence, France We have demonstrated an ultra-stable opti-

ROOM 4b

CL-4.3 MON (Invited) 17:00

Imaging molecular organization of cell membranes and proteins assemblies using polarimetric fluorescence microscopy

X. Wang, A. Kress, J. Savatier, H. Rigneault, J. Duboisset, P. Ferrand, and •S. Brasselet; Institut Fresnel, Aix-Marseille Université, campus St Jérôme, Marseille, France

A general polarization-resolved fluorescence confocal microscopy method is presented, based on a full control of the excitation polarization state. We image directly molecular orientational order in a biological sample, independently on its orientation or morphology.

IA-3.3 MON

Quantum coherent control of Gaussian multipartite entanglement

ROOM 13a

17:00

•G. Patera¹, C. Navarrete-Benlloch^{2,3}, G.J. de Valcárcel², and C. Fabre⁴; ¹Laboratoire de Physique des Lasers, Atomes et Molécules, Université Lille 1, Villeneuve d'Ascq, France; ²Departament d'Òptica, Universitat de Velència, Burjassot, Spain; ³Max-Planck-Institut für Quantenoptik, Garching, Germany; ⁴Laboratoire Kastler-Brossel, Université Pierre et Marie Curie-Paris6, ENS. CNRS. Paris. France

We theoretically show that optical parametric oscillators can produce a great variety of multipartite entangled states by an appropriate control of the parametric interaction, that we accomplish by tailoring the spatiotemporal shape of the pump.

IA-3.4 MON

Simultaneous observation of super-Heisenberg scaling and spin squeezing in a nonlinear measurement of atomic spins

•R. Sewell¹, M. Napolitano¹, N. Behbood¹, G. Colangelo¹, F. Martin Ciurana¹, and M. Mitchell^{1,2}; ¹ICFO, Barcelona, Spain; ²ICREA, Barcelona, Spain

We report a nonlinear alignment-toorientation conversion measurement of atomic spins that simultaneously shows super-Heisenberg scaling and demonstrates spin squeezing. The measurement achieves a sensitivity of 990 spins, competitive with the best reported linear techniques.

IA-3.5 MON

17:30

Quantum Frequency Conversion of Visible Single Photons from a Quantum Dot to a Telecom Band

•A. Lenhard¹, S. Zaske¹, C. Keßler², J. Kettler², C. Arend¹, C. Hepp¹, R. Albrecht¹, W.-M. Schulz², M. Jetter², P. Michler², and C. Becher¹; ¹Universität des Saarlandes, Saarbrücken, Germany; ²Institut für Halbleiteroptik und Funktionelle Grenzflächen and Research Center SCoPE, Stuttgart, Germany We report on quantum frequency conversion of visible single photons from a semi-

ROOM 13b

CB-3.3 MON

17:00

Monolithically Integrated InP-based Optical Pulse Shaper

•M.S. Tahvili¹, S. Latkowski¹, X.J.M. Leijtens¹, M.J. Wale^{1,2}, P. Landais³, M.K. Smit¹, and E.A.J.M. Bente¹; ¹COBRA Research Institute, Eindhoven University of Technology, Eindhoven, The Netherlands; ²Oclaro Ltd, Caswell Towcester, United Kingdom; ³School of Electronic Engineering, Dublin City University, Dublin, Republic of Ireland

We demonstrate spectral phase manipulation of highly chirped optical pulses with an ultra-compact optical pulse shaper. The device integrates a 20x50GHz arrayed waveguide grating with 20 phase modulators and 20 semiconductor optical amplifiers.

17:15 CB-3.4 MON

17:30

A continuous chimera state in an optical comb

17:15

•B. Kelleher^{1,2}, T. Habruseva^{1,2}, S.P. Hegarty¹, G. Huyet^{1,2}, and E.A. Viktorov^{1,3}; ¹Tyndall National Institute, Cork, Republic of Ireland; ²Cork Institute of Technology, Cork, Republic of Ireland; ³Université Libre de Bruxelles, Brussels, Belgium

A continuous chimera state is demonstrated in the optical comb generated by a passively mode locked quantum dot laser by means of optical linewidth measurements, phase recovery techniques and a bifurcation analysis and confirmed numerically.

CB-3.5 MON (Invited) 17:30

Optical Frequency Combs using Ultrafast Diode Lasers: Techniques and Applications

•P. Delfyett; CREOL, The College of Optics and Photonics, Orlando, FL, United States Semiconductor optical amplifier based mode-locked fiber lasers are used as sources of ultrastable optical frequency combs. These combs are used for applications in real time optical waveform synthesis, coherent arbitrary waveform measurement, and matched filtering.

stimulated Raman scattering imaging by spatial overlap modulation microscopy

CL-4.4 MON

•K. Isobe¹, H. Kawano², A. Suda³, A. Kumagai², A. Miyawaki², and K. Midorikawa¹; ¹RIKEN Advanced Science Institute, Wako, Japan; ²RIKEN Brain Science Institute, Wako, Japan; ³Tokyo University of Science, Noda, Japan

Simultaneous two-photon absorption and

We show the separation of two-photon absorption signals from stimulated Raman scattering signals by spatial overlap modula-

ROOM 14a

CD-7.3 MON

Cascaded Up-Conversion Of Twin-Beam **OPG In Nonlinear Photonic Crystals**

•*M. Levenius, V. Pasiskevicius, and K. Gallo;* KTH - Royal Institute of Technology, Stockholm, Sweden

ROOM 14b

We study cascaded frequency up-conversion processes initiated by twin-beam optical parametric generation in hexagonally poled LiTaO3 by 806nm pump. Exploiting several reciprocal lattice vectors in both steps, results in multi-beam generation at wavelength ranges 400-610nm.

ROOM 21

JSIV-2.2 MON

many

17:00

17:15

17:30

17:00

ROOM EINSTEIN

17:00

17:15

CE-3.2 MON

NOTES

Coherent internal conversion of pyrene Photon-counting Raman Spectroscopy of revealed by pump-probe and ultrabroad Silicon Nanowires •M. Collins¹, C. Grillet^{1,2}, S. Shahnia¹, 2D-UV spectroscopy A. Clark¹, P. Grosse³, B. Ben Bakir³, S. •I. Pugliesi, N. Krebs, and E. Riedle; LS für Menezo³, J.-M. Fedeli³, C. Xiong¹, D. Moss¹, BioMolekulare Optik, LMU, Munich, Ger-B. Eggleton¹, and C. Monat²; ¹Centre for In pyrene dissolved in methanol the co-Ultrahigh-bandwidth Devices for Optical Sysherent excitation of vibrational states surtems (CUDOS), Institute of Photonics and vives the S2-S1 internal conversion. Pump-Optical Science (IPOS), School of Physics, probe and 2D-UV measurements provide University of Sydney, Sydney, Australia; the experimental framework that identifies ²Université de Lyon, Institut des Nanotechthe mechanism behind this process on the nologies de Lyon (INL, Ecully, France; ³CEAvibrational level. Leti MINATEC Campus, Grenoble, France We report the first direct measurements of the SpRS spectra over a broad bandwidth in a photonic integrated platform using photon-counting spectroscopy. We apply this to CMOS compatible amorphous silicon and crystalline silicon nanowire devices. JSIV-2.3 MON 17:15CE-3.3 MON **Coherent Photoisomerization and** simulations

17:30

Retrieving the spatial distribution of cavity modes in ZnO nanowires by near-field imaging and electrodynamics

•F. Güell¹, A.R. Goñi², J.O. Ossó³, L.A. Perez⁴, E.A. Coronado⁴, and J.R. Morante^{1,5}; ¹Universitat de Barcelona, Barcelona, Spain: ²ICMAB-CSIC, Bellaterra, Spain; ³MATGAS 2000 A.I.E., Bellaterra, Spain; ⁴Universidad Nacional de Córdoba, Córdoba, Argentina; ⁵IREC-Institut de Recerca en Energia de Catalunya, Sant Adrià de Besós, Spain

Scanning near-field optical microscopy was used to map out the evanescent fields of optically excited ZnO nanowires. Different excitation wavelengths reveal a different spatial distribution of the electromagnetic fields associated to each cavity mode.

Strong Two-Photon Excit Fluorescence from GaAs Nanowires on Glass Subst

CE-3.4 MON

•L. Karvonen¹, A. Säynät ka^1 ar³, T. Haggren¹, S. Honkaner R. Norwood³, N. Peyg Η. Lipsanen¹, and K. Kieu³ t of Micro and Nanosciences, sity, Espoo, Finland; ²Depart vsics and Mathematics, Unive tern Finland, Joensuu, Finlan of Optical Sciences, Univerona,

CJ-4.2 MON

Passive coherent combining of 15 fiber lasers by phase contrast filtering

•F. Jeux^{1,2}, A. Desfarges-Berthelemot¹, V. Kermène¹, and A. Barthelemy¹; ¹Xlim Institut de recherche UMR 7252, Limoges, France; ²*Astrium SAS, Paris, France*

We report new passive phase-locking technique applied to fiber laser array. 15 fiber amplifiers are efficiently coupled in a single laser cavity by a specific phase contrast filtering.

17:15CD-7.4 MON

New Design Opportunities For Ultrafast Quasi-Phasematching Devices •*C.* Phillips^{1,2}, L. Gallmann², and M. Fejer¹;

¹Stanford University, Stanford, United States: ²*ETH Zurich, Zurich, Switzerland*

We will discuss new quasi-phasematching design techniques and opportunities, including OPCPA gain-narrowing suppression, and custom pulse synthesis, based on convex optimization. We will also discuss how apodization can be performed systematically for chirped-OPM devices

CJ-4.3 MON

4-channel Coherently Combined femtosecond Fiber CPA system Delivering 1.3 mJ Pulses with 532 W Average Power •A. Klenke^{1,3}, S. Breitkopf⁴, M. Kienel¹, T. Gottschall¹, T. Eidam^{1,3}, S. Hädrich^{1,3}, J. Rothhardt^{1,3}, J. Limpert^{1,2,3}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Albert-Einstein-Str. 15, 07745 Jena, Germany, Jena, Germany; ²Fraunhofer Institute for Applied Optics and Precision Engineering, Albert-Einstein-Str.

CD-7.5 MON

17:30

Functionalizing nonlinear crystals

•A. Shapira¹, A. Libster¹, Y. Lilach², and A. Arie¹; ¹Tel Aviv University, Tel Aviv, Israel; ² Tel Aviv University Center for Nanoscience and Nanotechnology, Tel Aviv, Israel Nonlinear crystals are functionalized by sputtering a thin metallic layer on their exit facet and patterning it by focused-ion-beam milling. This enables to shape or filter the nonlinearly generated beam without compromising the conversion efficiency.

Quantum Yield of Biomimetic Molecular Switches

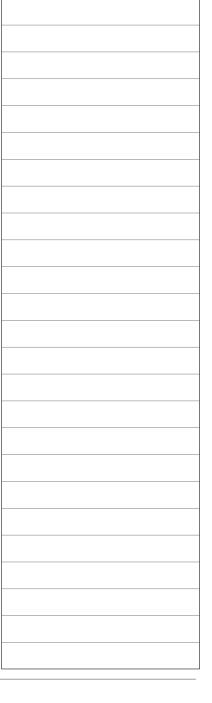
M. Ngueye¹, I. Schapiro^{2,3}, S. Fusi⁴, •S. Haacke¹, M. Olivucci^{3,4}, and J. Léonard¹; CNRS - Université de Strasbourg, Strasbourg, France; ²Max Planck Institute for Chemical Energy Conversion, Mülheim an der Ruhr, Germany; ³Bowling Green State University, Bowling Green, United States; Università degli Studi di Siena, Siena, Italy Femtosecond broadband pump-probe spectroscopy reveals vibrational low-frequency coherences in rhodopsin-mimicking photoswitches, due to out-of-plane motion and ring inversions. The relation between reaction speed and quantum yield is critically reexamined.

JSIV-2.4 MON

Conical Intersection Dynamics in

Rhodopsin and its Analog Isorhodopsin •D. Polli¹, D. Brida¹, C. Manzoni¹, K.M. Spillane², M. Garavelli³, P. Kukura², O. Weingart⁴, R.A. Mathies⁵, and G. Cerullo¹; Politecnico di Milano, Milan, Italy; ²Oxford University, Oxford, United Kingdom; Università di Bologna, Bologna, Italy; ⁴Heinrich Heine Universität, Düsseldorf, Germany; ⁵University of California at Berkeley, Berkeley, United States We study the conical intersection dynamics

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trate
tjoki ¹ , V. Dhaka ¹ , n ² , S. Mehravar ³ ,
n ² , S. Mehravar ³ ,
ghambarian ³ , H.
; ¹ Department of
Aalto University,
tment of Physics
ersity of Eastern
and; ³ College of rsity of Arizona,
rsity of Arizona,



Jarization-controlled quasi-phase atching for linearly and circularly Jarized high harmonic generation . Liu, K. O'Keeffe, and S. Hooker; University Oxford, Oxifed Kingdom new class of quasi-phase matching high arrization is proposed where the Jarized in the driving field is controlled a waveguide. The first circularly polarized asi-phase matched source is shown to be ssible.A high sensitivity fiber optic gyroscope on multiplexed telecommunication network of C. Clivati ^{1,2} , D. Calonico ¹ , G.A. Costanzo ² , . A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; . Calonico ¹ , G.A. Costanzo ^{1,2} , and F. Levi ¹ ; . S. Kanerva ² , E. Ikoner ² , and M. Kauranen ¹ ; ¹ Department of Physics, Tampere University of Technology, Tampere, Finland, ² Institute of Biomedicine/Anatomy, University of We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on asi-phase matched source is shown to be ssible.Imaging Lipid Films using Polarization-Sensitive Third-Harmonic Generation Oction 0, Italy; ² Politecnico di Torino, Torino, ItalyImaging Lipid Films using Polarization-Sensitive Third-Harmonic Generation Oction 0, Italy; ² Politecnico di Torino, Torino, ItalyImaging Lipid Films using Polarization of a fiber optic of Technology, Tampere, Finland, ² Institute of Biomedicine/Anatomy, University of We demonstrate third-harmonic generation microscopy of lipid films using tightly fo- cused linear, circular and radial polariza- tions. The technique revealed strongly anisotropic regions in lipid films suggestingQuantum Pattern Recognition •P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Skorić ² , and A.P. Mosk ¹ ; ¹ MESA+ Institute for Nanotechnology, Eindhoven University of Technology, Eindhoven University of Technology, Eindhoven University of the sought arbitra	CF/IE-7.4 MON17:45Clain kover 540 km over a public fiber network carrying Internet data traffic. The result shows fractional frequency stability, of 6x10-15 at 1s and <10-18 after 10000s integration time.	CE/IE-7.4 MON17:45Cal link over 540 km over a public fiber net- sult shows fractional frequency stability of 6x10-15 at 1s and <10-18 after 10000s inte- gration time.cin microscopy, which provides simultane- ous two-photon absorption and stimulated kman scattering imaging.conductor quantum dot to the telecom O- band. We could prove the preservation of coherence and single photon statistics in this process.CE/IE-7.4 MON17:45ID-3.5 MON17:45IAigh sensitivity fiber optic gyroscope om multiplexed telecommunication network e. C. Clivati ¹³ , D. Calonico, G.A. Costane, A. Mura ¹ , M. Pizzocaro ¹² , and A.E. Levi ² , of Oxford, Oxford, Oxford, United Kingdom harmonic generation is proscope exploiting the Sagnac effect on a quasi-phase matched source is shown to be possible.IA-36 MON17:45Ve describe the realization of a fiber optic guasi-phase matched source is shown to beVe describe the realization of a fiber optic guasi-phase matched source is shown to beIA-to cexists with Internet data traffic. The sensitivity is suitable to detect large seis- mic events.IA-to chark taraffic. The sensitivity is suitable to detect large seis- mic events.IA-36 MON17:45Quantum Patter necognition work, that coexists with Internet data traffic. The sensitivity is suitable to detect large seis- mic events.IA-to Mask is suitable to detect large seis- mic events.IA-36 MON17:45Ve demonstrate third-harmonic generation in a waveguide. The first circularly polarized quasi-phase matched source is shown to beIdenticity for the second the diving first hird for manotecherology. Technology. Tampere, Finland, Finland We demonstrate third-harmonic generation to inclined ta			urope-IQEC 2013 · Monday 13	3 May 2013	
sult shows fractional frequency stability, of 6x10-15 at 1s and <10-18 after 10000s integration time. F/IE-7.4 MON 17:45 blarization-controlled quasi-phase taching for linearly and circularly harized high harmonic generation .Liu, K, O'Keeff, and S. Hooker, University Oxford, Oxford, United Kingdom ew class of quasi-phase matching high Instruction fuel driving field is controlled a waveguide. The first circularly polarized asi-phase matched source is shown to be ssible. How cass of which therem data traffic revents. How cass of which therem data traffic revents. How cass of which therem data traffic revents. Raman scattering imaging. CL-4.5 MON 17:45 Hasing Lipid Films using Polarization-Sensitive Third-Harmonic Generation GL-4.5 MON 17:45 Hasing Lipid Films using Polarization-Sensitive Third-Harmonic Generation G. Bautisala ¹ , M.J. Huttunen ¹ , S. Pfistere ² , K. Kanerva ² , E. Ikonen ¹ , S. Morke ² , and A.P. Mosk ² ; ¹ DEDarhent of Physics, Tampere University of Technology, Tampere, Finland, ² Institute of Biomedicine/Anatomy, University of Helsinki, Helsinki, Finland We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on ssible. How cass of which therem data traffic the sensitivity is suitable to detect large seis- mic events. How cass of which therem data traffic the sensitivity is suitable to detect large seis- mic events. How cass of which therem data traffic the sensitivity is suitable to detect large seis- mic events. How cass of which therem data traffic the sensitivity is suitable to detect large seis- mic events. How cass of which therem data traffic the sensitivity is suitable to detect large seis- mic events. How cass of which therem data traffic the sought arbitrary pattern. How cass of the sought arbitrary pattern. How cass of the sought arbitrary pattern.	sub shows fractional frequency stability of 6x10-15 at 1s and <10-18 after 10000s integration time. CF/IE-7.4 MON 17:45 Data Zation-controlled quasi-phase matching for linearly and c:rcularly oplarized high harmonic generation <i>L. Liu, K. O'Kceffe, and S. Hooker; University</i> <i>J. Liu, K. O'Kceffe, and Le and Constance</i> <i>J. Liu, K. O'Kceffe, and S. Hooker; University</i> <i>J. Liu, K. O'Kceffe, and Le and Constance</i> <i>J. Liu, K. O'Kceffe, and Le and Constance</i> <i>J. Liu, K. O'Kceffe, and Le and Constance</i> <i>J. Liu, K. O'Kceffe, and S. Hooker; University</i> <i>J. Cliusettal</i> <i>J. A. Maral</i> <i>A. Mural</i> <i>J. M. Pitzecate</i> <i>J. Beatistal</i> <i>J. Hoeffe, Constance</i> <i>J. Kaneral</i> <i>J. Hoeffe, The Nether- lands</i> <i>J. Ethology, Tampere</i> <i>J. Hower, The Nether-lands</i> <i>We describe the realization of a fiber optic groscope exploiting the Sagnac effect on a work, that coexists with Internet data traffic mic events.</i> <i>M. Coexists with Internet data traffic</i> <i>mic events.</i> <i>M. The technique revealed strongly</i> <i>anisotorpic regions in lipid films suggesting</i> <i>that the lipid films suggesting</i> <i>that the lipid films suggesting</i> <i>that the lipid films suggesting</i> <i>diverse.</i>	Section 1Substration 2Raman scattering imaging.coherence and single photon statistics in this process.CF/IE-7.4 MON17:45ID-3.5 MON17:45ID-3.5 MON17:45Polarization-controlled quasi-phase polarized high harmonic generation statistics of the realization of the driving field is corrolled in a wareguide. The first circularly polarized quasi-phase matched source is shown to be possible.ID-3.5 MON17:45ID-3.5 MON17:45Marking controlled quasi-phase polarized tipe for the realization of the driving field is corrolled possible.ID-3.5 MON17:45Imaging Lipid Films using Polarization-Sensitive Third-Harmonic GenerationIA-3.6 MON17:45Quastum Bartonic generation polarized tipe for the realization of the driving field is corrolled possible.ID-3.5 MON17:45Imaging Lipid Films using Polarization-Sensitive Third-Harmonic GenerationIA-3.6 MON17:45Quantum Pattern Recognition • C. Clivarith ² , D. Calonico ¹ , G. A. Costanzo ¹ , • A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; · ¹ stitute Nazionale di Ricerca Metrologica, Input polarized quasi-phase matched source is shown to be possible.CL-4.5 MON17:45We describe the realization of a fiber optic groscope exploiting the Sagnac effect on af X multiplexed telecommunication network mic events.ID-3.5 MON17:45We describe the realization of a fiber optic groscope exploiting the Sagnac effect on af X m multiplexed telecommunication network mic events.ID-11/16/16/16/16/16/16/16/16/16/16/16/16/1	ROOM 1	cal link over 540 km over a public fiber net-	tion microscopy, which provides simultane-	conductor quantum dot to the telecom O-	ROOM 13b
Jarization-controlled quasi-phase atching for linearly and circularly Jarized high harmonic generation . Liu, K. O'Keeffe, and S. Hooker; University Oxford, Oxifed Kingdom new class of quasi-phase matching high arrization is proposed where the Jarized in the driving field is controlled a waveguide. The first circularly polarized asi-phase matched source is shown to be ssible.A high sensitivity fiber optic gyroscope on multiplexed telecommunication network of C. Clivati ^{1,2} , D. Calonico ¹ , G.A. Costanzo ² , . A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; . Calonico ¹ , G.A. Costanzo ^{1,2} , and F. Levi ¹ ; . S. Kanerva ² , E. Ikoner ² , and M. Kauranen ¹ ; ¹ Department of Physics, Tampere University of Technology, Tampere, Finland, ² Institute of Biomedicine/Anatomy, University of We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on asi-phase matched source is shown to be ssible.Imaging Lipid Films using Polarization-Sensitive Third-Harmonic Generation Oction 0, Italy; ² Politecnico di Torino, Torino, ItalyImaging Lipid Films using Polarization-Sensitive Third-Harmonic Generation Oction 0, Italy; ² Politecnico di Torino, Torino, ItalyImaging Lipid Films using Polarization of a fiber optic of Technology, Tampere, Finland, ² Institute of Biomedicine/Anatomy, University of We demonstrate third-harmonic generation microscopy of lipid films using tightly fo- cused linear, circular and radial polariza- tions. The technique revealed strongly anisotropic regions in lipid films suggestingQuantum Pattern Recognition •P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Skorić ² , and A.P. Mosk ¹ ; ¹ MESA+ Institute for Nanotechnology, Eindhoven University of Technology, Eindhoven University of Technology, Eindhoven University of the sought arbitra	Polarization-controlled quasi-phase matching for linearly and circularly polarized high harmonic generation <i>L.iu, K. O'Keeffe, and S. Hooker, University</i> of Oxford, Oxford, United KingdomA high sensitivity fiber optic gyroscope on multiplexed telecommunication network. •C. Clivati ^{1,2} , D. Calonico ¹ , G.A. Costanzo ² , •A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; ¹ Istituto Nazionale di Ricerca Metrologica, Torino, Italy, ² Politenico di Torino, Torino, IayImaging Lipid Films using Polarization-Sensitive Third-Harmonic Generation •C. Bautista ¹ , M.J. Huttunen ¹ , S. Pfistere ² , K. Kanerva ² , E. Ikonen ² , and M. Kauranen ¹ ; ¹ Department of Physics, Tampere, Jinland, ² Institute of Technology, Tampere, Finland, ¹ Department of Physics, Tampere University of Technology, Tampere, Finland, ¹ Metherlands ² Eindhoven, The Netherlands We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on a 47 km multiplexed telecommunication net- work, that coexists with Internet data traffic. The sensitivity is suitable to detect large seis- mic events.Imaging Lipid Films using tend hoven. The Netherlands ² Indhoven University of Technology, University of Technology, We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on a 47 km multiplexed telecommunication net- work, that coexists with Internet data traffic. The sensitivity is suitable to detect large seis- mic events.Imaging Lipid Films using tightly fo- cused linear, circular and radial polariza- tons. The technique revealed strongly anisotropic regions in lipid films suggesting that the lipid films displayed molecular or- dering.Quantum Pattern Recognition Hork Kauranen ¹ ; M. Hortsmann ¹ , S. Skoric ² , and A.P. Moski ² , M.A. Hortsmann ¹ , S. Skoric ² , and F.	Polarization-controlled quasi-phase matching for linearly and circularly polarized high harmonic generation -L. Liu, K. O'Keeffe, and S. Hooker; University of Oxford, Oxford, United Kingdom A new class of quasi-phase matching high harmonic generation is proposed where the polarization of the driving field is controlled quasi-phase matched source is shown to be possible.A high sensitivity fiber optic gyroscope on multiplexed telecommunication network . C. Clivati ^{1,2} , D. Calonico ¹ , G.A. Costanzo ² , . A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; . Istituto Nazionale di Ricerca Metrologica, Torino, Italy; ² Politecnico di Torino, Torino, ItalyImaging Lipid Films using Polarization-Sensitive Third-Harmonic Generation . G. Bautista ¹ , M.J. Huttunen ¹ , S. Pfistere ² , . K. Kanerva ² , E. Ikonen ² , and M. Kaurane ¹ ; . ¹ Department of Physics, Tampere, Finland; ² Institute of Biomedicine/Anatomy, University of Technology, Technology, Tampere, Finland; ² Institute of Biomedicine/Anatomy, University of the demonstrate third-harmonic generation microscopy of lipid films using tightly fo- cused linear, circular and radial polariza- tions. The technique revealed strongly anisotropic regions in lipid films suggesting that the lipid films displayed molecular or- dering.Quantum Pattern Recognition . P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Skorič ² , and A.P. Mosk ¹ ; ^{MESA+} Institute for Schoek, The Nether- lands; ² Eindhoven University of Technology, Eindhoven, The Netherlands We demonstrate third-harmonic generation microscopy of lipid films using tightly fo- cused linear, circular and radial polariza- tions. The technique revealed strongly anisotropic regions in lipid films suggesting that the lipid films displayed molecular or- dering.		sult shows fractional frequency stability, of 6x10-15 at 1s and <10-18 after 10000s inte-		coherence and single photon statistics in this	
atching for linearly and circularly barized high harmonic generation L. Liu, K. O'Keeffe, and S. Hooker; University oxford, Oxford, United Kingdom new class of quasi-phase matching high arization of the driving field is controlled a si-phase matched source is shown to bemultiplexed telecommunication network (L. C. Clivati ^{1,2} , D. Calonico ¹ , G.A. Costanzo ² , A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; ¹ Istituto Nazionale di Ricerca Metrologica, Torino, Italy; ² Politecnico di Torino, Torino, ItalyPolarization-Sensitive Third-Harmonic Generation•P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Škorić ² , and A.P. Mosk ¹ ; ¹ MESA+ Institute for Nanotechnology, University of Technology, Tampere, Finland; ² Institute of Biomedicine/Anatomy, University of Helsinki, Helsinki, Finland•P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Škorić ² , and A.P. Mosk ¹ ; ¹ MESA+ Institute for Nanotechnology, University of Technology, Eindhoven University of Technology, Technology of Itechnology of Itechnology of Itechnology, We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on a 47 km multiplexed telecommunication net- work, that coexists with Internet dat traffic. The sensitivity is suitable to detect large seis- mic events.Polarization-Sensitive Third-Harmonic Generation•P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Škorić ² , and A.P. Mosk ¹ ; ¹ MESA+ Institute for Nanotechnology, University of Technology, Eindhoven University of Helsinki, Helsinki, Finland•C. Clivati ^{1,2} , O. Calonico ¹ , G.A. Costanzo ² , Italy•C. Rautista ¹ , M.J. Huttunen ¹ , S. Pfistere ² , Italy We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on a tows, that coexists with Internet dat traffic. The	 multiplexed telecommunication network, <i>L</i>. <i>Liu</i>, <i>K</i>. O'Keeffe, and S. Hooker; University of Oxford, Oxford, United Kingdom A new class of quasi-phase matching high armonic generation is proposed where the polarization of the driving field is controlled in a waveguide. The first circularly polarized telecommunication network that coexists with Internet data traffic. The sensitivity is suitable to detect large seismic events. multiplexed telecommunication network that coexists with Internet data traffic. The sensitivity is suitable to detect large seismic events. multiplexed telecommunication network that lipid films displayed molecular or dering. Polarization-Sensitive Third-Harmonic Generation (S. Rautista¹, M.J. Huttunen¹, S. Pfister², and M. Kauranen¹, B. Škorič², and A.P. Mosk¹; MESA+ Institute for Nanotechnology, University of Technology, Tampere, Finland; ²Institute for Nanotechnology, Eindhoven, The Netherlands We describe the realization of a fiber optic microscopy of lipid films using tightly focused linear, circular and radial polarizations. The technique revealed strongly anisotropic regions in lipid films displayed molecular or dering. 	matching for linearly and circularly polarized high harmonic generation -L. Liu, K. O'Keeffe, and S. Hooker, University -C. Clivati ^{1,2} , D. Calonico ^{1,2} , G.A. Costanzo ² , A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ , A new class of quasi-phase matching high harmonic generation is proposed where the polarization of the driving field is controlled quasi-phase matched source is shown to be possible.	· · · · · · · · · · · · · · · · · · ·				
	dering.	dering.	Atching for linearly and circularly larized high harmonic generation Liu, K. O'Keeffe, and S. Hooker; University Oxford, Oxford, United Kingdom new class of quasi-phase matching high rmonic generation is proposed where the larization of the driving field is controlled a waveguide. The first circularly polarized asi-phase matched source is shown to be	multiplexed telecommunication network •C. Clivati ^{1,2} , D. Calonico ¹ , G.A. Costanzo ² , A. Mura ¹ , M. Pizzocaro ^{1,2} , and F. Levi ¹ ; ¹ Istituto Nazionale di Ricerca Metrologica, Torino, Italy; ² Politecnico di Torino, Torino, Italy We describe the realization of a fiber optic gyroscope exploiting the Sagnac effect on a 47 km multiplexed telecommunication net- work, that coexists with Internet data traffic. The sensitivity is suitable to detect large seis-	 Polarization-Sensitive Third-Harmonic Generation •G. Bautista¹, M.J. Huttunen¹, S. Pfisterer², K. Kanerva², E. Ikonen², and M. Kauranen¹; ¹Department of Physics, Tampere University of Technology, Tampere, Finland; ²Institute of Biomedicine/Anatomy, University of Helsinki, Helsinki, Finland We demonstrate third-harmonic generation microscopy of lipid films using tightly fo- cused linear, circular and radial polariza- tions. The technique revealed strongly anisotropic regions in lipid films suggesting 	•P.W.H. Pinkse ¹ , S.A. Goorden ¹ , M. Horstmann ¹ , B. Škorić ² , and A.P. Mosk ¹ ; ¹ MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Nether- lands; ² Eindhoven University of Technology, Eindhoven, The Netherlands We perform quantum pattern recognition with much fewer photons than the complex-	

With this system, we could achieve an average power of 532 W with pulse energies of up to 1.3 mJ. CJ-4.4 MON 17:45 CD-7.6 MON 17:45 JSIV-2.5 MON 17:45CE-3.5 MON Energy scaling of ultrafast fiber systems Revealing the role of excited state nuclear Contact poling of RKTP with silicon using chirped and divided pulse coherence in the photoisomerisation of pillars bacteriorhodopsin by population assisted amplification H. Kianirad, A. Zukauskas, •T. Frisk, C. •Y. Zaouter¹, F. Guichard^{1,2}, L. Daniault², Canalias, and F. Laurell; Applied Physics impulsive Raman Undoped Nanowires M. Hanna², F. Morin¹, C. Hönninger¹, Department, Royal Institute of Technology, •M. Liebel and P. Kukura; Physical and Theo-E. $Mottay^1$, F. $Druon^2$, and P. $Georges^2$; Stockholm, Sweden retical Chemistry Laboratory, Oxford, United ¹Amplitude Systemes, Pessac, France; An array of silicon pillars was used as con-Kingdom ²Laboratoire Charles Fabry - Institut tact electrode for poling a 5 *m x 5 *m pe-We apply population assisted impulsive Rad'Optique - CNRS - Université Paris-Sud, riod 2D-domain pattern in a RKTP crystal. man spectroscopy (PAIRS) to reveal the co-Palaiseau, France This technique shows promise for the next herent structural evolution of the retinal We implemented for the first time both generation nanodomain engineering. chromophore during the primary step in the photocycle of the proton pump bacterichirped and divided pulse amplification in the same femtosecond fiber amplifier setup orhodopsin leading to the generation of 430 μ J, 320 fs pulses at 100 kHz NOTES

ROOM 14b

ROOM 14a

7, 07745 Jena, Germany, Jena, Germany;

³Helmholtz-Institute Iena, Max-Wien-Platz

We report on a fiber CPA system consisting

of four coherently combined fiber amplifiers.

1, 07743 Jena, Germany, Jena, Germany

CLEO[®]/Europe-IQEC 2013 · Monday 13 May 2013

ROOM 21

in the visual pigment Rhodopsin and its 9-cis analog Isorhodopsin combining broadband sub-20-fs ultrafast spectroscopy with detailed hybrid quantummechanical/molecular-mechanical simulations.

Tucson, United States We report the observation of extremely strong two-photon excitation fluorescence from GaAs and InP NWs. The NWs were grown on a glass substrate using atmospheric pressure MOVPE. NWs were characterized by multi-photon microscope.

ROOM EINSTEIN

NOTES

17:45

Surface Acoustic Wave-Driven Carrier **Dynamics As A Contact-less Probe For Mobilities Of Photogenerated Carriers In**

J. Kinzel¹, F. Schülein¹, M. Weiss¹, D. Rudolph², G. Koblmüller², J. Finley², G. Abstreiter², A. Wixforth¹, and •H. Krenner¹; ¹Experimentalphysik 1, Universität Augsburg, Augsburg, Germany; ² Walter Schottky Institut, TU München, Garching, Germany We study the dynamics of photogenerated carriers in single nanowires induced by a surface acoustic wave. We extract the transport mobilites of electrons and holes by directly comparing the observed emission modulation to numerical simulations.

91

13:30 - 14:30

CK-P: CK Poster Session

CK-P.1 MON

Mode Control Of Light Scattering By Nanoparticles •B. Hourahine and F. Papoff; Department of Physics, SUPA, University of Strathclyde, Glasgow, United Kingdom

We demonstrate that is is possible to substantially change the optical properties of nanoparticles by control of the coupling of incident light fields with the intrinsic optical modes of these structures using simple interference effects.

CK-P.2 MON

SERS from Ag and Au nanoarrays made using photochemical patterning

•S. Damm¹, N.C. Carville¹, M. Manzo², K. Gallo², B.J. Rodriguez¹, and J. Rice¹; ¹School of Physics and Conway Institute of Biomolecular and Biomedical Research, University College Dublin, Dublin, Republic of Ireland; ²Department of Applied Physics, KTH-Royal Institute of Technology, Stockholm, Sweden

SERS from Au and Ag nanoarray patterns created using proton exchange process, where the polarization properties of the surface of ferroelectric LiNbO3 substrate is altered, creating site specific Au and Ag nanoparticle deposition.

CK-P.3 MON

Strong Near Field Coupling and Enhanced Energy Extraction in Metal Nanostructures

D. McArthur, •B. Hourahine, and F. Papoff; University of Strathclyde, Glasgow, United Kingdom

We show that a gold nanodisc at sub-wavelength distances from a dipole source can extract a larger amount of energy from the source and induce greater transmission than the surrounding dielectric medium alone.

CK-P.4 MON

Stationary and ultrafast optical behavior of a 1D-photonic cavity containing gold nanoparticles

¹ R. Morea¹, X. Wang², J. Gonzalo¹, and B. Palpant²; ¹Instituto de Optica, CSIC, Madrid, Spain; ²Ecole Centrale Paris, Laboratoire de Photonique Quantique et Moléculaire, UMR 8537-CNRS, Ecole Normale Supérieure du Cachan, Châtenay-Malabry, France We show that interference effects in Fabry-Perot type photonic cavities containing Au nanoparticles allow increasing their ultrafast transient transmittance by more than one order of magnitude at wavelengths close to that of the defect mode.

CK-P.5 MON

Analysis of gold nanoantennas utilising plasmonic field enhancement for high-order harmonic

generation •*M.* Noack^{1,2}, *N.* Pfullmann^{1,2}, *C.* Waltermann^{1,2}, *M.*

Kovacev^{1,2}, V. Knittel³, D. Akemeier⁴, A. Hütten⁴, A. Leitenstorfer³, and U. Morgner^{1,2}; ¹QUEST Centre for Quantum Engineering and Space-Time Research, Hannover, Germany; ²Institut für Quantenoptik, Leibniz Universität Hannover, Hannover, Germany; ³Department of Physics and Center for Applied Photonics, Konstanz, Germany; ⁴Thin Films & Physics of Nanostructures, Department of Physics, Bielefeld, Germany

We present an analysis of gold nanoantennas to facilitate high-order harmonic generation with a laser oscillator. In experiments plasma-lines and low order harmonics are observed. Experimental issues are discussed and explained by a theoretical model.

CK-P.6 MON

Mesoscopic Light Trapping in Random Arrays of Semiconductor Nanowires

•T. Strudley¹, T. Zehender², E. Bakkers², and O. Muskens¹; ¹Faculty of Physics and Astronomy, University of Southampton, Southampton, United Kingdom; ²Department of Applied Physics, Eindhoven University of Technology, Eindhoven, The Netherlands

Arrays of semiconductor nanowires have been grown with exceptionally small optical mean free paths. These random arrays demonstrate significant fluctuations in transmission, allowing the investigation of mesoscopic light transport in a three dimensional medium.

CK-P.7 MON

Demonstration of Wavelength Tuning of Silica Toroid Microcavity via Additional Laser Reflow • W. Yoshiki, K. Ishikawa, and T. Tanabe; Keio University,

Yokohama, Japan We demonstrate the resonant wavelength tuning of a sil-

ica toroid microcavity by conducting additional laser reflow. Our study implies better controllability in cavity quantum electrodynamics and electromagnetically induced transparency based on an ultra-high Q cavity.

CK-P.8 MON

Fluorescence in Planar and Ridge Waveguides Fabricated in Erbium-Doped Lithium-Niobate-On-Insulator (Er:LNOI)

C.E. Rüter¹, •D. Kip¹, G. Stone², V. Dierolf², H. Hu³, and W. Sohler³; ¹Helmut Schmidt University, Hamburg, Germany; ²Lehigh University, Bethlehem, United States; ³University of Paderborn, Paderborn, Germany Waveguide ridges are fabricated in Erbium-doped lithium-niobate-on-insulator (Er:LNOI) substrates using precision diamond-blade dicing. First results of the investigation of Erbium centers using Raman and fluo-rescence spectroscopy are presented.

CK-P.9 MON

Fiber polarization mode excitation applied to confocal microscopy

•C. Zeh¹, T. Härtling¹, and L.M. Eng²; ¹Fraunhofer Institute for Nondestructive Testing IZFP, Dresden Branch, Dresden, Germany; ²Institut für Angewandte Photophysik, Technische Universität Dresden, Dresden, Germany

The contribution has been withdrawn by the authors.

CK-P.10 MON

Optical Fiber Nanotips as carriers for Molecular Beacon-based Biosensors

•S. Pelli¹, A. Barucci¹, A. Giannetti¹, F. Cosi¹, S. Tombelli¹, C. Trono¹, G.C. Righini^{1,2}, and F. Baldini¹; ¹Istituto di Fisica Applicata "Nello Carrara", Sesto Fiorentino (Firenze), Italy; ²Centro Fermi, Roma, Italy We present a biosensor using a molecular beacon immobilized on an optical fibre nanotip.

We focus on the mRNA detection useful for cancer theranostics, in this case for survivin protein monitoring and inhibition.

CK-P.11 MON

Light propagation in disordered media: from Maxwell equations to a spherical p-spin model and light condensation effects

•L.D. Tóth and A. Fratalocchi; King Abdullah University of Science and Technology, Thuwal, Saudi Arabia We develop a novel theory to tackle the complexity of light mode condensation in the presence of disorder and strong localization. We numerically investigate our findings by performing a massively parallel ab-initio FDTD simulation campaign.

CK-P.12 MON

Role of spatial coherence in the Goos-Hänchen shift. •*M. Merano, G. Umbriaco, and G. Mistura; Dipartimento di Fisica e Astronomia G. Galilei, Università degli studi di Padova, Padova, Italy*

We investigate experimentally the role of spatial coherence in the Goos-Hänchen shift. We find that beams generated from sources with a low spatial coherence suffer the same shift of a fully coherent beam.

CK-P.13 MON

Focussing by a Flat Woodpile 3D Photonic Crystal

•L. Maigyte¹, C. Cojocaru¹, V. Purlys², J. Trull¹, D. Gailevicius², M. Peckus^{2,3}, M. Malinauskas², and K. Staliunas^{1,4}; ¹Departament de Física i Enginyeria Nu-

clear, Universitat Politècnica de Catalunya, Terrassa, Spain; ²Laser Research Center, Department of Quantum Electronics, Vilnius University, Vilnius, Lithuania; ³Center for Physical Sciences and Technology, Vilnius, Lithuania; ⁴Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain

In this paper we report numerical and experimental observation of a beam focusing behind a flat 3D woodpile photonic crystal at the visible wavelength range.

CK-P.14 MON

Resonantly Enhanced Second and Third Harmonic Generation in Microfibre Loop Resonators

•T. Lee¹, N. Broderick², R. Ismaeel¹, M. Gouveia¹, and G. Brambilla¹; ¹University of Southampton, Southampton, United Kingdom; ²University of Auckland, Auckland, New Zealand

We theoretically study resonantly enhanced surface second harmonic and third harmonic generation in microfibre loop resonators, with focus on the effect of the resonance properties, bistability and co-resonance between the pump and harmonic signals.

CK-P.15 MON

Plasmonic Slot Nano-Resonators in Gold-Coated Microfibers

•M. Ding, G. Brambilla, and M. Zervas; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

We have studied plasmonic slot nanoresonators (PSNRs) embedded in a gold-coated microfiber which show strong localization in three dimensions. The intensity enhancement and the resonance wavelength depend on both the PSNR and microfiber dimensions.

CK-P.16 MON

Group velocity dispersion manipulation in integrated waveguides

J.M. Chavez Boggio¹, D. Bodenmüller¹, T. Fremberg¹, M. Böhm², R. Haynes¹, and •M.M. Roth¹; ¹innoFSPEC-VKS, Leibniz-Institut für Astrophysik Potsdam (AIP), An der Sternwarte 16, D-14482 Potsdam, Germany, D-14482 Potsdam, Germany; ²innoFSPEC-InFaSe, University of Potsdam, Physikalische Chemie, Karl-Liebknecht-Str. 24-25, Haus 25, D-14476 Golm, Germany, D-14476 Golm, Germany

Chromatic dispersion engineering in silicon nitride waveguides is investigated. Flat dispersion (+/-0.6ps/nm-km) over 1000nm is numerically demonstrated in waveguides with three cladding layers.

CK-P.17 MON

Tailoring of dispersion in silicon vertical slot waveguides

•M.J. Strain¹, C. Lacava², P. Minzioni², and M. Sorel¹; ¹University of Glasgow, Glasgow, United Kingdom; ² Università di Pavia, Pavia, United Kingdom Propagation characteristics of vertical slot waveguides

in silicon are presented including waveguide losses and group velocity dispersion. Varying the slot rail width and gap dimensions produces a means by which to control waveguide dispersion lithographically.

CK-P.18 MON

Nano-wire Photonics Circuits for Astronomical Applications

•H.N.J. Fernando¹, R. Eisermann², A. Stoll¹, S.H.N. Tharanga¹, O. Streicher¹, R. Havnes¹, L. Zimmermann², and M.M. Roth¹; ¹innnoFSPEC-Astrophysicalysches Institut Potsdam, Potsdam, Germany; ²IHP GmbH, innovative Mikroelektronik im Technologiepark, Frankfurt, Germany

Promising experimental results with silicon-nitride nano-wire photonic circuits were achieved for Astro/Bio-photonics applications. Several circuits were designed without grating-couplers, with 15µm access waveguide separation for high integration-density. Waveguide and excess-loss, <0.8dB/cm and 3dB, respectively achieved.

CK-P.19 MON

Chirped Photonic Crystals for Spatial Filtering of Light Beams

•L. Maigyte¹, V. Purlys², D. Gailevicius², M. Peckus^{2,3} M. Malinauskas², and K. Staliunas^{1,4}; ¹Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Terrassa, Spain;²Laser Research Center, Department of Quantum Electronics, Vilnius University, Vilnius, Lithuania; ³Center for Physical Sciences and Technology, Vilnius, Lithuania; ⁴Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain We show, theoretically and experimentally that chirped photonic crystals (where longitudinal period varies along the propagation direction) can provide a substantial spatial (angular) filtering of the light beams with efficiencies up to around 50%.

CK-P.20 MON

Implementation of Photonic Crystal Simulations into a Monte Carlo Code to Investigate Light Extraction from Scintillators

•C. Thalhammer^{1,2}, J. Breuer³, A. Popescu², H. Hedler², and T. Niendorf⁴; ¹Berlin Ultrahigh Field Facility, Max-Delbrueck Center for Molecular Medicine, Berlin, Germany; ²Siemens Corporate Technology, München, Germany; ³Siemens Healthcare, Forchheim, Germany

Photonic crystals are a promising technology to increase the light extraction from scintillators. Two simulation techniques were combined to investigate the impact of photonic crystals on total yield and propagation times of extracted photons.

CK-P.21 MON

Polarization and Nonlinear Effects in Diffraction-Induced Laser Pulse Splitting in **One-Dimensional Photonic Crystals**

S. Svyakhovskiy¹, A. Skorynin¹, V. Bushuev¹, S. Chekalin², V. Kompanets², A. Maydykovskiy¹, T. Murzina¹, V. Novikov¹, and $\bullet B$. Mantsvzov¹; ¹Department of Physics, M. V. Lomonosov Moscow State University, Moscow, Russia; ²Institute of Spectroscopy RAS, Troitsk, Russia

Polarization and nonlinear effects in Bragg diffractioninduced laser pulse splitting in PC are studied theoretically and experimentally. Splitting time as well number of outgoing pulses are influenced significantly by the polarization of incident pulse.

CK-P.22 MON

Sputtered silica defect embedded in artificial opals: synthesis and optical properties

P.N. Hong^{1,2}, P. Benalloul¹, L. Coolen¹, A. Maître¹, and •C. Schwob¹; ¹Institut des NanoSciences de Paris, Paris, France; ²Institut of Materials Science, Hanoi, Vietnam We propose an original and reliable method to engineer a defect layer between two photonic crystals. Optical characterizations of the structures and fluorescence properties of nano-emitters embedded in the defect will be presented.

CK-P.23 MON

Enhancement upconversion luminescence in InAs-quantum dots embedded GaAs photonic-crystal slab line-defect waveguide

•H. Oda¹, A. Yamanaka¹, N. Ozaki², N. Ikeda³, and Y. Sugimoto³; ¹Chitose Institute of Science and Technology, Chitose, Japan; ²Wakayama University, Wakayama, Japan; ³National Institute for Materials Science, Tsukuba, Japan

In this work, we present the 1.55 μ m to 1.3 μ m upconversion luminescence based on two-photon absorption in InAs-quantum dots GaAs photonic-crystal slab line defect waveguide.

CK-P.24 MON

Unconventional infrared absorption with polaritonic photonic crystals

•G.C.R. Devarapu and S. Foteinopoulou; School of Physics, College of Engineering, Mathematics and Physical Sciences (CEMPS), University of Exeter, Exeter, United Kingdom

We propose a novel mechanism for unconventional absorption harnessing in the Restrahlen band of a seminconductor, which relies on manipulating the energy velocity and its gradient at the interface of a suitably constructed photonic crystal.

CK-P.25 MON

Near field focusing of beams reflected by flat mirror

•Y.-c. Cheng¹, S. Kicas², M. Peckus², J. Trull¹, C. Cojocaru¹, R. Vilaseca¹, R. Drazdys², and K. Staliunas^{1,3}; ¹Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Terrassa, Spain; ²Laser Research Center, Dep. Of Quantum Electronics, Vilnius, Lithuania; ³Institució Catalana de Reserca i Estudis Avançats (ICREA), Barcelona, Spain

We predict generally that narrow beams can focus in reflection from flat interface photonic structures, and we demonstrate the effect experimentally in particular realization, i.e. in reflection from one-dimensional chirped mirror with flat surface.

CK-P.26 MON

Micro/Nano-Structuration of Silicon using Photonic Nanoiet Mechanism

•L.N.D. Kallepalli¹, D. Grojo¹, L. Charmasson¹, P. Delaporte¹, O. Utéza¹, A. Merlen², and A. Sangar²; ¹Aix Marseille Université, CNRS, LP3 UMR 7341, 13288, Marseille, France; ²Aix Marseille Université et Sud Toulon Var, CNRS, IM2NP UMR 7334, 83957, Toulon, France

We have successfully fabricated large scale arrays of micro/nano-craters on silicon substrates using Langmuir-Blodgett deposition technique and UV nanosecond laser-assisted photonic nanojet ablation from C18 functionalized silica microspheres. Details of structured samples will be discussed.

CK-P.27 MON

Experimental Implementation of Zero order Quarter and Half Wave Plates using customised Nanostructured Birefringent Material.

A. Waddie¹, •R. Buczynski^{1,2}, J. Nowosielski¹, and M. Taghizadeh¹; ¹Institute of Photonics and Quantum Sciences, EPS, Heriot-Watt University, Edinburgh, United Kingdom; ²Glass Laboratory, ITME, Warsaw, Poland In this paper we present the full experimental verification of the nanostructured birefringent material and demonstrate its use as a zero-order half and quarter wave plate in a optical fibre compatible manner.

CK-P.28 MON

Air/Polymer microcavities inspected by Fourier image spectroscopy

•M. Lopez-Garcia, L. Cheng, M. Taverne, X. Zheng, D. Ho, R. Oulton, and J. Rarity; Photonics Group, University of Bristol, Tyndall Avenue, BS8 1TH, Bristol, United Kingdom

We experimentally show here that low refractive index cavities can be accurately fabricated inside 3D photonic structures. Besides, Fourier image spectroscopy shown modal dispersion of cavity modes opening new possibilities for photonic cavities design.

CK-P.29 MON

Prototype of Thermo-optic Switch Consisting of Mach-Zehnder Polymer Waveguide Drawn by Focused Proton Beam

•K. Miura¹, T. Satoh², Y. Ishii², M. Koka², K. Takano³, T. Ohkubo², A. Yamazaki², W. Kada², A. Yokoyama², T. Kamiya², H. Kiryu¹, Y. Ozawa¹, A. Kubota¹, and O. Hanaizumi¹; ¹Gunma University, Kiryu, Japan; ²Japan Atomic Energy Agency, Takasaki, Japan; ³Osaka University, Osaka, Japan

In our previous work, we demonstrated single-mode Yjunction and Mach-Zehnder (MZ) type PMMA-based waveguides drawn by proton beam writing (PBW). In this work, we first attempted to fabricate a thermo-optic switch using the MZ waveguide.

CK-P.30 MON

3D imaging by low one-photon absorption technique

•O. Li, M.T. Do, I. Ledoux-Rak, and N.D. Lai; Laboratoire de Photonique Quantique et Moléculaire, Ecole Normale Supérieure de Cachan, Cachan, France

A new method for 3D imaging based on low one-photon absorption is theoretically and experimentally demonstrated. As compared to the two-photon-absorption (TPA) technique, this method is suitable using a continuous laser or an incoherent light.

CK-P.31 MON

Self-synchronization of Radiating 2D Spaser Array

•A.V. Dorofeenko^{1,2}, A.A. Zyablovsky^{1,2}, A.P. Vinogradov^{1,2}, E.S. Andrianov^{1,2}, A.A. Pukhov^{1,2}, and A.A. Lisyansky³; ¹Institute for Theoretical and Applied Electromagnetics RAS, Moscow, Russia; ²Moscow Institute of Physics and Technology, Dolgoprudniy, Moscow reg., Russia; ³Department of Physics, Queens College of the City University of New York, New York, United States We show that a two-dimensional array of spasers can be self-synchronized so that all the dipole moments oscillate in phase. Such an array produces a narrow beam of coherent light due to superradiance.

CK-P.32 MON

Self-pulsation in a photonic-crystal coupled-cavity laser

A. Yacomotti, S. Haddadi, and •S. Barbay; Laboratoire de Photonique et de Nanostructures, Marcoussis, France

Hall B0

A novel scheme for controllable self-pulsing operation in a semiconductor photonic-crystal nanolaser is presented. Parameters suitable for an experimental realization are proposed on the basis of coupled photoniccrystal L3 cavities leading to 35ps duration pulses.

CK-P.33 MON

Integrated planar Bragg grating stabilized diode lasers

•J. Gates, S. Lynch, C. Holmes, C. Sima, P. Mennea, and P. Smith; Optoelectronics Research Centre, Southampton, United Kingdom

13:30 - 14:30

CB-P: CB Poster Session

CB-P.1 MON

Narrow linewidth, micro-integrated extended cavity diode laser for precision potassium atom interferometry in micro-gravity environment

•E. Luvsandamdin¹, C. Kuerbis¹, A. Sahm¹, A. Wicht^{1,2}, G. Erbert¹, and G. Traenkle¹; ¹Ferdinand-Braun-Institut Leibniz-Institut fuer Hoechstfrequenztechnik, Berlin, Germany; ²Humboldt-Universitaet zu Berlin, Berlin, Germany

We present a very compact, robust, narrow linewidth micro-integrated extended cavity laser (ECDL) for precision potassium atom interferometry in a micro-gravity environment.

CB-P.2 MON

Actively Mode-Locked Semiconductor Disk Laser Using Vertical Cavity Modulator

•J. Rautiainen, A. Rantamäki, M. Tavast, and O.G. Okhotnikov; Optoelectronics Research Centre, Tampere, Finland

An actively mode-locked semiconductor disk laser using a low-loss broadband vertical-cavity modulator has been demonstrated for the first time. Accurate control of the repetition rate and pulse duration could be useful for various upcoming applications.

CB-P.3 MON

Identification of the delay time in semiconductor lasers with optical feedback

•M.C. Soriano¹, R.M. Nguimdo², and P. Colet¹; ¹IFISC (CSIC-UIB), Palma de Mallorca, Spain; ²APHY, Vrije Universiteit Brussel, Brussels, Belgium

In this contribution, we discuss the effect of using different observables in the identification of delay times in semiconductor lasers subject to delayed optical feedback. An external grating stabilised laser suitable for use in spectroscopy around 1650nm is based on a semiconductor chip coupled to a UV written planar Bragg grating, with power of 7mW and a sub 500kHz line-width.

CK-P.34 MON

Photon-localization induced random lasing from an amplifying periodic-on-average random system

•A.K. Tiwari and S. Mujumdar; Nano-optics and Mesoscopic Optics Laboratory, Tata Institute of Fundamental Research,, Mumbai, India

We experimentally demonstrate random lasing from an

amplifying periodic-on-average random system. Transfer matrix calculations show that lasing originates from localized near-bandedge modes and is frequencysensitive.

CK-P.35 MON

Photon Management in Two-dimensional Disordered Media

⁶M. Burresi^{1,2}, K. Vynck^{1,3}, F. Pratesi¹, F. Riboli¹, and D.S. Wiersma^{1,2}; ¹European Laboratory for Non-linear Spectroscopy (LENS), Via N. Carrara 1, 50019, Sesto Fiorentino, Italy; ²Istituto Nazionale di Ottica (CNR- INO), Largo Fermi 6, 50125, Firenze, Italy; ³Institut Langevin, ESPCI ParisTech, 1 rue Jussieu, 75005, Paris, France

A new nanophotonic strategy based on engineeereddisorder light trapping approaches will be proposed to harvest solar radiation in absorbing thin films. These photonic architectures are applied to a realistic solar cell and numerically investigated.

CB-P.4 MON

Spatially resolved Stokes parameters of small area oxide-confined Vertical-Cavity Surface-Emitting Lasers

•A. Molitor¹, S. Hartmann¹, P. Debernardi², and W. Elsäßer^{1,3}; ¹Institute of Applied Physics, Technische Universität Darmstadt, Darmstadt, Germany; ²Istituto di Elettronica e di Ingegneria dell Informazione e delle Telecomunicazioni, Torino, Italy; ³Center of Smart Interfaces, Technische Universität Darmstadt, Darmstadt, Germany We present experimentally obtained spatially resolved Stokes parameters of small area VCSELs. These results in comparison with numerical simulations of the VCSELs emitted light will grant an insight into the complex polarization behavior of VCSELs.

CB-P.5 MON

Wavelength Control of Integrated Semiconductor Lasers with Tunable Intra-cavity Arrayed Waveguide Gratings Operating at 1.7 $\mu{\rm m}$

•Y. Jiao^{1,2}, B. Tilma¹, P. Thijs¹, M. Smit¹, and E. Bente¹; ¹COBRA, Eindhoven University of Technology, Eindhoven, The Netherlands; ²Centre for Optical and Electromagnetic Research, Hangzhou, China, People's Republic of (PRC)

In this contribution we present a control method and its experimental verification for a laser using tunable arrayed waveguide gratings. In combination with QD materials or AMQWs the tuning can be extended for e.g. application in optical coherence tomography.

CB-P.6 MON

Subkilohertz-narrowed, frequency/phase-locked mid-IR quantum cascade lasers for high-precision molecular spectroscopy

•F. Cappelli, S. Bartalini, P. Cancio, I. Galli, G. Giusfredi, D. Mazzotti, and P. De Natale; Istituto Nazionale di Ottica (INO) - CNR and European Laboratory for Nonlinear Spectroscopy (LENS), Sesto Fiorentino FI, Italy We narrow QCL radiation below 1 kHz by using two different techniques: frequency locking to a molecular transition and phase locking to an absolutely-referenced difference-frequency-generated source. Applications of both techniques are presented.

CB-P.7 MON

Emission wavelength multistability in semiconductor ring lasers

•A. Perez-Serrano¹, J. Javaloyes², and S. Balle³; ¹Weierstrass Institute (WIAS), Berlin, Germany; ²Universitat de les Illes Balears (UIB), Palma de Mallorca, Spain; ³IMEDEA (UIB-CSIC), Esporles, Spain We theoretically investigate wavelength multistability

in semiconductor ring lasers by performing dynamical simulations and the linear stability analysis of a spatiotemporal traveling wave model. We discuss the effect of carrier diffusion and spatial hole burning.

CB-P.8 MON

Anti-colliding design for passively mode-locked lasers

•J. Javaloyes and S. Balle; Departament de Fisica, Universitat de les iles baleares, Palma de Mallorca, Spain

The performance of two-section, passively mode-locked semiconductorlasers is analyzed placing the saturable absorber section close to an anti-reflection coated facet. This leads to shorter pulses, increased output power and reduced jitter.

CB-P.9 MON

Improved Performance of Slotted Single-Mode Lasers •A. Abdullaev¹, Q. Lu¹, W.-H. Guo², M. Nawrocka¹, J. OCallaghan³, and J. Donegan¹; ¹Trinity College Dublin, Dublin, Republic of Ireland; ²Department of Electrical & Computer Engineering, University of California Santa Barbara, California, United States; ³Tyndall National Institute, Cork, Republic of Ireland

Slotted single-mode lasers integrated with semiconductor-optical-amplifier (SOA) is presented.

The laser exhibits a threshold ~19mA with the SOA unbiased. Stable single mode performance has been demonstrated with SMSR >50 dB and output power >45mW.

CB-P.10 MON

Eight-Channel Slotted Single-Mode Laser Array

•Q. Lu¹, W.-H. Guo², M. Nawrocka¹, A. Abdullaev¹, J. OCallaghan³, and J. Donegan¹; ¹Trinity College Dublin, Dublin, Republic of Ireland; ²Department of Electrical & Computer Engineering, University of California Santa Barbara, California, United States; ³Tyndall National Institute, Cork, Republic of Ireland

An 8-channel single-mode laser array based on slots is presented. Lasing wavelengths span ~21nm has been obtained with the threshold of 17~20mA, slope efficiency >0.2mW/mA and SMSR >50dB for the fabricated array.

CB-P.11 MON

Increasing the luminance of a red emitting laser light source by spectral beam combining

G. Blume, •D. Feise, A. Sahm, B. Eppich, and K. Paschke; Ferdinand-Braun-Institut, Berlin, Germany

Spectral beam combining of a bar of DBR tapered lasers near 635 nm at a power level > 1 W improved the beam propagation factor. The incoherent multi-wavelength emission of the bar reduced the speckle contrast.

CB-P.12 MON

1 Watt from 1.56 um Single Frequency Semiconductor Disk Laser

•A. Rantamäki¹, J. Rautiainen¹, A. Sirbu², A. Mereuta², E. Kapon², and O. Okhotnikov¹; ¹Optoelectronics Research Centre, Tampere University of Technology, Tampere, Finland; ²Ècole Polytechnique Fèdèrale de Lausanne, Lausanne, Switzerland

1.56 um single-frequency semiconductor disk laser with 1 watt of output power and coherence length over 5 km in optical fiber is demonstrated. The result presents the highest power reported for this type of lasers.

CB-P.13 MON

Different Values for the Linewidth Enhancement Factor of a Quantum-Dots Laser obtained using **Optical and Electrical Modulation**

M. Soldo¹, M.T. Todaro^{2,3}, C. Belmonte Palmero^{1,4}, V. Tasco², A. Passaseo², M.J. Latorre Vidal¹, M. De Vittorio^{2,3}, and •G. Giuliani¹; ¹University of Pavia, Pavia, Italy; ²National Nanotechnology Laboratory NNL, Istituto Nanoscienze CNR, Lecce, Italy; ³Istituto Italiano di Tecnologia @ Università del Salento, Arnesano (Lecce), Italy; ⁴Vrije Universiteit Brussel, Brussels, Belgium The alpha-factor of 1300nm QD laser measured applying external optical modulation is nearly zero, while its value is 3 under current modulation. This difference is attributed to the plasma effect in the wetting layer

CB-P.14 MON

Random lasers driven by engineered pumping *M. Leonetti^{1,2}, C. Conti^{2,3}, and* •*C. Lopez*¹; ¹*Instituto de* Ciencia de Materiales (CSIC), Madrid, Spain;²Istituto dei Sistemi Complessi (CNR), Rome, Italy; ³Department of Physics, University Sapienza, Rome, Italy Without a cavity random lasers are intrinsically uncontrollable. Engineering the scattering elements helps controlling emission frequency. Engineering the pumping gives access to parameters such as feedback regime, synchronisation, mode size and single mode selection.

CB-P.15 MON

Modelling Dilute Nitride 1.3 um Quantum Well Lasers: Incorporation of N compositional Fluctuations

X. Sun and •J. Rorison; University of Bristol, Bristol, United Kingdom

Compositional fluctuations of N in GaInNAs result in quantum dot-like fluctuations in the conduction band edge. It is observed to reduce the photon luminescence intensity, broaden the line-width and increase the laser threshold.

CB-P.16 MON

Design and performances of simplified external cavity laser diodes using CRIGF mirrors

X. Buet^{1,2}, •A. Monmayrant^{1,2}, S. Calvez^{1,2}, C. Tourte^{1,2}, F. Lozes-Dupuy^{1,2}, and O. Gauthier-Lafaye^{1,2}; ¹CNRS, LAAS, Toulouse, France; ²Univ de Toulouse, LAAS, Toulouse, France

Cavity-Resonator-Integrated-Grating-Filters combine resonant-grating-filters performances and large angular tolerance. Wavelength stabilization of a 850 nm emitting semiconductor laser is achieved using a simplified cat's eye cavity. System performances will be discussed, together with pathways for ameliorations.

CB-P.17 MON

Investigation of design parameters of 633 nm diode lasers with internal surface gratings for narrow spectral linewidth

•D. Feise¹, G. Blume¹, W. John¹, J. Pohl¹, B. Sumpf¹, H. Thiem², M. Reggentin², J. Wiedmann², and K. Paschke¹; ¹Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany; ²eagleyard Photonics GmbH, Berlin, Germany

Wavelength stabilized diode lasers for applications in spectroscopy and interferometry have been developed by monolithic integration of tenth order surface DBR gratings. The influence of design parameters like grating period et al. will be presented.

CB-P.18 MON

Generation of Single Frequency Highly Coherent High-Order Laguerre Gaussian Modes with Vertical-External-Cavity-Surface-Emitting-Laser

•M. Sellahi¹, M. Myara¹, I. Sagnes², S. Blin¹, and A. Garnache¹; ¹IES-CNRS UMR5214, Université de Montpellier 2, Montpellier, France; ²LPN-CNRS, Marcoussis, France

We demonstrate the generation of single frequency high order Laguerre Gauss transverse modes with Vertical-External-Cavity-Surface-Emitting-Laser. This was achieved by means of sub-wavelength metallic masks deposited on GaAs semiconductor structures and the spatial-hole-burning based mode interaction.

CB-P.19 MON

High-Power Optically Pumped Semiconductor Disk Lasers Using Second-Harmonic Generation

•A. Hein, S. Menzel, M. Rampp, A. Ziegler, and P. Unger; Institute of Optoelectronics, Ulm University, Germany Characteristics of optically pumped semiconductor disk lasers are presented for the fundamental and secondharmonic regime at 1040nm and 520nm, respectively. High efficiencies for both spectral regions, and wide tuning of the second-harmonic is demonstrated.

CB-P.20 MON

Locking of Laser Cavity Solitons Trapped by Defects in VCSELs

P. Paulau¹, C. McIntyre², Y. Noblet², W.J. Firth², P. Colet³, T. Ackemann², and •G.-L. Oppo²; ¹Technische Universität, Berlin, Germany; ²University of Strathclyde, Glasgow, United Kingdom; ³IFISC Universitat Illes Balears, Palma de Mallorca, Spain

Defects due to growth fluctuations in semiconductor lasers induce trapping and frequency shifts of laser cavity solitons. We experimentally and theoretically demonstrate frequency and phase locking of trapped solitons in VCSELs with frequency-selective feedback.

CB-P.21 MON

InP quantum dot based semiconductor disk laser emitting at 655 nm

•H. Kahle, R. Bek, F. Hargart, C. Kessler, E. Koroknay, T. Schwarzbäck, M. Jetter, and P. Michler; Institut für Halbleiteroptik und Funktionelle Grenzflächen and Research Center SCoPE, University of Stuttgart, Germany We present an InP quantum dot semiconductor disk laser emitting at a wavelength of 654 nm. Investigations of the laser system show an output power of 1.4 W with a slope efficiency of 25.4%.

CB-P.22 MON

Characterization of 60GHz passively mode-locked quantum well Fabry-Perot laser for RoF and WPAN applications

•K. Carney, R. Maldonado-Basilio, S. Philippe, and P. Landais; Rince Institute, Dublin City University, Dublin, Republic of Ireland

Characterization of a passively mode-locked FP laser operating at 60GHz with only d.c. bias applied is presented. A beat tone linewith of 10kHz is measured, making the device suitable for RoF and WPAN applications.

CB-P.23 MON

Mode-Locked semiconductor laser with controllable intracavity dispersion and absorption

•J.C. Balzer¹, B. Döpke¹, A. Klehr², G. Erbert², G. Tränkle², and M.R. Hofmann¹; ¹Lehrstuhl für Photonik und Terahertztechnologie, Ruhr Universität Bochum, Bochum, Germany; ²Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany We present an experimental analysis of the influence of intracavity group delay dispersion and absorption on the performance of a passively mode locked semiconductor laser diode.

CB-P.24 MON

Fast controlled switching of modes in semiconductor lasers

•S. Slipchenko; Ioffe Physical-Technical Institute, St Peterburg, Russia

Mode switching effects in semiconductor lasers based on asymmetric heterostructure with low internal optical losses have been investigated and physical principles of new type fast optical power switcher have been developed.

CB-P.25 MON

Spectral gain and cavity loss characterization of an optically-pumped external-cavity surface-emitting quantum well laser

•C.R. Head¹, K.G. Wilcox¹, O.J. Morris¹, A.P. Turnbull¹, H.E. Beere², I. Farrer², D.A. Ritchie², and A.C. Tropper¹;

¹School of Physics and Astronomy, Southampton University, Southampton, United Kingdom; ²Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom

We present two novel methods exploiting the transient laser build-up behavior in order to extract spectral laser gain and cavity loss parameters of a 1micrometer optically-pumped external-cavity surfaceemitting quantum well laser.

CB-P.26 MON

Colliding Pulse Modelocked Lasers for Terahertz Photomixing

•C. Brenner¹, H. Horstkemper¹, I. Cámara Mayorga², A. Klehr³, G. Erbert³, and M. Hofmann¹; ¹Ruhr-Universität, Bochum, Germany; ²Max-Planck Institut, Bonn, Germany; ³*Ferdinand-Braun-Institut*, Berlin, Germany Observation of frequencies up to 1THz with a standard homodyne THz detection setup incorporating colliding pulse modelocked lasers. Presentation of background and results.

CB-P.27 MON

Theoretical analysis of timing jitter in two-section passively mode-locked semiconductor lasers

•A. Pimenov¹, N. Rebrova^{2,3}, D. Rachinskii^{4,5}, and A. *Vladimirov*^{1,3}; ¹*Weierstrass Institute, Berlin, Germany;* ²Tyndall National Institute, Cork, Republic of Ireland; ³Cork Institute of Technology, Cork, Republic of Ireland; ⁴University College Cork, Cork, Republic of Ireland; ⁵University of Texas at Dallas, Dallas, United States We consider a delay-differential model of a passively mode-locked semiconductor laser. We apply perturbation theory to obtain estimate of pulse timing jitter and study the dependence of noise induced characteristics on laser parameters.

CB-P.28 MON

Efficiency optimization of high power diode lasers at low temperatures

•C. Frevert, P. Crump, H. Wenzel, S. Knigge, F. Bugge, and G. Erbert; Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany

9xx-nm long-cavity (4 mm) high power broad-area lasers achieve power conversion efficiency of 74% at -55°C, increased by 10% compared to room temperature. We demonstrate experimentally that this is dominated by improved differential internal efficiency.

CB-P.29 MON

Influence of the length of the absorber section on the mode locking behaviour of a 1064nm DBR laser determined on a single device •A. Klehr, T. Prziwarka, O. Brox, F. Bugge, H. Wenzel, and

Hall B0

G. Erbert; Ferdinand Braun Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany

The influence of the length of the absorber section on the mode locking behaviour of a 1064nm DBR laser is investigated. Optimal mode locking was obtained for lengths 0.2mm-0.3mm and absorber voltages -2V to -3V.

CB-P.30 MON

1064 nm wavelength stabilized hybrid ns-MOPA diode laser system for high peak power and low spectral width

•A. Klehr, B. Sumpf, N. Vu, H. Wenzel, G. Erbert, and G. Tränkle; Ferdinand Braun Institut, Leibniz-Institut für Höchstfrequenztechnik, Berlin, Germany

A DBR master oscillator power amplifier (MOPA) system for the generation of ns-pulses with high peak power of 16 W and narrow spectral line with a side mode suppression rate > 42 dBm is realized.

CB-P.31 MON

De-synchronization Events and Leader-Laggard Dynamics Interchange in Chaos Semiconductor Lasers Networks

•M. Bourmpos, A. Argyris, and D. Syvridis; National and Kaposidtrian University of Athens, Ilisia, Athens, Greece Well-synchronized coupled lasers in star networks with chaotic emission are shown to exhibit short desynchronization events. Increased biasing of central hub laser turns from lagging to leading the dynamics of the network, eliminating these events.

CB-P.32 MON

Dynamical characterization of monolithic MOPAs emitting at 1.5 um

J. Javaloyes¹, M. Vilera², A. Consoli², P. Adamiec², J.M. García-Tijero², S. Aguilera², I. Esquivias², and •S. Balle^{1,3}; ¹Dept. de Física, Univ. Illes Balears, Palma de Mallorca, Spain; ²ETSI Telecomunicación-CEMDATIC, Univ. Politécnica de Madrid, Madrid, Spain; ³Insitut Mediterrani d'Estudis Avançats, IMEDEA (CSIC-UIB), Esporles, Spain We study the dynamical characteristics of a monolithic flared MOPA at 1.5 μ m. Radio-frequency and optical spectra under CW biasing evidence regimes of selfpulsations and compound cavity effects. A Travelling-Wave-Model reproduces the observed dynamics.

CB-P.33 MON

Bursting in an Optically Injected Two-Mode Laser: The Cusp-Pitchfork Bifurcation

•S. Osborne¹, N. Blackbeard¹, S. O'Brien¹, and A. Amann^{1,2}; ¹Tyndall National Institute, University College Cork, Cork, Republic of Ireland; ²School of Mathematical Sciences, University College Cork, Cork, Republic of Ireland

We present an interesting bursting mechanism in a twomode laser subjected to optical injection. We show that this bursting is organized by an interaction between a cusp and pitchfork of limit-cycles.

CB-P.34 MON

How to control single mode emission of VCSEL arrays?

•T. Czyszanowski¹, M. Dems¹, M. Wasiak¹, R.P. Sarzala¹, E. Lamothe², N. Volet², V. Iakovlev², and E. Kapon²; ¹Institute of Physics, Lodz University of Technology, Lodz, Poland; ²Laboratory of Physics of Nanostructures, Ecole Polytechnique Federal de Lausanne (EPFL), Lausanne, Switzerland

In this paper we present the simulation results of optimization of carrier injection, heat flow and optical confinement aimed for single mode operation of VCSEL arrays.

CB-P.35 MON

Widely-Tunable Five-Section Slotted Lasers

•M. Nawrocka¹, Q. Lu¹, W.-H. Guo², A. Abdullaev¹, F. Bello¹, J. OCallaghan³, and J. Donegan¹; ¹Trinity College Dublin, Dublin, Republic of Ireland; ²Department of Electrical & Computer Engineering, University of California Santa Barbara, California, United States; ³Tyndall National Institute, Cork, Republic of Ireland

A re-growth free five-section tunable laser based on slots suitable for photonic integration is presented. A discrete tuning range \sim 55nm with SMSR>30dB has been reported for the fabricated device using the Vernier tuning effect.

CB-P.36 MON

Dynamics of colliding pulse passively semiconductor mode-locked ring lasers with an intra-cavity Mach-Zehnder modulator

•V. Moskalenko¹, J. Javaloyes², M. Smit¹, S. Balle², and E. Bente¹; ¹Technical University of Eindhoven, Eindhoven, The Netherlands; ²Universitat de les Illes Baleares, Palma de Mallorca, Spain

We study the dynamics of InGaAsP/InP passively modelocked quantum well ring lasers in the presence of a gain flattening intra-cavity frequency dependent filter. Control and pulse width reduction is achieved.

CB-P.37 MON

Traveling wave modelling and mode analysis of semiconductor ring lasers

•*M. Radziunas; Weierstrass Institute, Berlin, Germany* The traveling wave model is used for analyzing dynamics of semiconductor ring lasers. Dependence of instantaneous optical modes on model parameters, and the role of these modes within different dynamical regimes are analyzed.

CB-P.38 MON

Theoretical study of beam quality improvement in spatially modulated broad area edge-emitting devices •M. Radziunas¹, R. Herrero², M. Botey³, and K. Staliunas^{2,4}; ¹Weierstrass Institute, Berlin, Germany; ²Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Terrassa, Spain; ³Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Barcelona, Spain; ⁴Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain We analyze properties of broad area amplifiers and lasers with longitudinally and laterally modulated electrical contact. We demonstrate how a proper choice of the spatial periods improves the far fields of the emitted beam.

CB-P.39 MON

High resolution mapping of the dynamics of a nonlinear semiconductor laser system

•J. Toomey, Y. Noblet, C. Nichkawde, and D. Kane; MQ Photonics Research Centre, Macquarie University, Sydney, Australia

High resolution time series from a semiconductor laser with optical feedback system have been analysed and mapped to confirm previously identified major dynamical regions, observe new low feedback dynamics, and to test reproducibility over time.

CB-P.40 MON

Why Phtonic-Crystal VCSELs do not provide high power emission in the single-mode regime?

•L. Frasunkiewicz¹, T. Czyszanowski¹, M. Wasiak¹, M. Dems¹, R.P. Sarzala¹, W. Nakwaski¹, and K. Panajotov²; ¹Institute of Physics, Lodz University of Technology, Lodz, Poland; ²Department of Applied Physics and Photonics, Vrije Universiteit Brussels, Brussels, Belgium In this paper we investigate the influence of parameters

of photonic crystal on the slope efficiency, emitted power and tuning range in single mode VCSELs.

CB-P.41 MON

Analysis of gain properties in silver-clad nanowire lasers

•Z. Abdul Sattar and K.A. Shore; Bangor University, Bangor, United Kingdom

Analysis of GaN nanowire lasers is performed for wavelengths in the range 330nm-830nm. Modal gains of order 8000cm-1 and 1100cm-1 are found for TE01 and TM01 modes respectively thereby enabling lasing with appropriate cavity lengths.

13:30 - 14:30

JSIV-P: JSIV Poster Session

JSIV-P.1 MON

Ultrafast Energy Transfer and Excitonic Coupling in an Artificial Photosynthetic Antenna

M. Maiuri¹, J. Snellenburg², I. van Stokkum², S. Pillai³,
 D. Gust³, T. Moore³, A. Moore³, R. van Grondelle²,
 G. Cerullo¹, and D. Polli¹; ¹Politecnico di Milano, Mi-

lano, Italy; ²Department of Physics and Astronomy, VU University Amsterdam, Amsterdam, The Netherlands; ³Department of Chemistry & Biochemistry, Arizona State University, Tempe, United States

Combining ultrafast spectroscopy with target analysis on an artificial photosynthetic antenna, we quantify around 37% of Carotenoid to Phthalocyanine energy transfer efficiency and identify spectral signatures of excited state coupling between the two moieties

JSIV-P.2 MON

Selective probing of electronic and nuclear coherences using time-resolved off-resonant excitation of Raman-active vibration modes

•*E. Gaižauskas*; Vilnius university, Vilnius, Lithuania Raman enhanced four-wave mixing in three-level quantum system was analized theoretically. It was shown, that signall efficiency induced by weak resonant probe allows one to tell electronic coherences from the nuclear one.

Hall B0

13:30 - 14:30

IB-P: IB Poster Session

IB-P.1 MON

Demonstration of a Fully Tuneable Entangling Gate for Continuous-Variable Cluster Computation

•S. Yokoyama¹, R. Ukai¹, S.C. Armstrong^{1,2}, J.-i. Yoshikawa¹, P. van Loock³, and A. Furusawa¹; ¹The University of Tokyo, Tokyo, Japan; ²The Australian National University, Canberra, Australia; ³University Mainz, Mainz, Germany

We present a fully tuneable entangling gate, T_Z , in the context of one-way quantum computations. We demonstrate T_Z via a three-mode optical cluster state by propagating two independent modes through and tuning the entanglement strength.

IB-P.2 MON

Quantum state fusion in photons

•N. Spagnolo¹, C. Vitelli^{2, f}, L. Aparo¹, F. Sciarrino¹, E. Santamato³, and L. Marrucci^{3,4}; ¹Dipartimento di Fisica, Sapienza Università di Roma, Roma, Italy; ²Center of Life NanoScience @ La Sapienza, Istituto Italiano di Tecnologia, Roma, Italy; ³Dipartimento di Scienze Fisiche, Università di Napoli "Federico II", Compl. Univ. di Monte S. Angelo, Napoli, Italy; ⁴CNR-SPIN, Complesso Universitario di Monte S. Angelo, Napoli, Italy

We propose and experimentally demonstrate a physical process, named quantum state fusion, in which two input qubits written in two input photons in different degrees of freedom are combined into a single output photon.

IB-P.3 MON

Virtual Noiseless Amplification

•J. Janousek¹, H. Chrzanowski¹, S. Hosseini¹, S. Assad¹, T. Symul¹, N. Walk², T. Ralph², and P.K. Lam¹; ¹Australian National University, Canberra, Australia; ²University of Queensland, Brisbane, Australia

We show an experimental implementation of a virtual noiseless amplifier, via post-selective measurements performed on a pair of EPR entangled Gaussian beams. Using the NLA protocol, we realize a dramatic increase in entanglement.

IB-P.4 MON

Complete experimental toolbox for alignment-free quantum communication

•V. D'Ambrosio¹, E. Nagali¹, S. Walborn², L. Aolita³, S. Slussarenko⁴, L. Marrucci⁴, and F. Sciarrino¹; ¹Sapienza, Università di Roma, Rome, Italy; ²Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil; ³Dahlem Center for Complex Quantum Systems, Berlin, Germany; ⁴Università di Napoli Federico II, Naples, Italy

Standard quantum communication approaches need a shared reference frame. This issue can be overcome by encoding information in hybrid polarization-orbital angular momentum single photon states.

IB-P.5 MON

Entanglement Swapping with Local Certification:

Application to Remote Micromechanical Resonators M. Abdi^{1,2}, •S. Pirandola³, P. Tombesi¹, and D. Vitali¹; ¹School of Science and Technology, University of Camerino, Camerino, Iran; ²Department of Physics, Sharif University of Technology, Tehran, Iran; ³Department of Computer Science, University of York, York, United Kingdom

We propose a protocol for entanglement swapping which involves tripartite systems. The generation of remote entanglement induced by the Bell measurement can be certified by additional local measurements. We apply the protocol to optomechanical systems.

IB-P.6 MON

High-rate single photons in a pure quantum state for quantum communication

•C. Kurz¹, J. Huwer^{1,2}, M. Schug¹, P. Müller¹, and J. Eschner¹; ¹Experimentalphysik, Universität des Saarlandes, Saarbrücken, Germany; ²ICFO – The Institute of Photonic Sciences, Castelldefels (Barcelona), Spain

We generate high-rate single photons in a single quantum state by spontaneous Raman scattering in a trapped ion. Photon frequency, polarization and temporal shape are laser-controlled. The photons create quantum jumps in another, distant ion.

IB-P.7 MON

Fast real-time random numbers from vacuum fluctuations

•T. Symul, S. Assad, and P.K. Lam; Australian National University, Canberra, Australia

We present a robust quantum random number generator based on measuring the quantum fluctuations of the vacuum field. Our device achieves a real-time continuous generation bandwidth of 5.7Gb/s and is made available on the Internet.

IB-P.8 MON

Multimode homodyne detection as a tool for cluster state generation and gaussian quantum computation •*G. Ferrini; Laboratoire Kastler Brossel, Paris, France* We study a compact way to implement simple measurement-based quantum computations in a CV-Optical setting. Our method is based on the multi-pixel measurement of correlated states produced by a SPOPO in a suitable basis.

IB-P.9 MON

Direct characterization of any linear photonic device •S. Rahimi-Keshari¹, M. Broome^{1,2}, R. Fickler^{3,4}, A. Fedrizz^{1,2}, T. Ralph¹, and A. White^{1,2}; ¹Centre for Quantum Computer and Communication Technology, School of Mathematics and Physics, University of Queensland, Brisbane, Australia; ²Centre for Engineered Quantum Systems, School of Mathematics and Physics, University of Queensland, Brisbane, Australia; ³Quantum Optics, Quantum Nanophysics, Quantum Information, University of Vienna, Vienna, Austria; ⁴Institute for Quantum Optics and Quantum Information, Vienna, Austria We introduce an effcient method for characterizing any multi-mode linear photonic network. Our method employs a standard laser source and photodetectors to di-

ploys a standard laser source and photodetectors to directly determine all moduli and non-trivial phases of the matrix describing the network.

IB-P.10 MON

Widely-tunable, spectrally pure, high efficient photon pairs generation at telecom wavelength

•R. Jin¹, R. Shimizu², K. Wakui¹, H. Benichi¹, and M. Sasaki¹; ¹National Institute of Information and Communications Technology, Tokyo, Japan; ²University of Electro-Communications, Tokyo, Japan

We theoretically and experimentally investigate the spectral tunability and purity of photon pairs generated from periodically poled KTiOPO4. The spectral purity can be higher than 0.98 when the wavelength is tuned from 1460 nm to 1675 nm.

IB-P.11 MON

Optimal Unambiguous Discrimination of Two Incompatible Quantum Measurements

•M. Miková¹, M. Sedlák¹, I. Straka¹, M. Mičuda¹, M. Ziman^{2,3}, M. Ježek¹, J. Fiurášek¹, and M. Dušek¹; ¹Faculty of Science, Palacký University, Olomouc, Czech Republic; ²Research Center for Quantum Information, Slovak Academy of Sciences, Bratislava, Slovakia; ³Faculty of Informatics, Masaryk University, Brno, Czech Republic

We have experimentally demonstrated one-copy optimal unambiguous discrimination of two incompatible quantum measurements. Our linear-optics implementation used pairs of photon entangled in polarization, unambiguous state discrimination, and electronic feedforward.

IB-P.12 MON

Towards a basic quantum repeater link over 400m with heralded entanglement of 87Rb-atoms

•K. Redeker¹, D. Burchardt¹, N. Ortegel¹, J. Hofmann¹, M. Krug¹, M. Weber¹, W. Rosenfeld^{1,2}, and H. Weinfurter^{1,2}; ¹Fakultät für Physik, LudwigMaximilians-Universität, München, Germany; ²Max-Planck-Institut für Quantenoptik, München, Germany We present our progress towards a basic quantum repeater link establishing entanglement between two single trapped 87Rb-atoms separated by a distance of 400m.

IB-P.13 MON

Demonstration of Nonlocal Dispersion Cancelled Two-Photon Bessel Interference in Frequency Domain

B. Galmes, J.-P. Decurey, I. Mbodji, L. Furfaro, K. Phan Huy, L. Larger, J.M. Dudley, and •J.-M. Merolla; FEMTO-ST, Besançon, France

We present a method to perform a non local cancellation dispersion. Distance independent two photon Bessel interference in frequency domain shows that the introduction of a local negative dispersion allows compensating the global dispersion effect.

IB-P.14 MON

Qudit implementations with broadband energy-time entangled photons

•B. Bessire, C. Bernhard, A. Stefanov, and T. Feurer; Institute of Applied Physics, Bern, Switzerland

We demonstrate generic qudit encoding in the spectrum of energy-time entangled photons by means of pulse shaping techniques known from fs-laser physics. Twophoton interference is realized up to d=4 using two different discretization schemes.

IB-P.15 MON

Photonic phase-gate using Rydberg atoms and microwaves

•D. Paredes-Barato, H. Busche, D. Maxwell, D. Szwer, M. Jones, and C. Adams; Joint Quantum Centre Durham-Newcastle, Durham, United Kingdom We propose a deterministic photonic phase-gate scheme using microwave control of Rydberg polaritons. Processing fidelities in excess of 90% are expected for realistic experimental parameters.

IB-P.16 MON

Bipartite Quantum Correlations in a Fast-Light Medium Generated with Four-Wave-Mixing in Rubidium Vapour

•U. Vogl, R. Glasser, and P. Lett; NIST and Joint Quantum Institute, Gaithersburg, United States

We demonstrate the propagation of bipartite quantum correlations through a fast-light medium with fourwave-mixing in rubidium vapor, and explore the possible advancement and the noise-characteristics of the system.

IB-P.17 MON

State transfer with time-dependent Hamiltonians in waveguide arrays

•S. Weimann¹, A. Kay², R. Keil¹, S. Nolte¹, and A. Szameit¹; ¹Institute of applied Physics, Abbe Center of Photonics, Friedrich-Schiller-University Jena, Jena, Germany; ²Department of Mathematics, Royal Holloway, University of London, Egham, United Kingdom

We emulate perfect quantum state transfer through a chain of spin-1/2-particles with time-dependent couplings in waveguide arrays. The robustness of the transfer scheme to imperfections of the couplings is analyzed experimentally.

IB-P.18 MON

A reversible optical memory for twisted photons

•L. Veissier¹, A. Nicolas¹, L. Giner¹, D. Maxein¹, A. Sheremet², E. Giacobino¹, and J. Laurat¹; ¹Laboratoire Kastler Brossel, Paris, France; ²State Polytechnic University, Saint Petersburg, Russia

We report on an optical memory which enables the reversible mapping of Laguerre-Gaussian modes at the single-photon level. This opens the possibility of storage of qubits encoded in orbital angular momentum.

IB-P.19 MON

Broadband Quantum-Correlated Photon-Pairs in the O-Band Generated from a Dispersion-Engineered Silicon Waveguide

•M.T. Liu¹, Y. Huang^{1,2}, W. Wang³, and H.C. Lim^{1,3}; ¹School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Singapore; ²Currently with Institute of Microelectronics, Agency for Science, Technology and Research (A*STAR), Singapore, Singapore; ³Emerging Systems Division, DSO National Laboratories, Singapore, Singapore

We demonstrate the first broadband source of quantumcorrelated photon-pairs in the O-band using a 2.6-mmlong dispersion-engineered silicon waveguide.

IB-P.20 MON

Multidimensional Quantum Walks: Diabolical Points, Optical Wave-like propagation and Multipartite Entanglement

G.J. de Valcárcel¹, C. Di Franco⁴, M. Hinarejos², A. Pérez², E. Roldán¹, A. Romanelli³, and •F. Silva¹; ¹Departament d'Òptica, Universitat de València, Burjassot, Spain; ²Departament de Física Teòrica and IFIC, Uni-

versitat de València and CSIC, Burjassot, Spain; ³Instituto de Física, Facultad de Ingeniería, Universidad de la República, Montevideo, Uruguay; ⁴Centre for Theoretical, Atomic, Molecular and Optical Physics; Queen's University, Belfast, United Kingdom

We study multidimensional quantum walks concentrating on their dispersion relation. We describe wave-like propagation as well as dynamics governed by diabolical points. We demonstrate that alternate QWs exhibit genuine multipartite entanglement and discuss their implementability.

13:30 - 14:30

ID-P: ID Poster Session

ID-P.1 MON

Broadband Fabry-Perot cavity for quantum-limited frequency comb metrology

•R. Schmeissner, V. Thiel, C. Fabre, and N. Treps; Laboratoire Kastler Brossel, Paris, France

We study a broadband, high finesse optical cavity in combination with spectrally resolved balanced homodyne detection as a tool to analyze the modal structure of a 40nm FWHM optical frequency comb in amplitude and phase.

ID-P.2 MON

Carrier-envelope frequency stabilization of a Ti:sapphire oscillator using different pump lasers

•A. Vernaleken¹, B. Schmidt², T.W. Hänsch¹, R. Holzwarth^{1,2}, and P. Hommelhoff^{1,3}; ¹Max-Planck-Institut für Quantenoptik, Garching, Germany; ²Menlo Systems GmbH, Martinsried, Germany; ³Universität Erlangen-Nürnberg, Erlangen, Germany

The suitability of several commercial pump lasers for operation with a carrier-envelope offset frequency stabilized Ti:sapphire oscillator is investigated. We find that they are all well-suited for the purpose.

ID-P.3 MON

Phase Noise and Spectral Bandwidth of SiN Microresonator Frequency Combs

•V. Brasch, T. Herr, M. Pfeiffer, J. Jost, and T. Kippenberg; École Polytechnique Fédéral de Lausanne (EPFL), Lausanne, Switzerland

The phase noise behavior and bandwidth of microresonator frequency combs are determined by the microresonator properties such as the dispersion and Q-factor. We measure and relate the properties of the comb and of the resonator.

ID-P.4 MON

Soliton mode-locking in optical microresonators

•T. Herr¹, V. Brasch¹, J. Jost¹, C. Wang¹, N. Kondratiev², M. Gorodetsky², and T. Kippenberg¹; ¹Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; ²M.V. Lomonosov Moscow State University, Moscow, Russia

We demonstrate soliton mode-locking in a continuously pumped, non-linear optical MgF_2 microresonator, resulting in low-noise frequency comb spectra and ultrashort pulses of 200 fs duration with a repetition rate of 35.2 GHz.

ID-P.5 MON

Minimum Requirements for Feedback Enhanced Force Sensing

•G.I. Harris¹, D. McAuslan¹, T. Stace¹, A. Doherty², and W.P. Bowen¹; ¹Centre for Engineered Quantum Systems, Brisbane, Australia; ²Centre for Engineered Quantum Systems, Sydney, Australia

Thermomechanical noise is a limiting factor in many MEMS and NEMS based sensors. It has been proposed that feedback can enhance force sensing. However, we show the same enhancement can be made with postprocessing alone.

ID-P.6 MON

Mid-IR frequency control using an optical frequency comb and a remote near-infrared frequency reference B. Chanteau¹, B. Argence¹, O. Lopez¹, W. Zhang², D. Nicolodi², M. Abgrall², F. Auguste¹, P.L.T. Sow¹, S. Mejri¹, S.K. Tokunaga¹, C. Daussy¹, B. Darquié¹, G. Santarelli^{2,3}, C. Chardonnet¹, Y. Le Coq², and •A. Amy-Klein¹; ¹Laboratoire de Physique des Lasers, Villetaneuse, France; ²LNE-SYRTE, Paris, France; ³Laboratoire Photonique, Numérique et Nanosciences, Talence, France We present a new method for accurate mid-infrared frequency stabilization against a near-infrared reference conveyed in a long-distance fibre link and continuously monitored against atomic fountain clocks. Stability below 3x10-14 was demonstrated at 30 THz.

ID-P.7 MON

Multipole, nonlinear and anharmonic contributions to uncertainties of clocks on neutral atoms in optical lattices

•V. Ovsiannikov¹ and V. Pal'chikov²; ¹Voronezh State University, Voronezh, Russia; ²VNIIFTRI, Mendeleevo, Russia

Contributions to standard frequency shifts, linear and quadratic in laser intensity, determined by E1, M1 and E2 interactions of atoms with a trapping field of magicwavelength optical lattice are analyzed in harmonic and anharmonic approximations.

ID-P.8 MON

Compact and Robust Repumper Light Source for Sr Single-Ion Traps

•T. Fordell, T. Lindvall, T. Hieta, and M. Merimaa; Centre for Metrology and Accreditation (MIKES), Espoo, Finland An unpolarized, incoherent repumper for Sr single-ion clocks is presented. This broadband, all-fibre ASE source prevents dark states from forming, requires no frequency stabilization, is adjustment free, and can be switched off electronically during interrogation.

$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Monday 13 May 2013

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ROOM 1

8:30 - 10:00

CD-8: New Guiding Phenomena

Chair: Miroslav Karpierz, Warsaw University of Technology, Warsaw, Poland

CD-8.1 TUE (Invited) 8:30

Electro-optic routing of spatial solitons in nematic liquid crystals

•A. Piccardi, A. Alberucci, and G. Assanto; Nonlinear Optics and OptoElectronics Lab (NooEL), University of Rome Roma Tre, Rome, Italy

We present several configuration of planar nematic liquid crystal cells for the electric control of optical spatial solitons propagation by achieving amplitude and frequency modulation of linear and nonlinear properties of the medium.

CD-8.2 TUE

Diffraction resisting zero-order Bessellike and higher-order vortex Bessel-like beams with arbitrary trajectories •N.K. Efremidis¹, I.D. Chremmos¹,

J. $Zhao^{2,3}$, Z. $Chen^2$, and D.N. Christodoulides³; ¹Department of Ap-

9:00 JSV-1.2 TUE

Enhanced absorptance of infrared singlephoton detectors comprising plasmonic structure integrated NbN pattern on silicon substrate G. Szekeres, Á. Sipos, and •M. Csete; Uni-

9:00

ROOM 4a

Chair: Robert Hadfield, University of Glas-

gow, U.K. & Franco Nori, Riken, Japan and

The University of Michigan, Ann Arbor, USA

Superconducting Single Photon Detectors

•S.W. Nam¹, B. Calkins¹, T. Gerrits¹

A.E. Lita¹, F. Marsili¹, V.B. Verma¹, I. Vayshenker¹, R.P. Mirin¹, M. Shaw², W.

Farr², and J.A. Stern²; ¹NIST, Boulder,

United States; ² JPL, Pasadena, United States

Superconducting single photon detectors

can offer performance that is unmatched by

any other detector technology. We describe

our research to improve these detectors so

that these detectors can be used in systems

with detection efficiency approaching 100%.

JSV-1: Superconducting Optics

JSV-1.1 TUE (Invited)

8:30 - 10:00

versity of Szeged, Department of Optics and

ROOM 4b

8:30 - 10:00

CI-2: Integrated Circuits Chair: Yonglin Yu, Huazhong University of Science and Technology, China

CI-2.1 TUE

8:30

Application of InAs quantum dots for high-speed photodiodes in fiber optics

8:30

8:45

9:00

•T. Umezawa, K. Akahane, A. Kanno, and T. Kawanishi; National Institute of Information and Communication Technology, Tokyo, Japan

We designed and demonstrated a new high speed PIN photodiode using an InAs/InAlGaAs quantum dot absorption layer for future fiber optic technology. The design and the basic properties including avalanche multiplication have been discussed.

CI-2.2 TUE

Application Specific Photonic Integrated Circuits for Telecommunications

•S. Stopiński^{1,2}, K. Ławniczuk^{1,2}, К. Welikow¹, A. Jusza¹, P. Gdula¹, P. Szczepański¹, X. Leijtens², M. Smit², and R. *Piramidowicz*¹; ¹*Institute of Microelectronics* and Optoelectronics of Warsaw University of Technology, Warsaw, Poland; ²COBRA Research Institute, Eindhoven University of Technology, Eindhoven, The Netherlands In this work several InP-based photonic integrated circuits for application in telecommunication systems and networks are demonstrated. The design and measurement results of chips fabricated in multi-project wafer runs according to generic concept are presented.

CI-2.3 TUE (Invited)

Low energy consumption and high speed germanium-based optoelectronic devices D. Marris-Morini¹, P. Chaisakul¹, M.-S. Rouifed¹, J. Frigerio², G. Isella², D. Chrastina², and •L. Vivien¹; ¹Institut d'Electronic Fondamentale - CNRS-Univ.

ROOM 13a

8:30 - 10:00

CM-3/LIM: Precision Processing in Micro to Nano Scale by Ultrafast Lasers (Session jointly held with LIM) Chair: Boris Chichkov, Laser Zentrum, Hannover, Germany

CM-3/LIM.1 TUE (Invited) 8:30

Welding of Glass/Glass and Si/Glass using Ultrashort Laser Pulses

•I. Miyamoto; Osaka University, Osaka Japan; Erlangen Graduate School of Advanced Optical Technologies, Erlangen, Germanv

Laser energy deposition process in glass/glass and Si/glass using ultrashort laser pulses at high-pulse repetition rates is discussed by simulation model based on thermal conduction theory, and the weld joints are characterized by different tests.

CB-4.2 TUE

tor of 6dB.

8:45

8:30

Picosecond pulse generation with 34W peak power using a monolithic quantum-dot tapered mode-locked laser and tapered optical amplifier

ROOM 13b

Chair: Judy Rorison, University of Bristol,

Optimized InAs/AlGaAs Quantum Dot

Tapered Geometry For Enhanced Beam

•C. Mesaritakis¹, A. Kapsalis¹, C. Simos¹,

H. Simos¹, M. Krakowski², and D. Syvridis¹;

¹National and Kapodistrian University of

Athens, Athens, Greece; ²Alcatel - Thales 3-5

A novel quantum dot amplifier design is

compared to an optimized flared geome-

try. Measurements revealed enhancement in

beam quality in terms of M2 and coupling.

This design exhibited increased gain by a fac-

Semiconductor Optical Amplifier

Quality and Optical Gain

Lab, Palaiseau, France

CB-4: Ultrafast Semiconductor

8:30 - 10:00

United Kingdom

CB-4.1 TUE

Lasers II

•L. Drzewietzki¹, S. Breuer¹, M. Rossetti², T. Xu², P. Bardella², H. Simos³, C. Mesaritakis³, M. Ruiz⁴, I. Krestnikov⁵, D. Livshits⁵, M. Krakowski⁴, D. Syvridis³, I. Montrosset², E. Rafailov⁶, and W. Elsäßer¹; ¹Technische Universität Darmstadt, Darmstadt, Germany; ²Politecnico di Torino, Torino, Italy; ³National and Kapodistrian University of Athens, Athens, Greece; ⁴Alcatel-Thales III-V Lab, Palaiseau Cedex, France; ⁵Innolume GmbH, Dortmund, Germany; ⁶University of Dundee, Dundee, United Kingdom Generation of ultra-short pulses by a modelocked monolithic tapered QD laser and tapered QD SOA yielding a peak-power of 34W with a pulse width of 1.62ps at a repetition rate of 16 GHz is demonstrated.

CM-3/LIM.2 TUE (Invited)

Delocalization of focused intense ultrashort laser pulses in air and transparent solids

•V. Konov, V. Kononenko, S. Klimentov, and P. Pivovarov; General Physics Institute, Moscow, Russia

9:00 CB-4.3 TUE

9:00

Passively mode-locked red VECSEL

•A. Härkönen, S. Ranta, T. Leinonen, J. lyytikäinen, and M. Guina; Optoelectronics Research Centre, Tampere University of Technology, Tampere, Finland We demonstrate a passively SESAM mode-

ROOM 14a

8:30 - 10:00

IB-2: Integrated Ouantum Photonics and Simulation

Chair: Andreas Poppe, Austrian Institute of Technology, Vienna, Austria

IB-2.1 TUE (Invited)

Quantum simulation with integrated photonics

•F. Sciarrino; Sapienza Università di Roma, Rome, Italy

Integrated photonic circuits with three dimensional geometries, realized with ultrafast laser writing, have a strong potential to perform quantum information processing. By adopting such approach we report several experiments of quantum simulation.

IB-2.2 TUE

Anderson localization of bosonic and fermionic two-particle systems with integrated optics

•L. Sansoni¹, F. Sciarrino^{1,2}, P. Mataloni^{1,2} A. Crespi^{3,4}, R. Osellame^{3,4}, R. Ramponi^{3,4}, V. Giovannetti⁵, and R. Fazio^{5,6}; ¹Dipartimento di Fisica, Sapienza Università di Roma, Roma, Italy; ²Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (INO-CNR), Firenze, Italy; ³Istituto di Fotonica e Nanotecnologie, Con-

ROOM 14b

8:30 - 10:00 CA-5: Yb-Doped Thin Disk Lasers Chair: Evgeni Sorokin, Technical University, Vienna, Austria

CA-5.1 TUE

8:30

9:00

Towards high average output power and short pulse duration of SESAM modelocked thin disk lasers

•C. Schriber¹, C. Saraceno¹, F. Emaury¹, M. Golling¹, K. Beil², C. Krankel^{2,3}, T. Südmeyer^{1,4}, G. Huber^{2,3}, and U. Keller¹; ¹ÉTH Zürich, Zurich, Switzerland; ²Universität Hamburg, Hamburg, Germany; ³The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany; ⁴University of Neuchâtel, Neuchâtel, Switzerland We explore the pulse duration limits of high-power SESAM modelocked thin disk lasers based on Yb-doped sesquioxides. We achieve 25 W and 185 fs with Yb:Lu2O3. The novel broadband gain material Yb:(Sc,Y,Lu)2O3 enables 101-fs pulses.

CA-5.2 TUE

Yb:CALGO thin-disk femtosecond oscillator

S. Ricaud^{1,5}, A. Jaffres², K. Wentsch³, A. Suganuma², B. Viana², P. Loiseau², B. Weichelt³, M. Abdou Ahmed³, T. Graf³, D. Rytz⁴, C. Hönninger⁵, E. Mottay⁵, P. Georges¹, and •F. Druon¹; ¹Laboratoire Charles Fabry, Institut d'Optique, Palaiseau, France; ²Chimie-Paristech, Laboratoire de Chimie de la Matière Condensée de Paris. Paris, France; ³Institut für Strahlwerkzeuge, Stuttgart, Germany; ⁴FEE gmbh, Idar-Oberstein, Germany; ⁵Amplitude Systemes, Pessac, France We present the first results on high-power fs

oscillators based on Yb:CALGO in thin disk

architecture. We demonstrate 28 W, 1.3 uJ,

300 fs pulses and 20 W, 0.9 uJ, 197 fs pulses.

Yb:CaGdAlO₄ Thin Disk Laser with 70%

•K. Beil¹, B. Deppe^{1,2}, and C. Kränkel^{1,2};

¹Institute of Laser-Physics, Hamburg, Ger-

many; ²The Hamburg Centre for Ultrafast

Imaging, Hamburg, Germany

CA-5.3 TUE

Slope Efficiency

ROOM 21

8:30 - 10:00

8:30

8:45

9:00

IG-1: Synchronization Dynamics & **Opto-mechanical Self-organization** Chair: Thorsten Ackemann, University of Strathclyde, Glasgow, United Kingdom

IG-1.1 TUE (Invited)

Synchronization of N coupled dipoles: From Anderson to Dicke

•*R. Kaiser; INLN, Nice, France* Interferences in multiple scattering of light in dense media is expected to lead to Anderson localisation. We show that the synchronisation between the induced dipoles rather leads to extended Dicke super- and subradiance.

ROOM EINSTEIN

CE-4: Optical Fibres and Waveguides

Chair: Stefan Kück, Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

CE-4.1 TUE

8:30

8:30 - 10:00

Delivery of high-power nanosecond and picosecond pulses through a hollow-core Negative Curvature Fibre for micro-machining applications

•P. Jaworski¹, F. Yu², R.R.J. Maier¹, W.J. Wadsworth², T.A. Birks², J.C. Knight², J.D. Shephard¹, and D.P. Hand¹; ¹Applied Optics and Photonics group, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom; ²Centre for Photonics and Photonic Materials, Department of Physics, University of Bath, Bath, United Kingdom

High-power picosecond pulses, required for high-precision micro-machining in the IR spectral region with average power above 36W and energy of 92uJ were delivered through a hollow-core Negative Curvature Fibre and demonstrated in fibre-based laser micro-machining.

CE-4.2 TUE

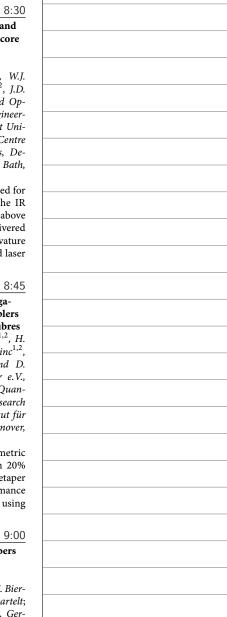
Experimental and numerical investigations on asymmetric fused fibre couplers consisting of different single-mode fibres •G. Pelegrina-Bonilla¹, K. Hausmann^{1,2}, H. Tünnermann^{1,2}, P. Weßels^{1,2}, H. Sayinc^{1,2}, U. Morgner^{1,2,3}, J. Neumann^{1,2}, and D. Kracht^{1,2}; ¹Laser Zentrum Hannover e.V., Hannover, Germany; ²Centre for Quantum Engineering and Space-Time Research - QUEST, Hannover, Germany; ³Institut für Quantenoptik, Leibniz Universität Hannover, Hannover, Germany

The maximum coupling in an asymmetric fused fibre coupler is improved from 20% to 85% by systematically tuning the pretaper length. The trends in coupler performance and coupling mechanism are analysed using GPU accelerated BPM.

CE-4.3 TUE

Birefringence optimization in PM fibers by specifically influencing the draw induced intrinsic stresses

•F. Just, R. Spittel, S. Grimm, S. Unger, J. Bierlich, M. Jäger, K. Schuster, and H. Bartelt; Institute of Photonic Technology, Jena, Ger-



NOTES

9:00

IG-1.2 TUE Spontaneous Opto-Mechanical Structures

in Cold Atomic Gases

•E. Tesio¹, G. Robb¹, T. Ackemann¹, P. Gomes¹, A. Arnold¹, W. Firth¹, G.-L. Oppo¹, G. Labeyrie², and R. Kaiser²; ¹University of Strathclyde, Glasgow, United Kingdom;

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ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
plied Mathematics, University of Crete, Heraclion, Greece; ² Department of Physics and Astronomy, San Francisco State University, San Francisco, United States; ³ CREOL/College of Optics & Photonics, University of Central Florida, Orlando, United States We propose a method for generating linear and nonlinear fundamental Bessel-like op- tical beams and higher-order vortex Bessel- like beams that follow arbitrary trajectories with a remarkably invariant main lobe. Our results are experimentally verified in free- space.	Quantum Electronics, Szeged, Hungary Novel reflector, nano-cavity-array and nano- cavity-deflector-array integrated SNSPD de- vices were designed, consisting of NbN pat- terns on silica substrate. It was shown that the coupled plasmonic resonances result in huge absorptance enhancement on long pe- riodic integrated devices.	Paris Sud, Orsay, France; ² L-Ness - Dipar- timento di Fisica del Politecnico di Milano, Como, Italy We report recent results obtained on Ge/SiGe quantum well optoelectronic device for high speed and low power consumption light modulation at telecom wavelengths.	It is shown that both in gases and transparent materials plasma, produced by leading part of intense fs-ps laser pulses, results in strong intensity limitation. Up to 99% of pulse en- ergy can be scattered outside focused beam caustic.	locked 675nm VECSEL generating 19 ps pulses at a repetition rate of ~1 GHz and 40 mW average power.
CD-8.3 TUE9:15Self-Organized Optical Waveguides Targeting Luminescent Objects in Photopolymers•T. Yoshimura and M. Seki; Tokyo University of Technology, Hachioji, Tokyo, Japan Self-organized waveguides targeting lumi- nescent objects in photopolymers was inves- tigated to find that, with increasing the write beam wavelength, tolerance of lateral mis- alignment increases while waveguides dif- fuse due to an increase in the write beam diffraction.	JSV-1.3 TUE (Invited)9:15Producing correlated photons using superconducting circuits•G. Johansson; Chalmers University of Tech- nology, Gothenburg, SwedenIn this talk, I will discuss the production of correlated pairs of microwave photons using superconducting circuits. Starting from the basic non-linear element, i.e. the Josephson junction, I'll cover both theory and recent experimental demonstrations.			CB-4.4 TUE9:15SESAM mode-locked red AlGaInP semiconductor disk laser emitting at 665 nmT. Schwarzbäck, R. Bek, H. Kahle, M. Jet- ter, and P. Michler; Institut für Halbleiterop- tik und Funktionelle Grenzflächen and Re- search Center SCOPE, University of Stuttgart, Stuttgart, GermanyWe present a mode-locked AlGaInP based red-emitting semiconductor disk laser. Us- ing a SESAM in a v-shaped cavity, a repeti- tion rate of 810 MHz with a FWHM pulse duration below 50 ps will be shown.
				CB-4.5 TUE9:30Mode-locked operation of a 2-umGaSb-based semiconductor disk laser
CD-8.4 TUE 9:30 Sharp Transition between ballistic and diffusive Transport in PT-symmetric Media • T. Eichelkraut, R. Heilmann, S. Stützer, S. Nicks and A. Samurit Institute of Applied		CI-2.4 TUE 9:30 Integrated Microwave Photonic Signal Processors in TriPleX Waveguide •L. Zhuang ¹ , A. Leinse ² , R. Heideman ² , P. van Dijk ³ , and C. Roeloffzen ^{1,3} ; ¹ University	$\frac{\text{CM-3/LIM.3 TUE (Invited)} 9:30}{\text{Three-Dimensional Laser Lithography:}}$ Finer Features Faster E. Waller ¹ , M. Renner ¹ , M. Thiel ² , A. Radke ² , and •G. von Freymann ^{1,2} ;	using a single-walled carbon-nanotube saturable absorber •S. Kaspar ¹ , M. Rattunde ¹ , J. Wagner ¹ , C. Schilling ¹ , W. Bronner ¹ , A. Bächle ¹ , S.Y. Choi ² , DI. Yeom ² , F. Rotermund ² , A. Schmidt ³ and U. Griehner ³ . ¹ Fraunhofer-

Nolte, and A. Szameit; Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany It is theoretically and experimentally demonstrated that in PT-symmetric media ballistic and diffusive transport coexist, but on different time scales. The transition between both regimes is rather sharp and depends only on the gain-loss ratio.

gains another two orders.

¹University of Kaiserslautern, Kaiser-

slautern, Germany; ²Nanoscribe GmbH,

SLM based three-dimensional laser lithography shrinks the voxels axial elongation

down to 1.9 by amplitude and phase modula-

tion. Multiple voxels reduce writing times by

one order of magnitude, scanning the beam

Eggenstein-Leopoldshafen, Germany

Schilling¹, W. Bronner¹, A. Bächle¹, S.Y. Choi², D.-I. Yeom², F. Rotermund², A. Schmidt³, and U. Griebner³; ¹Fraunhofer-Institute for Applied Solid State Physics, Freiburg, Germany; ²Department of Physics & Division of Energy and Systems Research, Ajou University, Suwon, Korea, South; ³Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany

A mode-locked semiconductor disk laser emitting around 2050 nm using a singlewalled carbon nanotubes based saturable absorber is demonstrated generating ps-pulses with average powers up to 50 mW at 1.1 GHz.

of Twente, Enschede, The Netherlands;

²LioniX BV, Enschede, The Netherlands;

Various complex RF functionalities have

been demonstrated on the integrated mi-

crowave photonic signal processors realized

in TriPleX waveguide technology, includ-

ing an integrated beamformer which en-

ables full Ku-band, squint-free, seamless-

beamsteering, satellite-tracking phased ar-

ray antennas.

³SATRAX BV, Enschede, The Netherlands

	CLEO©/El	rope-IQEC 2015 · Tuesday 14	+ IVIAY ZUIS	
ROOM 14a siglio Nazionale delle Ricerche (IFN-CNR), Milano, Italy; ⁴ Dipartimento di Fisica, Politecnico di Milano, Milano, Italy; ⁵ NEST, Scuola Normale Superiore and Istituto di Nanoscienze - CNR, Pisa, Italy; ⁶ Center for Quantum Technologies, National University of Singapore, Singapore, Singapore By exploiting polarization entanglement of photons to simulate different quantum statistics, we experimentally investigate the interplay between the Anderson localization	ROOM 14b We report on thin disk laser experiments using a 5.9% Yb-doped CaGdAlO ₄ . At 30 W of output power, 70% slope efficiency and 57% optical-to-optical efficiency represent the best values obtained with this material so far.	ROOM 21 ² Institut Non Linéaire de Nice, Sophia An- tipolis, France We investigate transverse self-organization due to opto-mechanical density redistribu- tions in cold gases. Spontaneous hexagon formation for the intensity and density dis- tributions is found in both a cavity and a sin- gle mirror feedback geometry.	<i>ROOM EINSTEIN</i> <i>many</i> The stress induced birefringence of polariza- tion maintaining fibers is significantly influ- enced by their preparation history (e.g. fiber drawing). Using tomographic stress mea- surements, we show that an additional ther- mal annealing improves the birefringence of panda fibers.	NOTES
interplay between the Anderson localization mechanism and the bosonic/fermionic sym- metry of the wave function on an integrated quantum walk. IB-2.3 TUE 9:15 Simulations of two particle dynamics employing dynamic coin control in 2D quantum walks A. Schreiber ^{1,2} , •F. Katzschmann ¹ , A. Gabris ³ , P.P. Rohde ¹ , K. Laiho ^{1,2} , M. Štefaňák ³ , V. Potocek ³ , C. Hamilton ³ , I. Jex ³ , and C. Silberhorn ¹ ; ¹ Applied Physics, University of Paderborn, Warburger Strasse 100, 33098 Paderborn, Germany; ² Max- Planck-Institute for the Science of Light, Günther-Scharowsky-Str. 1 / Bau 24, 91058 Erlangen, Germany; ³ Department of Physics, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Brehová 7, 115 19 Praha, Czech Republic We present the simulation of interacting bosonic particles, exhibiting bunching or anti-bunching behavior. Our approach uses a photonic realization of a 2D discrete-time quantum walk exploiting the dynamic access to the coin state. IB-2.4 TUE 9:30 On-chip quantum teleportation •B. Metcalf ¹ , N. Thomas-Peter ¹ , J. Spring ¹ , P. Humphreys ¹ , N. Langford ¹ , S. Kolthammer ¹ , M. Barbieri ¹ , XM. Jin ¹ , J. Gates ² , D. Kundys ² , B. Smith ¹ , P. Smith ² , and I. Walmsley ¹ ; ¹ Clarendon Laboraoty, Univer- sity of Oxford, Oxford, United Kingdom; ² Optoelectronics Research Centre, University of Southampton, Southampton, United King- dom We present results showing the first quan-	CA-5.4 TUE9:15 D9 W Yb:YA13(BO3)4 thin-disk oscillator•B. Weichelt ¹ , K.S. Wentsch ^{1,2} , A. Voss ¹ ,A. Gross ³ , V. Wesemann ³ , D. Rytz ³ , M.Abdou Ahmed ¹ , and T. Graf ¹ ; ¹ Institutfür Strahlwerkzeuge, Stuttgart, Ger-many; ² Graduate School of Excellenceadvanced Manufacturing Engineering,Stuttgart, Germany; ³ Forschungsinstitut fürmineralische und metallische Werkstoffe-Edelsteine/Edelmetalle-GmbH (FEE),Idar-Oberstein, GermanyFirst demonstration of an Yb:YAl3(BO3)4thin-disk laser operation achieving 109 Wof output power with 50.2% optical efficiency. Comprehensive high power characterization of the Yb:YAB disk with furtherinvestigations regarding fundamental modeand mode-locked operation.CM-5.5 TUE9:30 A Ty:CaF2 thin-disk IaserN , Abdou Ahmed ² , and T. Graf ² ; ¹ GraduateSchool of Excellence Manufacturing Engineering, Stuttgart, Germany; ² Institut fürFirst investigation of SESAM passivelymode-locked Yb:CaF2 thin-disk laser ispresented in this contribution. High powercapability was demonstrated by reaching20W of output power with an optical20W of output power with an optical	IG-1.3 TUE9:15Utra-Low-Threshold Optical Pattern Formation in a Cold Atomic VaporB.J. Schmittberger, J.A. Greenberg, and D.J. Gauthier; Duke University, Durham, North Carolina, United StatesWe observe ultra-low-threshold pattern for- mation in laser driven cold atoms. We re- port a new theoretical model accounting for our observed fifth-order nonlinearity and the role of Sisyphus cooling in lowering the threshold.Id=1.4 TUE (Invited)9:30Collective Dynamics in Optomechanical Arays9:30Warquardt; Institute for Theoretical Physics, University of Erlangen-Nuremberg, Erlangen, GermanyWe discuss the collective dynamics of op- tomechanical arrays, where localized optical and mechanical modes interact via radiation pressure. We predict a transition towards synchronized mechanical motion, both in the classical and the quantum regime.	25.25 25	
tum teleportation of a single qubit photonic state on an integrated photonic chip.		103	adiabatic passage as a simultaneous high and low-pass spectral filtering device for visible light.	

ROOM 1

CD-8.5 TUE

Artificial retinal glial-like waveguides for biomimetic volume optics

E. DelRe¹, A. Pierangelo², •J. Parravicini¹, S. Gentilini³, and A. Agranat⁴; ¹Department of Physics, University of Rome "La Sapienza", Rome, Italy; ²LPICM, Ecole Polytechnique, CNRS, Palaiseau, France; ³ISC-CNR, University of Rome "La Sapienza", Rome, Italy; ⁴Applied Physics Department, Hebrew University of Jerusalem, Jerusalem, Israel We demonstrate in paraelectric photorefractive crystals the use of three-dimensional funnel index of refraction patterns analogous to those of retinal Glial cells as support for tunable and multi-functional volume optical component miniaturization and integration.

JSV-1.4 TUE

9:45

Strongly Interacting Many Body Physics with Circuit Quantum Electrodynamics Networks

ROOM 4a

9:45

•M. Leib¹, L. Neumeier¹, F. Deppe², A. Marx², R. Gross², and M. Hartmann¹; ¹TU Munich, Munich, Germany; ²Walther-Meißner-Institut, Munich, Germany We propose experiments involving networks of either Josephson junction intersected superconducting resonators or superconducting resonators intersected by multiple Josephson junctions. Because of the non conserved number of excitations in these networks we concentrate on the driven dissipative regime.

ROOM 4b

9:45

CI-2.5 TUE 1D optical SUSY structures for selective

mode filtering •M. Heinrich¹, M.-A. Miri¹, S. Stützer², R. El-Ganainy³, S. Nolte², A. Szameit², and D.N. Christodoulides¹; ¹CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, United States; ²Institute of Applied Physics, Friedrich Schiller Universität, Jena, Germany; ³Department of Physics, University of Toronto, Toronto, Canada

We demonstrate that supersymmetry endows dissimilar optical structures with the same scattering and guided wave characteristics. We explore continuous supersymmetric one-dimensional settings, as well as SUSY photonic lattices, for designing versatile integrated filtering arrangements.

ROOM 13a

ROOM 13b

CB-4.6 TUE 9:45 Passively Modelocked VECSEL using a Single-Layer Graphene Saturable Absorber Mirror

•C.A. Zaugg¹, Z. Sun², D. Popa², S. Milana², T. Kulmala², R.S. Sundaram², V.J. Wittwer¹, M. Mangold¹, M. Golling¹, Y. Lee³, J.-H. Ahn³, A.C. Ferrari², and U. Keller¹; ¹ETH Zürich, Institute for Quantum Electronics, Department of Physics, Zürich, Switzerland; ²University of Cambridge, Department of Engineering, Cambridge, United Kingdom; ³Sungkyunkwan University, School of Advanced Materials Science and Engineering and Advanced Institute of Nanotechnology, Suwon, Korea, South

A single-layer graphene saturable absorber mirror (GSAM) was used to modelock an optically pumped VECSEL. Sub-ps pulses at a repetition rate of 1.49 GHz and an average output power of 17 mW were achieved.

10:30 - 12:30

PL-3: IQEC 2013 Plenary Talk and Awards Ceremony

Chair: Vahid Sandoghdar, Max Planck Institute for the Science of Light, Erlangen, Germanv

This session will feature a plenary talk presented by Alain Aspect, Institut d'Optique, France together with a series of Prize and Award Ceremonies as described hereunder:

PL-3.1 TUE (Plenary)

Coherent Back Scattering and Anderson Localization of Ultra Cold Atoms

•A. Aspect; Institut d'Optique, Palaiseau, France

Ultra cold atoms in a disordered potential created with a laser speckle are used to study Anderson Localization and Coherent Back Scattering.

Prize and Award Ceremonies 2013 Awards of the European Physical Society - Quantum **Electronics and Optics Division:**

Quantum Electronics Prizes

The 2013 Prize for fundamentals aspects of Quantum Electronics and Optics is awarded to Maciej Lewenstein, The Institute of Photonic Sciences (ICFO), Castelldefels (Barcelona), Catalan Institution for Research and Advanced Studies (ICREA), Barcelona, Spain. The Prize is awarded to Professor Lewenstein for outstanding contributions to several areas of theoretical quantum optics and to the use of quantum gases for quantum information and to attosecond optics.

The 2013 Prize for applied aspects of Quantum Electronics and Optics is awarded to Federico Capasso, Harvard University, Cambridge, MA, United States. The Prize is awarded to Professor Capasso for seminal contributions to the invention and demonstration of the quantum cascade laser.

ROOM 1

Fresnel Prizes

The 2013 Fresnel Prize for fundamental aspects is awarded to Yu-Ao Chen, National Laboratory for Physical Sciences at Microscale and Department of Modern Physics, University of Science and Technology of China, Hefei, P. R. China, for outstanding achievements in the fields of multiphoton entanglement, quantum communication, quantum computation and quantum simulation based on manipulation of photons and atoms.

The 2013 Fresnel Prize for applied aspects is awarded to Gerasimos Konstantatos. The Institute of Photonic Sciences (ICFO), Castelldefels (Barcelona), Spain, for salient contributions to the science and technology

of solution-processed quantum dots and their applications to a variety of optoelectronic devices with ground-breaking performances.

PhD Thesis Prizes

The 2013 Thesis Prizes for fundamental aspects are awarded to: Pascal Del'Haye, National Institute of Standards and Technology, Boulder, CO, USA and Thomas Monz, University of Innsbruck, Institute for Experimental Physics, Innsbruck, Austria.

The 2013 Thesis Prizes for applied aspects are awarded to: Florian Kaiser, UniversitÃl de Nice Sophia-Antipolis, Nice, France and Clara Saraceno, ETH Zurich, Zurich and University of NeuchÄćtel, NeuchÄćtel, Switzerland.

See EPS-QEOD Prize Ceremony Brochure.

EPS Emmy Noether Distinction for Women in Physics:

The 2013 EPS Emmy Noether Distinction for Women in Physics goes to Alessandra Gatti, Institute of Photonics and Nanotechnologies [IFN-CNR], Como, Italy. The distinction was awarded to Alessandra Gatti for her contributions to physics - the introduction of concepts of quantum images, spatial entanglement, and quantum entangled images. "These concepts contributed in a substantial way to the birth of a new field - quantum imaging" reads in the letter of nomination. She contributed as well to ghost-imaging that, as she proved in her work, can be realized even by using classically correlated beams. The selection committee took also into account Alessandra Gatti's exceptional organizational capabilities as a coordinator of the European project HIDEAS (High Dimensional Entangled Systems). Alexandra Gatti will receive her diploma during the Awards Ceremony.

$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Tuesday 14 May 2013

	CLEO®/EU	Irope-IQEC 2013 · Tuesday	14 May 2015	
ROOM 14aIB-2.5 TUE9:45Fabrication and characterisation of an integrated-optic controlled-phase gate•T. Meany ¹ , D. Biggerstaff ^{2,3} , A. Fedrizzi ^{2,3} , M. Broome ^{2,3} , M. Delanty ¹ , A. Gilchrist ⁴ , M. Steel ¹ , A. White ^{2,3} , and M. Withford ¹ ; ¹ Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS,) MQ Photonics Re- search Centre, Department of Physics and As- tronomy, Macquarie University, North Ryde, Australia; ² Centre for Engineered Quan- tum Systems(EQuS), School of Mathemat- ics and Physics, University of Queensland, Brisbane, Australia; ³ Centre for Quantum Computer, and Communication Technology, School of Mathematics and Physics, University of Queensland, Brisbane, Australia; ⁴ Dueensland, Brisbane, Australia; ⁴ Gus, Department of Physics and Astron- omy, Macquarie University, North Ryde, Australia; ⁴ We describe the fabrication and classical that the describe the fabrication and classical there is a stonom, produce accurate coupling ratios and extract the unitary of the circuit.	ROOM 14b CA-5.6 TUE 9:45 1-KHZ Pulsed Pumped Yb:YAG Thin Disk Regenerative Amplifier 9:45 7. Miura, M. Chyla, M. Smrž, S. Sankar, P. Severová, O. Novák, A. Endo, and T. Mocek; HiLASE Project, Institute of Physics of the ASCR, Prague, Czech Republic We have obtained 30-mJ output at 1-kHz from Yb:YAG thin disk regenerative amplifier. By applying the pulsed pumping method, we have improved the efficiency from 12% to 19%, and achieved 24-mJ output with Gaussian mode.	ROOM 21	14 May 2013 Presentation Presentation	
ROO	DM 1		NOTES	
Nee			NOTES	
The Herbert Walther Award:	OSA Fellow Member Recognition:			
The Optical Society (OSA) and the Deutsche Physikalische Gesellschaft (DPG) will present the 2013 Herbert Walther Award to H. Jeff Kimble of the <i>California Institute</i> <i>of Technology (Caltech), Pasadena, USA</i> for his pioneering experimental contribu- tions to quantum optics, cavity quantum electrodynamics, and quantum informa- tion science. The Herbert Walther Award honors Professor Herbert Walther for the seminal influence of his groundbreaking innovations in quantum optics and atomic physics and for his numerous contributions to the international scientific community. Established in 2007, the Award recognizes distinguished contributions in quantum op- tics and atomic physics as well as leadership in the international scientific community. Kimble will join the list of esteemed past recipients including Alain Aspect, Marlan O. Scully, Serge Haroche and David J. Wineland.	OSA Fellows will be recognized during the Awards Ceremony of CLEO/Europe-IQEC 2013. Philip Russell, OSA 2013 Vice Pres- ident, will recognize six scientists as "OSA Fellows". The distinction will go to: Thorsten Ackemann, University of Strath- clyde, UK Christoph Harder, Harder & Partner GmbH, Switzerland Martti Kauranen, Tampere University of Technology, Finland Brian W. Pogue, Dartmouth College, USA Markus Pollnau, University of Twente, The Netherlands Monika Ritsch-Marte, Innsbruck Medical University, Austria			
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		ulope-lQLC 2013 · luesday 14	101ay 2013	
ROOM 1	ROOM 4a	ROOM 4b	ROOM 11	ROOM 13a
14:00 - 15:30	14:00 - 15:30	14:00 - 15:30	14:00 - 15:45	14:00 - 15:30
CD-9: UV - Sources	IC-1: Atomic Quantum Simulators	CL-5: Microscopic and Sensing	CH-2: Novel Optical Sensing	TF-1/LIM: Fibre and Solid State
Chair: Luc Bergé, CEA, Arpajon, France	Chair: Holger Müller, University of Califonia,	Technologies	Systems	Lasers: a Comparison from an
	Berkeley, United States	Chair: Jürgen Popp, Friedrich-Schiller Uni-	Chair: Tomasz Nasilowski, Military Univer-	Industrial Point of View I (Session
		versity, Jena, Germany	sity of Technology, Warsaw, Poland	jointly held with LIM)
				Chair: Michael Schmidt, University of Erlan-
				gen, Erlangen, Germany
CD-9.1 TUE 14:00	IC-1.1 TUE (Keynote) 14:00	CL-5.1 TUE 14:00	CH-2.1 TUE 14:00	TF-1/LIM.1 TUE (Tech Focus) 14:00
Tunable fiber-laser-based picosecond	Quantum Simulations using Ultracold	Towards endoscopes with no distal optics	Optical Cavity-Enhanced Surface	Next Generation of Ultra-High Brightness
source for the ultraviolet	Atoms	• <i>E.R.</i> Andresen ¹ , <i>G.</i> Bouwmans ² , <i>S.</i>	Plasmon Resonance refractive index	Direct Diode Lasers
•C.K. Suddapalli ¹ , G.K. Samanta ² , A. A ² ,	•I. Bloch; Max Planck Institute of Quan-	Monneret ¹ , and H. Rigneault ¹ ; ¹ Institut	sensing	•J. Liebowitz, R. Huang, B. Chann, J. Burgess,
and M. Ebrahim-Zadeh ^{1,3} ; ¹ ICFO-The	tum Optics, Garching, Germany; Ludwig-	Fresnel, CNRS, Aix-Marseille Université,	•A. Giorgini ¹ , S. Avino ¹ , P. Malara ¹ , G.	M. Kaiman, R. Overman, and P. Tayebati;
Institute of Photonic Sciences, Barcelona,	Maximilians University, Munich, Germany	École Centrale Marseille, Marseille, France;	Gagliardi ¹ , M. Casalino ³ , M. Iodice ³ , G.	TeraDiode, Wilmington, United States
Spain; ² Theoretical Physics Division, Physical	Ultracold quantum gases offer remarkable	² IRCICA USR3380 - PhLAM UMR8523,	Coppola ³ , P. Adam ⁴ , J. Homola ⁴ , and P. De	Wavelength beam combining allows use of
Research Laboratory, Ahmedabad, India;	opportunities for probing and controlling	Université Lille 1, Villeneuve d'Ascq, France	Natale ² ; ¹ Istituto Nazionale di Ottica (INO)-	direct diode lasers for steel cutting and key-
³ Institucio Catalana de Recerca i Estudis	quantum matter. In my talk I will discuss	We report a step towards lens-less scanning	CNR, Napoli, Italy; ² Istituto Nazionale di Ot-	hole welding, traditionally performed by
Avancats (ICREA), Passeig Lluis Companys	highlights and future perspectives of this in-	endomicroscopy. A fiber bundle relays a	tica (INO)-CNR, Firenze, Italy; ³ Istituto per	multi-kilowatt CO2, fiber, and disk lasers.
23, Barcelona, Spain	terdisciplinary research field.	shaped wavefront, resulting in focusing at	la Microelettronica e Microsistemi (IMM)-	This innovation lowers laser cost in these ap-
We report a picosecond UV source at 240-		the distal end without distal optics. Video-	CNR, Napoli, Italy; ⁴ Institute of Photonics	plications.
MHz tunable across 316-339 nm based		rate imaging is achieved by galvanometric scanning through the bundle.	and Electronics, Academy of Sciences of the Czech Republic, Prague, Czech Republic	
on intracavity frequency doubling of fiber- laser-green-pumped MgO:sPPLT OPO in		scanning through the bundle.	A new approach to SPR-based sensing is pre-	
BiB3O6, providing 30 mW of average power			sented here. An SPR sensor, realized with	
at 334.48 nm.			a typical Kretschmann configuration, is in-	
CD-9.2 TUE 14:15		CL-5.2 TUE 14:15	tegrated in an optical cavity resonator. Re-	
Direct Low-Harmonic Generation in Gas		Quantitative phase noise in two color low	fractive index variations are measured by a	
at MHz Repetition Rate		coherence Digital Holographic	cavity-ring-down technique.	
•L. Petraviciute - Lötscher ^{1,2} , W.		Microscope	CH-2.2 TUE 14:15	
Schneider ^{1,2} , P. Rußbüldt ³ , B. Gronloh ⁴ ,		•Z. Monemhaghdoust ¹ , F. Montfort ^{1,2} , Y.	A broadband cavity ring-down	
HD. Hoffmann ³ , M.F. Kling ¹ , and		Emery ² , C. Depeursinge ^{2,3} , and C. Moser ¹ ;	spectrometer for the near infrared	
A. Apolonski ^{1,2} ; ¹ Max-Planck-Institut		¹ <i>EPFL</i> , <i>Laboratory of Applied Photonics De-</i>	•K. Salffner, M. Böhm, O. Reich, and HG.	
für Quantenoptik, Garching, Germany; ² Ludwig-Maximilians-Universität München,		vices, Lausanne, Switzerland; ² Lyncée Tec SA, Lausanne, Switzerland; ³ EPFL, Labora-	Löhmannsröben; University of Potsdam, In-	
Garching, Germany; ³ Fraunhofer-Institut für		tory of Applied Optics, Lausanne, Switzer-	stitute of Chemistry, Physical Chemistry, in- noFSPEC, Potsdam, Germany	
Lasertechnik, Aachen, Germany; ⁴ Lehrstuhl		land	We report on a cavity ring-down spectrome-	
für Lasertechnik, RWTH Aachen University,		A Volume Diffractive Optical Element	ter based on a near-infrared broadband light	
Aachen, Germany		(VDOE) is placed in the reference arm of an	source. First successful measurements of the	
Extreme ultraviolet radiation was generated		off-axis short coherence DHM. This enables	ring-down signal of a cavity filled with car-	
by a frequency doubled (515nm) Yb:YAG		nanometric-resolution surface topogra-	bon dioxide have been performed.	
Innoslab amplifier. High-energy (240W)		phy in short coherence and high-speed		
amplifier without chirped pulse amplifica-		vertical scanning, through field of view		
tion and a nonlinear pulse compression (600fs pulse duration) was utilized for har-		enlargement.		
monic generation.				
0				
CD-9.3 TUE 14:30		CL-5.3 TUE 14:30	CH-2.3 TUE 14:30	TF-1/LIM.2 TUE (Tech Focus) 14:30
Stable, continuous-wave,		Completely background free broadband	Bragg Wavelength Sensitivity of Higher	Applications and Market Segments for
fiber-laser-based, ultraviolet generation		coherent anti-Stokes Raman scattering	Order Modes to Temperature and Strain	Ultra-High Brightness Direct Diode
in BiB3O6		spectroscopy	in Highly Birefringent Microstructured	Lasers
•K. Devi ¹ , S. Chaitanya Kumar ¹ , and M. Ebrahim-Zadeh ^{1,2} ; ¹ ICFO-Institut de Cien-		•X. Liu ^{1,2} , H. Niu ² , W. Liu ² , D. Chen ² , B. Zhou ¹ , and M. Bache ¹ ; ¹ Technical Univer-	Fibers •T. Tenderenda ^{1,2} , M. Murawski ^{1,2} , M.	•W. Gries, S. Heinemann, H. Fritsche, and W. Süntitz, Direct Photonics, Industrias, CarbH
<i>Ebrahim-Zaden</i> ; ICFO-Institut de Cien- cies Fotoniques, Barcelona, Spain; ² Institucio		<i>Zhou</i> , and M. Bache; <i>Iechnical Univer-</i> sity of Denmark, DTU Fotonik, Department	•1. Ienaerenaa ⁷ , M. Murawski ⁷ , M. Szymanski ^{1,2} , M. Becker ³ , M. Rothhardt ³ ,	Süptitz; Directphotonics Industries GmbH, Berlin, Germany
ener i storingwos, Durcesonu, opuni, montuelo		106	<i>communica</i> , <i>in</i> . <i>Donot</i> , <i>in</i> . <i>Rommunu</i> ,	Denin, Germany

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CLEO [®] /Europe-IQEC	2013 ·	Tuesday	14 May	2013
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ROOM 13b	ROOM 14a	ROOM 14b	ROOM 21
14:00 - 15:30	14:00 - 15:30	14:00 - 15:30	14:00 - 15:30
CB-5: Dynamics and Chaos in Semiconductor <i>Chair: Pascal Landais, Dublin City Univer-</i> <i>sity, Dublin, Ireland</i>	IB-3: QIP with Light and Matter Chair: Thomas Symul, Australian National University, Canberra, Australia	CA-6: Ultrafast Solid-State Lasers Chair: Evgeni Sorokin, Technical University of Vienna, Vienna, Austria	CG-1: Ionization Dynamics Chair: Markus Kitzler, Technical University, Vienna, Austria
CB-5.1 TUE 14:00	IB-3.1 TUE 14:00	CA-6.1 TUE (Invited) 14:00	CG-1.1 TUE 14:00
Nonequilibrium Laser Dynamics of Quantum-Dot Lasers with Optical Feedback and Injection •B. Lingnau ¹ , W. Chow ² , E. Schöll ¹ , and K. Lüdge ¹ ; ¹ Institut für Theoretische Physik, TU Berlin, Berlin, Germany; ² Sandia National Laboratories, Albuquerque, United States Due to the nonequilibrium between reso- nant and off-resonant states in QD lasers, the α -factor will inaccurately describe their dy- namics. Using a more elaborate model, we predict new interesting dynamics in optical injection and feedback setups.	Heralded photonic interaction between distant single ions •M. Schug ¹ , J. Huwer ^{1,2} , C. Kurz ¹ , P. Müller ¹ , and J. Eschner ¹ ; ¹ Universität des Saarlandes, Saarbrücken, Germany; ² ICFO - Institut de Ciences Fotoniques, Barcelona, Spain We establish photonic interaction between two distant single calcium ions. Triggered single photons with controlled temporal shape are released in the sender ion; their ab- sorption by the receiver ion is detected em- ploying a quantum-jump scheme.	Carbon Nanotube and Graphene Saturable Absorbers: A New Generic Mode-Locking Technology? •F. Rotermund; Ajou University, Suwon, Ko- rea, South Saturable absorbers based on carbon nanos- tructures such as carbon nanotubes and graphene are successfully used for mode- locking of a variety of ultrafast bulk solid- state lasers. Recent progress in such novel mode-locking devices will be presented.	 Tunneling Time in Ultrafast Science is Real and Probabilistic •L. Gallmann, A. Landsman, M. Weger, J. Maurer, R. Boge, A. Ludwig, S. Heuser, C. Cirelli, and U. Keller; Department of Physics, Institute of Quantum Electronics, ETH Zurich, Zurich, Switzerland We present an experimental approach and results of an angular streaking experiment with elliptically polarized intense few-cycle laser pulses that indicate a real tunneling time in tunnel ionization for the first time.
CB-5.2 TUE 14:15	IB-3.2 TUE 14:15		CG-1.2 TUE 14:15
 Polarization Chaos from a Free-Running Quantum Dot Laser Diode M. Virte^{1,2}, K. Panajotov^{2,3}, H. Thienpont², and M. Sciamanna¹; ¹Optel Research Group and LMOPS (Laboratoire Matériaux Op- tiques, Photoniques et Systèmes) EA-4423, 	Teleportation of the polarization state of a coherent light pulse onto a single atom •N. Ortegel ¹ , D. Burchardt ¹ , R. Garthoff ¹ , J. Hofmann ¹ , M. Krug ¹ , W. Rosenfeld ^{1,2} , and H. Weinfurter ^{1,2} ; ¹ Fakultät für Physik, Ludwig-Maximilians Universität München,		Measurement of Attosecond Photo-ionization Delay in Xenon •A. Verhoef ¹ , A. Mitrofanov ¹ , M. Krikunova ^{2,3} , N. Kabachnik ^{4,5} , M. Drescher ² , and A. Baltuska ¹ ; ¹ Institut für Photonik, Technische Universität Wien,

Polarization (**Ouantum Do**

•M. Virte^{1,2}, kand M. Sciam and LMOPS tiques, Photon Supélec - Université de Lorraine, Metz. France; ²Brussels Photonic Team, Department of Applied Physics and Photonics (B-PHOT TONA), Vrije Universiteit Brussels, Brussels, Belgium; ³Institute of Solide State Physics, Sofia, Bulgaria

In this contribution, we demonstrate generation of polarization chaos, i.e. chaotic mode hopping between two elliptically polarized states, in a free-running quantum dot vertical-cavity surface-emitting laser and provide a theoretical framework of the phenomenon.

CB-5.3 TUE

Experimental distinction of weak and strong chaos in delay-coupled semiconductor lasers

•M.C. Soriano¹, X. Porte¹, D.A. Arroyo-Almanza², C.R. Mirasso¹, and I. Fischer¹; ¹IFISC (CSIC-UIB), Palma de Mallorca,

14:30

München, Germany; ²Max-Planck Institut für Quantenoptik, Garching, Germany We successfully performed quantum teleportation of the polarization state of an attenuated laser pulse onto the spin state of a single ⁸⁷Rb-atom trapped at a distance of 20 meters.

IB-3.3 TUE (Invited)

Trapped Ions for Simulating Interacting Spins

B. Lanyon, C. Hempel, P. Jurcevic, R. Blatt, and •C.F. Roos; Institute for Quantum Optics and Quantum Information, Innsbruck, Austria

CA-6.2 TUE

14:30

CW, Q-switched and mode-locking oscillations at 2.1 µm in novel Tm3+:Lu2O3 ceramics lasers

•O. Antipov¹, A. Novokov¹, A. Zinoviev¹, H. Yagi², A. Lagatsky³, W. Sibbett³, and E. Ivakin⁴; ¹Insitute of Applied Physics of Rus-

4:00

М. М. für Vien, Wien, Austria; ²Institut für Experimentalphysik, Universität Hamburg, Hamburg, Germany; ³Institut für Optik und Atomare Physik, Technische Universität Berlin, Berlin, Germany; ⁴Institute of Nuclear Physics, Moscow State University, Moscow, Russia; ⁵European XFEL GmbH, Hamburg, Germanv

We present first results of simultaneous attosecond streaking measurements of shakeup electrons and Auger electrons emitted from xenon. The spectral overlap of the electronic wavepackets allows for reliable reconstruction of the relative phases.

14:30

CG-1.3 TUE (Invited)

Looking Inside the Recollision Process D. Shafir¹, H. Soifer¹, B.D. Bruner¹, M. Dagan¹, Y. Mairesse², C. Vozzi³, S. Stagira³, S. Patchkovskii⁴, M.Y. Ivanov^{5,6}, O. Smirnova⁶, and •N. Dudovich¹; ¹Weizmann Institute of Science, Rehovot, Israel; ²CELIA

ROOM EINSTEIN

14:00 - 15:30

CE-5: Optical Metamaterials and Plasmonics

Chair: Regine Frank, Institut für Theoretische Physik, Tübingen, Germany

14:00

14:15

CE-5.1 TUE

Electrically Controlled Liquid Crystal Plasmonic Metamaterials

•O. Buchnev¹, J.-Y. Ou¹, M. Kaczmarek², N.I. Zhelude $v^{1,3}$, and V.A. Fedoto v^1 ; ¹Optoelectronics Research Centre and Centre for Nanostructured Photonic Metamaterials, University of Southampton, Southampton, United Kingdom; ²School of Physics and Astronomy, University of Southampton, Southampton, United Kingdom; ³Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore, Singapore

We experimentally demonstrate highcontrast electrical modulation of near-IR spectra of plasmonic metamaterials loaded with liquid crystals. That was achieved engaging volume and, for the first time, in-plane switching modes in the resulting plasmonic hybrid devices

CE-5.2 TUE

Optical Magnetism in all-dielectric Metamaterials

J. Zhang¹, J.-Y. Ou¹, •K.F. MacDonald¹, and N.I. Zheludev^{1,2}; ¹University of Southampton, Southampton, United Kingdom; ²Nanyang Technological University, Singapore, Singapore

We present the first experimental demonstration of a new mechanism to achieve visible and near-infrared magnetic resonances in purely dielectric metamaterials, realized through coupling between pairs of closely spaced, geometrically dissimilar dielectric rods.

CE-5.3 TUE (Invited) 14:30

Optical Gain in Metamaterials and Plasmonic Systems: from Loss **Compensation to Stimulated Emission** •M.A. Noginov; Center for Materials Research, Norfolk State University, Norfolk, VA, United States

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14:30

CLEOR/Europa IOEC 2013, Tuesday 14 May 2013

	CLEO®/E	urope-IQEC 2013 · Tuesday 14	+ May 2013	
ROOM 1	ROOM 4a	ROOM 4b	ROOM 11	ROOM 13a
Catalana de Recerca i Estudis Avancats (ICREA), Barcelona, Spain We report stable cw UV generation in single- pass configuration based on sum-frequency mixing of 1064nm and 532nm radiations for the first time, in BIBO, providing >68mW of UV power with frequency deviation <437kHz over >2.5hrs.		Dept. of Photonics Engineering, DK-2800 Kgs. Lyngby, Denmark; ² Key Laboratory of Optoelectronic Devices and Systems of Min- istry of Education and Guangdong Province, Institute of Optoelectronics, Shenzhen Uni- versity, shenzhen, China, People's Republic of (PRC) We use iterative XFROG algorithm, first completely background free broadband co- herent anti-Stokes Raman scattering spec- troscopy.	H. Bartelt ³ , P. Mergo ⁴ , K. Poturaj ^{2,4} , M. Makara ⁴ , K. Skorupski ^{2,4} , P. Marc ¹ , L. Jaroszewicz ¹ , and T. Nasilowski ^{1,2} ; ¹ Institute of Applied Physics, Military University of Technology, Warszawa, Poland; ² InPhoTech Ltd, Warszawa, Poland; ³ Institute of Pho- tonic Technology, Jena, Germany; ⁴ Maria Curie-Sklodowska University, Lublin, Poland In our paper we present the results of fiber Bragg grating inscription in a dual mode highly birefringent microstructured fiber, followed by an investigation of longitudinal strain and temperature sensitivities of the propagated modes.	Ultra-high brightness (UHB) direct diode laser systems with kW output power are on the verge of market introduction. This talk discusses applications and market dynamics of UHB direct diode lasers.
CD-9.4 TUE 14:45	IC-1.2 TUE 14:45	CL-5.4 TUE 14:45	CH-2.4 TUE 14:45	
Generation of sub-10 fs UV light by up-conversion of visible pulses A. Candeo, P. Farinello, •C. Manzoni, and G. Cerullo; IFN-CNR, Dipartimento di Fisica, Politecnico di Milano, Milan, Italy We introduce a simple system for the gener- ation of broadband UV pulses in the 320-380 nm spectral range by up-conversion of ultra- broadband visible pulses. UV pulse duration is ~8 fs, close to the transform-limit.	Quantum phases and transport of one-dimensional disordered bosons •L. Tanzi ¹ , C. D'Errico ^{1,2} , E. Lucioni ¹ , L. Gori ¹ , M. Inguscio ^{1,2} , and G. Modugno ^{1,2} ; ¹ LENS and Dipartimento di Fisica e As- tronomia, Università di Firenze, Firenze, Italy; ² Consiglio Nazionale delle Ricerche- INO, Firenze, Italy We experimentally study the equilibrium quantum phases and the dynamical trans- port properties of disordered interacting systems, by employing one dimensional ul- tracold bosons in optical lattices.	 Depolarization Sensing by Field Orthogonality Breaking •M. Alouini and J. Fade; Institut de Physique de Rennes, Université Rennes 1, CNRS, Rennes, France A new depolarization sensing modality based on the concept of field orthogonal- ity breaking and compatible with remote sensing through optical fibers is presented. First experimental validations pave way for high sensitivity realtime depolarization en- doscopic imaging. 	Using a Multimode Fiber as a High Resolution, Low Loss Spectrometer B. Redding, S. Popoff, and •H. Cao; Depart- ment of Applied Physics, New Haven, United States We demonstrate a high-resolution, low-loss spectrometer using simply a single mul- timode fiber and a camera. The input spectra are reconstructed from the speckle patterns generated by interference between fiber modes after calibrating the wavelength- dependent speckle.	
CD-9.5 TUE 15:00	IC-1.3 TUE (Invited) 15:00	CL-5.5 TUE 15:00	CH-2.5 TUE 15:00	TF-1/LIM.3 TUE (Tech Focus) 15:00
High-power UV Light Generation in Picosecond Pulse Trains •M. Martyanov ¹ , M. Divall ² , E. Gacheva ³ , C. Hessler ¹ , and V. Fedosseev ¹ ; ¹ European Organization for Nuclear Research (CERN), Geneva, Switzerland; ² Paul Scherrer Institute (PSI), Villigen, Switzerland; ³ Institute of Applied Physics (IAP RAS), Nizhny Novgorod, Russia The 4th harmonic generation of Nd:YLF photo-injector drive laser in the BBO crys-	Exploring cavity-mediated long-range interactions in a quantum gas •T. Donner ¹ , F. Brennecke ¹ , R. Mottl ¹ , R. Landig ¹ , K. Baumann ^{1,2} , and T. Esslinger ¹ ; ¹ Institute of Quantum Electronics, ETH Zurich, Zurich, Switzerland; ² Department of Physics, Stanford University, Stanford, Cali- fornia, United States We observe how cavity mediated long-range atom-atom interactions lead to a phase tran- sition in a quantum gas, and study the mode-	In situ visualization of collagen architecture in biological tissues using polarization-resolved Second Harmonic microscopy I. Gusachenko ¹ , G. Latour ¹ , Y. Goulam Houssen ¹ , V. Tran ² , JM. Allain ² , and •MC. Schanne-Klein ¹ ; ¹ Ecole Polytechnique - LOB (CNRS, Inserm), Palaiseau, France; ² Ecole Polytechnique - LMS (CNRS, Mines Paris- Tech), Palaiseau, France We implemented polarization-resolved SHG	 Application of a shaped, divergent Laser Beam for the optical Measurement of the Size and Density of ambient Particulate Matter •R. Schrobenhauser^{1,2}, R. Strzoda², A. Hartmann², M. Fleischer², and MC. Amann¹; ¹TU Munich, Munich, Germany; ²Siemens AG, Munich, Germany We present a new method to measure parti- cle size and mass based on a shaped, diver- gent laser beam using the inertia-dependent 	 The Power of Choice of Solid State Lasers for Successful Industrial Laser Applications K. Loeffler; TRUMPF Laser und Systemtechnik GmbH, Ditzingen, Germany The presentation will show on examples from successful laser applications the use and need for the different solid state laser resonator concepts. It will describe CW-high power as well as short pulse lasers in the ps / and ns range.

photo-injector drive laser in the BBO crystals was experimentally investigated for burst of 8 ps pulses with 300 W UV mean power within the 140 us burst sition in a quantum gas, and study the mode-softening of an excitation and the divergence of density fluctuations in this open system.

We implemented polarization-resolved SHG microscopy to probe the main orientation and the local disorder of collagen fibril assemblies in rat-tail tendons and human corneas. We successfully retrieved structural information in agreement with theoretical models.

gent laser beam using the inertia-dependent particle movement inside an optical mea-surement chamber based on three measurement steps.

ROOM 13b

Spain; ²Centro de Investigaciones en Optica, Leon, Mexico

We demonstrate the onset of strong and weak chaos in the dynamics of semiconductor lasers with delayed optical feedback (coupling). We provide guidelines for the identification and discuss the importance for synchronization-based applications.

CB-5.4 TUE

Fast Random Bit Generation Based on a Single Chaotic Semiconductor Ring Laser •R.M. Nguimdo¹, G. Verschaffelt¹, J. Danckaert¹, X. Xaveer Leijtens², J. Jeroen Bolk², and G. Van der Sande¹; ¹Applied Physics Research Group, APHY, Vrije Universiteit Brussel, Brussels, Belgium; ²COBRA Research Institute, Eindhoven University of Technology, Eindhoven, The Netherlands We numerically and experimentally show that a single chaotic semiconductor ring laser developing chaos with a bandwidth of about 2 GHz can generate true random bits with a bit rate up to 40 Gb/s.

14:45

15:00

CB-5.5 TUE

Experimental Criteria for High-Speed Random Bit Generation Using a Chaotic Semiconductor Laser

•N. Oliver¹, M.C. Soriano¹, D.W. Sukow², and I. Fischer¹; ¹Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC) UIB-CSIC, Palma de Mallorca, Spain; ²Department of Physics and Engineering, Washington and Lee University, Lexington, Virginia, United States

We implement an ultra fast random bit generator based on a chaotic semiconductor laser. In addition, we provide detailed insight into the interplay of dynamical properties, acquisition conditions and postprocessing using simple and robust methods.

ROOM 14a

Laser-manipulated strings of trapped ions

are an interesting system for implementing

quantum simulations of interacting spins. I

will present experiments with small ion crys-

tals and discuss the prospects of doing ex-

periments with long ion strings.

IB-3.4 TUE

Waveguide Lattices

Singapore, Singapore

Coherent Quantum Transport in

•R. Keil¹, A. Perez-Leija^{1,2}, A. Kay^{3,4}, H. Moya-Cessa^{2,5}, S. Nolte¹, L.-C. Kwek^{4,6},

B. Rodríguez-Lara⁵, A. Szameit¹, and D. Christodoulides²; ¹Institute of Applied

Physics, Abbe Center of Photonics, Friedrich-

Schiller-Universität Jena, Jena, Germany;

²CREOL, The College of Optics & Photonics, University of Central Florida, Orlando,

United States; ³Keble College, University of

Oxford, Oxford, United Kingdom; ⁴Centre

for Quantum Technologies, National Uni-

versity of Singapore, Singapore, Singapore;

⁵INAOE, Coordinacíon de Optica, Puebla,

Mexico; ⁶Institute of Advanced Studies

(IAS) and National Institute of Educa-

tion, Nanyang Technological University,

The coherent transport of quantum states

through a spin chain is emulated by classical

light evolution in a tailored array of coupled

waveguides. A fidelity of 84% is achieved

across 19 sites with full coherence.

ROOM 14b sian Academy of Science, Nizhny Novgorod,

Russia; ²Konoshima Chamical Co., Osaka,

Japan; ³ University of St Andrews, St Andrews,

St. Andrews, Japan; ⁴Insitute of Physics of Na-

The novel Tm:Lu2O3 ceramics lasers with

diode/laser pumping at 796 or 810 nm were

created and optimized for high efficiency

and high power oscillations at 2.03-2.1 μ m

in CW, active Q-switched and passive mode-

tional Academy of Science, Minsk, Belarus

14:45

15:00

- Université Bordeaux, Talence, France; ³Institute for Photonics and Nanotechnologies, Milano, Italy; ⁴National Research Council of Canada, Ontario, Canada; ⁵Imperial College London, London, United Kingdom; ⁶Max-Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany

ROOM 21

In this talk I will describe how by adding a weak perturbation allows us to probe both the ionization times and the recollision times in simple atomic systems.

ROOM EINSTEIN

We show that optical gain in metamaterials and plasmonic systems can conquer optical loss in metallic components and provide for a new functionality by enabling amplification and stimulated emission.

CA-6.3 TUE

locking regimes.

Femtosecond pulse generation with

Tm-doped sesquioxides •A.A. Lagatsky¹, P. Koopmann², O.L. Antipov³, C.T.A. Brown¹, G. Huber², and W. Sibbett¹; ¹School of Physics and Astronomy, University of St Andrews, St Andrews, United Kingdom; ²Institute of Laser-Physics, University of Hamburg, Hamburg, Germany; ³Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia

Recent progress in the development of Tmdoped sesquioxides femtosecond lasers in the 2-2.1 μ m spectral region is reported. In particular, 105-fs pulses are generated with Tm:LuScO₃ at 2020 nm using a SESAM mode-locking approach.

CA-6.4 TUE

15:00

Sub-70 fs Kerr-lens mode-locked Yb:CaF2 laser oscillator delivering up to 2.3 W

•P. Sévillano¹, G. Machinet¹, F. Guichard¹, R. Dubrasquet^{1,2}, P. Camy³, J.L. Doualan³, R. Moncorgé³, P. Georges⁴, F. Druon⁴, D. Descamps¹, and E. Cormier¹; ¹CELIA Université Bordeaux 1, Talence, France; ²Azur Light System, Talence, France; ³CIMAP, Caen, France; ⁴Laboratoire Charles Fabry, Palaiseau, France

By means of a high-brightness optical pumping scheme with a fiber laser, we demonstrate Kerr-lens mode locking with an Yb:CaF2 laser crystal. Stable 68 fs pulses are produced at an average power of 2.3 W.

CG-1.4 TUE

New features of strong-field ionization with low-frequency fields in the tunnelling regime

•J. Durá¹, N. Camus², A. Thai¹, A. Britz¹, M. Hemmer¹, M. Baudisch¹, A. Senftleben², J. Ullrich^{2,3}, R. Moshammer², and J. Biegert^{1,4}; ¹ICFO-Institut de Ciencies Fotoniques, Castelldefels, Spain; ²Max-Planck-Institut für Kernphysik, Heidelberg, Germany; ³Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany; ⁴ICREA-Institucio Catalana de Recerca i Estudis Avancats, Barcelona, Spain

We observe surprising low-energy features in the first 3D momentum measurement of mid-IR photoionization of Argon and Oxygen in the tunneling regime despite ponderomotive energies nearing 100 eV.

CE-5.4 TUE

15:00

Si-nanorod-based plasmonic

15:00

metamaterials:modeling and experiment •S. Peruch¹, J. Bouillard¹, D. O'Connor¹, W. Dickson¹, G. Wurtz¹, A. Zayats¹, X. Han², T. Akalin², and G. Larrieu³; ¹king's college london, london, United Kingdom;² IEMN CNRS UMR 8520, Lille 1 University, lille, France; ³. LAAS-CNRS, Toulouse University, toulouse, France

We propose a fast and efficient analytical model for modelling silicon based plasmonic metamaterials, with the possibility of engineering them in order to exploit the optical properties of Si for amplification and switching.

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	CLEO [®] /E	urope-IQEC 2013 · Tuesday 14	May 2013	
ROOM 1CD-9.6 TUE15:15High-power, narrow-width, high-repetition-rate, 5.9 eV light source using a passive optical cavity for laser-based photoelectron spectroscopyJ. Omachi ^{1,2} , K. Yoshioka ^{2,3} , and M. Kuwata-Gonokami ^{1,2,3} ; ¹ Photon Science (center, The University of Tokyo, Hongo, Bunkyo-ku, Tokyo, Japan; ² CREST, JST, Honcho, Kawaguchi, Saitama, Japan; ³ Department of Physics, The University of Tokyo, Hongo, Bunkyo-ku, Tokyo, Japan We demonstrated efficient generation of a high-repetition-rate, 0.34 meV linewidth, 5.9 eV light source from a 10 ps, 1 W Tisapphire oscillator by using a passive en- hancement cavity. This is ideal for high- resolution ARPES.	ROOM 4a	Arope-IQEC 2013 · Tuesday 14 ROOM 4b CL-5.6 TUE 15:15 Endoscopic polarimetric imaging system based on a spectrally encoded polarization states genetator • J. Vizet, J. Desroches, A. Barthélémy, J. Bre- vier, and D. Pagnoux; XLIM research in- stitute, Photonics department, UMR CNRS 7252, Limoges, France We describe a novel endoscopic polarimetric imaging device for early diagnosis of biolog- ical tissue diseases, in vivo in situ. Based on a spectrally encoded polarization state gen- erator, it allows rapid birefringence and de- polarization measurements.	ROOM 11CH-2.6 TUE15:15Phase-shifting interferometry to determine the absolute diameter of a silicon sphere using a frequency-tunable diode laser•X. Wu, Y. Li, H. Wei, and J. Zhang; State Key Lab of Precision Measurement Technology & Instruments, Department of Precision Instru- ment, Tsinghua University, Beijing, China, People's Republic of (PRC)A chain of temporal synthetic wavelengths is used to measure the absolute diameter of a silicon sphere with an accuracy of 3 nm in air, where the fractional interference phase is measured by phase-shifting interferometry.CH-2.7 TUE15:30RF-modulated optical pulses generated by non-resonant frequency-shifted feedback for Lidar-Radar velocimetryM. Nemuelli, J. Thévenin ¹ , L. Wang ¹ , and M. Brunelli; ¹ Institut de Physique de Rennes, Rennes, France; ² University of Twente, Enschede, The	ROOM 13a
ROOM 1 16:00 – 17:30 CD-10: Optical Devices for Data Processing Chair: Stefan Wabnitz, Università di Brescia, Brescia, Italy CD-10.1 TUE 16:00 Plasma column from laser filamentation in air as a virtual radio-frequency antenna	ROOM 4a 16:00 – 17:30 IC-2: Ultracold Atoms : Clocks, Spins and Lattices Chair: Tobias Donner, ETH, Zurich, Switzer- land IC-2.1 TUE 16:00 Particle and hole dynamics of ultracold Fermi gases in optical lattices	ROOM 4b 16:00 – 17:30 CL-6: Mesoscopic Devices Chair: Halina Rubinsztein-Dunlop, University of Queensland, Kenmore, Brisbane, Australia CL-6.1 TUE 16:00 Miniature Spectrometer and Beam Splitter for an Integrated Optical	¹ Institut de Physique de Rennes, Rennes,	ROOM 13b 16:00 – 17:30 CB-6: Advanced Structures Chair: Stefan Breuer, Technical University Darmstadt, Darmstadt, Germany CB-6.1 TUE 16:00 Integrated Optically Isolated Laser Source via Non-Reciprocal
•G. Point ¹ , Y. Brelet ¹ , A. Houard ¹ , J. Carbonnel ¹ , L. Arantchouk ² , B. Prade ¹ , YB. André ¹ , and A. Mysyrowicz ¹ ; ¹ Laboratoire d'Optique Appliquée, ENSTA Paris- Tech/Ecole Polytechnique/CNRS, Palaiseau, France; ² Laboratoire de Physique des Plas- mas, Ecole Polytechnique/CNRS, Palaiseau, France	•J. Heinze ¹ , J.S. Krauser ¹ , N. Fläschner ¹ , B. Hundl ¹ , S. Götze ¹ , A. Itin ^{1,2,3} , L. Mathey ^{1,2} , K. Sengstock ^{1,2} , and C. Becker ^{1,2} ; ¹ Institut für Laser-Physik, Universität Hamburg, Ham- burg, Germany; ² Zentrum für optische Quantentechnologien, Universität Hamburg, Hamburg, Germany; ³ Space Research Insti- tute, RAS, Moscow, Russia	Coherence Tomography System B.I. Akca ¹ , B. Považay ² , A. Alex ² , K. Wörhoff ¹ , R. de Ridder ¹ , W. Drexler ² , and •M. Pollnau ¹ ; ¹ Integrated Optical MicroSystems Group, MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ² Center for Medical Physics and Biomedical Engineering, Medical University	 Recent Developments in Fiber Lasers and their Applications M. Grupp; IPG Laser GmbH, Burbach, Germany Over the past few years fiber lasers gained a huge market share in all kind of industrial applications. Reason for this wide acceptance is the continuous development of 	Counter-Propagating Four-Wave Mixing •L. Meriggi ¹ , M. Simonetta ² , M. Soldo ² , G. Russo ² , M. Zanola ¹ , M.J. Strain ¹ , M. Sorel ¹ , and G. Giuliani ² ; ¹ University of Glasgow, Glasgow, United Kingdom; ² University of Pavia, Pavia, Italy An optically isolated laser source is pro-

We demonstrate the use of a plasma column created by femtosecond filamentation and heated by means of a high-voltage discharge We present the experimental realization of photoconductivity in ultracold fermions in an optical lattice, using lattice amplitude

Biomedical Engineering, Medical University of Vienna, Vienna, Austria

In this paper we present an important step toward a cheap, compact, and quasiceptance is the continuous development of specialized and adapted lasers suited for the requirements of the applications.

An optically isolated laser source is proposed based on two DFB lasers and a SOA, where non-reciprocal FWM occurs in the two counterpropagating directions. An iso-

ROOM 13b

CB-5.6 TUE

Photon Statistics of Quantum Dot Superluminescent Diodes at the Transition from Amplified Spontaneous Emission to Stimulated Emission

•S. Hartmann¹, A. Molitor¹, M. Blazek^{1,3}, and W. Elsäßer^{1,2}; ¹Institute of Applied Physics, Technische Universität Darmstadt, Darmstadt, Germany; ²Center of Smart Interfaces, Technische Universität Darmstadt, Darmstadt, Germany; ³EVONIK Industries AG, Hanau, Germany

We demonstrate the simultaneous tailoring of first and second order coherence properties of light emitted by a Quantum-Dot Superluminescent Diode by applying optical feedback. A continuous change from thermal to Poissonian photon statistics is observed.

ROOM 14a

IB-3.5 TUE

15:15

Experimental test of the robustness of the non-classicality of single photons

•T. Huber¹, A. Predojević¹, M. Ježek², D. Föger¹, G. Solomon³, R. Filip², and G. Weihs¹; ¹Institut für Experimentalphysik, Universität Innsbruck, Innsbruck, Austria; ²Department of Optics, Palacký University, Olomouc, Czech Republic; ³Joint Quantum Institute, National Institute of Standards and Technology and University of Maryland, Gaithersburg, United States

We performed a measurement revealing the goodness of the non-classicality of single photons in a lossy or noisy environment using a semiconductor quantum dot as singlephoton emitter.

ROOM 14b

CA-6.5 TUE

15:15

21.4 kW peak power from a gigahertz multimode-diode-pumped solid-state laser with carrier envelope offset frequency detection

•A. Klenner, M. Golling, and U. Keller; Department of Physics, Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland A gigahertz multimode-diode-pumped Yb-doped solid-state laser delivers 121 fs pulses at an average power of 3.33 W, resulting in 21.4 kW peak power. The carrier envelope offset frequency was detected with >30 dB S/N ratio.

ROOM 21

Attosecond Spatial Control of Ionizing

L. Zhang¹, $\bullet X$. Xie¹, S. Roither¹, D.

Kartashov¹, M. Schöffler¹, D. Shafir^{2,3}, P.

Corkum³, A. Baltuška¹, A. Staudte³, and

M. Kitzler¹; ¹Photonics Institute, Vienna

University of Technology, Vienna, Austria;

²Joint Laboratory for Attosecond Science

of the National Research Council and the

University of Ottawa, Ottawa, Canada;

³Department of Physics of Complex Systems,

Weizmann Institute of Science, Rehovot,

We demonstrate experimentally spatial

control of electron wavepackets released

from atoms with two-color orthogonal laser pulses. It is shown that electron-electron

correlation in nonsequential double ionization can be determined by the spatial field

15:15

CG-1.5 TUE

Israel

shape.

Electron Wave Packets

15:15

ROOM EINSTEIN

CE-5.5 TUE

15:15

Characterising Few and Single Nano-Antennas with Rotating Polarisation

•G. Lilley, T. Moldaschl, and K. Unterrainer; Photonics Institute, Vienna University of Technology, Vienna, Austria

In this work, we present a novel technique to efficiently and quantitatively characterize the extinction cross-section of few and single nano-antennas by using laser light with a rotating polarisation.

ROOM 14a

16:00 - 17:30

IB-4: Quantum Networking *Chair: Christian Roos, University of Inns-*

bruck, Innsbruck, Austria

IB-4.1 TUE (Invited)

Quantum Networks Enabled by Quantum Optics

•H.J. Kimble; California Institute of Technology, Pasadena, United States

An overview of quantum networks is presented from formal to physical. Research at Caltech is described for the realization of lithographic quantum optical networks composed of single atoms that interact strongly by way of single photons.

ROOM 14b

16:00 - 17:30

CA-7: High Energy Scaling Concepts

Chair: Frédéric Druon, Institut d'Optique, Palaiseau, France

16:00

CA-7.1 TUE

16:00

Cryogenically Cooled End Pumped Yb:YAG Zigzag Slab Laser

•M. Ganija, D. Ottaway, P. Veitch, and J. Munch; School of Chemistry and Physics, Adelaide, Australia

We report a 210W, cryogenically cooled end pumped zigzag slab with diffraction limited beam quality. We discuss the challenges associated with cooling a crystal from room to cryogenic temperatures in a robust laser head design.

ROOM 21

16:00 - 17:30

CG-2: Ultrafast Dynamics in Attosecond Time Scale

Chair: Mauro Nisoli, Polytecnico Milano, Milan, Italy

CG-2.1 TUE (Tutorial) 16:00

Attosecond Science and Technology

•P. Corkum; Joint Attosecond Science Laboratory, University of Ottawa and National Research Council of Canada, Ottawa, Canada Describes the physics and technology of attosecond pulse generation and characterization, both in space and in time. It then generalizes from characterizing attosecond pulses to imaging valence electrons and their changes during a photochemical reaction.

ROOM EINSTEIN

16:00 - 17:30

CE-6: Laser Materials Chair: Stefan Kück, Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

16:00

CE-6.1 TUE (Invited)

Engineering of refractive index and doping level of KY(1-x-y-z)Gd(x)Lu(y) Yb(z)(WO4)2 layers for a cladding-sidepumped channel waveguide laser

S. Aravazhi¹, D. Geskus¹, K. van Dalfsen¹, S.A. Vázquez-Córdova¹, C. Grivas^{1,2}, U. Griebner³, S.M. García-Blanco¹, and •M. Pollnau¹; ¹University of Twente, Enschede, The Netherlands; ²On leave from: University of Southampton, Southampton, United Kingdom; ³Max Born Institute, Berlin, Germany Growth of single-crystalline KY(1-x-yz)Gd(x)Lu(y)Yb(z)(WO4)2 layers with

NOTES

CLEO®/Europe-IQEC 2013 · Tuesday 14 May 2013					
ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b	
as an effective radio-frequency emitting an- tenna.	modulation. The observed dynamics are reminiscent of a nonlinear pendulum and we find excellent agreement with semiclassical calculations.	maintenance-free spectral-domain OCT system by integrating its central compo- nents, the beam splitter and spectrometer, on a silicon chip.		lation of 20dB is experimentally demon- strated.	
CD-10.2 TUE16:15Phase-sensitive amplification in a $\chi^{(3)}$ photonic chip.J. Schröder ¹ , R. Neo ¹ , Y. Paquot ¹ , D.Y. Choi ² , S. Madden ² , B. Luther-Davies ² ,and B.J. Eggleton ¹ ; ¹ Centre for UltrahighBandwidth Devices (CUDOS), The School ofPhysics, The University of Sydney, Sydney,Australia; ² CUDOS, Laser Physics Centre,Research School of Physics and Engineering,Australian National University, Canberra,AustraliaWe demonstrate phase-sensitive amplification inside a $\chi^{(3)}$ chalcogenide waveguide.Our experiment is based on an elegant spectral slicing scheme using a spectral pulse- shaper. We achieve 10 dB of phase-sensitive gain.	IC-2.2 TUE 16:15 Dobserving the onset of effective mass of a Bose-Einstein condensate in an optical lattice •R. Chang, S. Potnis, R. Ramos, C. Zhuang, M. Hallaji, A. Hayat, F. Duque-Gomez, J.E. Sipe, and A.M. Steinberg; Department of Physics and the Institute for Optical Sciences, University of Toronto, Toronto, Canada We subject a BEC in an optical lattice to an abruptly applied force, finding that while the effective mass is an accurate description at long timescales, the initial response is de- scribed by the bare mass.	 CL-6.2 TUE 16:15 Singlet Oxygen luminescence detection with a fibre-coupled superconducting nanowire single-photon detector •N. Gemmell¹, A. McCarthy¹, B. Liu², M. Tanner¹, S. Dorenbos³, V. Zwiller³, M. Patterson², G. Buller¹, B. Wilson⁴, and R. Hadfield⁵; ¹Heriot Watt University, Edinburgh, United Kingdom; ²Juravinski Cancer Centre and McMaster University, Hamilton, Canada; ³Kalvi Institute of Nanoscience, Delft University of Technology, Delft, The Netherlands; ⁴Ontario Cancer Institute & University of Glasgow, Glasgow, United Kingdom We report on the direct monitoring of singlet oxygen luminescence at 1270 nm wavelength using a fibre coupled superconducting nanowire single photon detector. These results open the pathway to practical dose monitoring in photodynamic therapy. 		CB-6.2 TUE 16:15 Switchable Multiwavelength Emission Switchable Multiwavelength Emission Semiconductor Ring Laser With Distribution of Semiconductor Ring Laser With National Filtered Feedback • N. Khoder ¹ , G. Verschaffelt ¹ , R.M. Nguindo ¹ , X. Leijtens ² , J. Bolk ² , and J. Danckaert ¹ ; ¹ Applied Physics research group, Vrije Universiteit Brussel, Brussels, Belgium; ² COBRA Research Institute, Eindhoven University of Technology, Eindhoven, The Netherlands We present experiments and numerical sim- ulations of a novel integrated approach is based on balancing gain differences between modes using on-chip filtered optical feed- back.	
CD-10.3 TUE (Invited)16:30High speed, high performance all-optical information processing utilizing nonlinear optical transients•D. Brunner, M.C. Soriano, C.R. Mirasso, and I. Fischer; Instituto de Física Interdisciplinar y Sistemas Complejos (IFISC), UIB, Palma de Mallorca, Spain Nonlinear transients can be utilized for in- formation processing systems. By opti- cally inducing transient states in a telecom- munication laser diode, we experimentally perform all-optical information processing, achieving data rates exceeding gigabyte per second	IC-2.3 TUE16:30Stern-Gerlach Interferometer on an Atom Chip•S. Machluf, Y. Japha, and R. Folman; Ben- Gurion University, Beer Sheva, IsraelWe theoretically propose and analyze, and experimentally demonstrate, the building blocks of a matter-wave beam-splitter based on magnetic field gradients, which can be used for freely propagating or trapped Bose- Einstein condensates or thermal ensembles.	CL-6.3 TUE16:30Low threshold microgoblet dye lasers for biosensing applications•S. Wiegele ¹ , T. Grossmann ¹ , T. Beck ¹ , J. Fischer ¹ , T. Wienhold ² , T. Mappes ^{2,3} , and H. Kalt ¹ ; ¹ Institute for Applied Physics, Karl- sruhe Institute for Technology, Karlsruhe, Germany; ² Institute of Microstructure Tech- nology, Karlsruhe Institute of Technology, Karlsruhe, Germany; ³ Carl Zeiss AG, Corpo- rate Research and Technology, Jena, Germany We report on goblet-shaped microcavity lasers consisting of dye-doped polymers showing thresholds as low as 0.5 nJ in air or and 1.6 nJ in water. Proof of principle ay	 TF-2/LIM.2 TUE (Tech Focus) 16:30 Ultrafast Solid State Laser with High Pulse Energy - New Applications •H. Amler, S. Sobolewski, and J. Thumbs; Photon Energy GmbH, Ottensoos, Germany Usually for marking applications ns-lasers are used. Since a new ps-laser source is avail- able with lower costs, new possibilities are opened up to use the advantages of this laser type also for marking applications. 	CB-6.3 TUE16:30Multiwavelength Laser Based on Superimposed Bragg Gratings on Multiquantum Well AlGaInAs-InP•A.D. Simard ¹ , M.J. Strain ² , V. Pusino ² , M. Sorel ² , and S. LaRochelle ¹ ; ¹ Centre d'optique, photonique et laser (COPL), Université Laval, Québec, Canada; ² Department of Electron- ics and Electrical Engineering, University of Glasgow, Glasgow, United Kingdom We demonstrate a novel multiwavelength laser structure based on superimposed Bragg gratings on multiquantum well AlGaInAs-InP. A passively mode locked ragine with a remotition prate tunable over	

IC-2.4 TUE

second.

Exploring quantum magnetism in a chromium Bose-Einstein Condensate

A. De Paz^{2,1}, A. Chotia^{1,2}, A. Sharma^{2,1}, E. Maréchal^{1,2}, P. Pedri^{2,1}, L. Vernac^{2,1}, B. Laburthe-Tolra^{1,2}, and •O. Gorcei $x^{2,1}$; ¹LPL, CNRS, UMR7538, Villetaneuse, France; ²Laboratoire de Physique des Lasers, Université Paris13, Sorbonne Paris Cité,

Queensland, Brisbane, Australia

and 1.6 nJ in water. Proof-of-principle ex-

periments show that these lasers are suitable

•J. Swaim¹, J. Knittel¹, and W. Bowen^{1,2};

¹Department of Physics, University of

Queensland, *Brisbane*, *Australia*; ²*Centre for*

Engineered Quantum Systems, University of

Detection of Plasmonic Nanoparticles

Using Whispering Gallery Mode

16:45

for biosensing applications.

CL-6.4 TUE

Resonators

16:45

regime with a repetition rate tunable over

Continuously tunable, narrow linewidth

monolithically integrated triple DFB laser

M. Zanola^{1,2}, M. Sorel¹, G. Giuliani², and

•M.J. Strain¹; ¹University of Glasgow, Glas-

gow, United Kingdom; ²Università di Pavia,

mm-wave generation from a

16:45

17 GHz is presented.

CB-6.4 TUE

chip

Pavia, Italy

_____ 112 __

ROOM 14a	CA-7.2 TUE 16:15 Efficient Operation of a Pulsed Diode Pumped Cryogenic Gas Cooled Yb:YAG Multislab Amplifier Delivering 7.4 J at 10 Hz •P. Mason, K. Ertel, S. Banerjee, J. Phillips, A. Lintern, J. Greenhalgh, C. Hernandez- Gomez, and J. Collier; Central Laser Facility, STFC Rutherford Appleton Laboratory, Did- cot, United Kingdom	ROOM 21	ROOM EINSTEIN systematic variations of Y3+, Gd3+, Lu3+, and Yb3+ concentrations onto KY(WO4)2 substrates is investigated w.r.t. lattice mis- match, refractive-index contrast, and Yb3+ spectroscopy. A cladding-side-pumped channel waveguide laser is demonstrated.	
<u>IB-4.2 TUE 16:30</u>	Improvements to the DiPOLE prototype diode-pumped cryogenic gas-cooled Yb:YAG multislab amplifier have enabled efficient and stable operation at repetition rates up to 10 Hz delivering 7.4 J pulses with an optical-to-optical efficiency of 23%. CA-7.3 TUE (Invited) 16:30		<u>CE-6.2 TUE 16:30</u>	
Quantum networking with time-bin encoded qu-d-its using single photons emitted on demand from an atom-cavity system •A. Holleczek, O. Barter, P.B.R. Nisbet-Jones, J. Dilley, and A. Kuhn; University of Oxford, Oxford, United Kingdom We report on the on-demand delivery of photonic qu-d-its produced by full coherent control of the single-photon generation in a strongly-coupled atom-cavity system. Addi- tionally, we demonstrate that these photons can be used for LOQC.	 The Opportunity of High Average and High Peak Power Lasers •J. Collier, K. Ertel, P. Mason, S. Banerjee, J. Phillips, A. Lintern, J. Greenhalgh, and C. Hernandez-Gomez; Central Laser Facil- ity, Science and Technology Facilities Council, Rutherford Appleton Laboratory, Harwell- Oxford Campus, Chilton, OX11 0QX, United Kingdom This talk will describe our scalable diode pumped laser concept called DiPOLE that will in principle offer diode driven PW+ class lasers as a new basis for applications based on compact, efficient and reliable sources. 		Actively Q-Switch operation of diode-pumped Er3+, Yb3+, Ce3+: Ca2Al2SiO7 single crystal laser at 1.5-1.6 μm •A. Jaffrès ¹ , B. Viana ¹ , P. Loiseau ¹ , G. Aka ¹ , C. Larat ² , and E. Lallier ² ; ¹ LCMCP, Paris, France; ² TRT, Palaiseau, France First demonstration of actively Q-Switch laser operation in Er, Yb, Ce:Ca2Al2SiO7 under diode-pumping in safe eye range is re- alized. Comparison is done with commer- cial phosphate glass.	
IB-4.3 TUE16:45Synchronization and QuantumCorrelations in Harmonic NetworksG. Manzano, F. Galve, G. Giorgi, •P. Colet,E. Hernández-García, and R. Zambrini; In- stituto de Física Interdisciplinar y Sistemas Complejos, IFISC (CSIC-UIB), Palma de Mallorca, SpainQuantum synchronization in networks of		113	CE-6.3 TUE 16:45 Multiwatt Compact Ceramic Yb:YAG Passively Q-switched Laser <i>A. Agnesi</i> ¹ , <i>L. Carrà</i> ¹ , • <i>F. Pirzio</i> ¹ , <i>G. Reali</i> ¹ , <i>J.T. Thomas</i> ² , <i>S. Veronesi</i> ² , <i>M. Tonelli</i> ² , <i>J. Li</i> ³ , <i>Y. Pan</i> ³ , and <i>J. Guo</i> ³ ; ¹ University of Pavia, Pavia, Italy; ² NEST Istituto Nanoscienze - CNR and Dip. di Fisica Università of Pisa, Pisa, Italy; ³ Key Lab. of Transparent Opto-	

ROOM 4a ROOM 4b ROOM 13a ROOM 1 We demonstrate optical detection of 40 nm Villetaneuse, France We study atomic spin dynamics in a x 10 nm gold nanorods using a frequency chromium BEC loaded in 3D optical stabilized microtoroid resonator. We show lattices. Dynamics that either change or that the technique is reproducible, with meamaintain magnetization are analyzed with sured frequency shifts in good agreement special focus on dipolar interactions. with theoretical predictions. cess. 17:00 IC-2.5 TUE (Invited) 17:00 CL-6.5 TUE 17:00 TF-2/LIM.3 TUE (Tech Focus) 17:00 CB-6.5 TUE **Optoelectronic nonlinear transient** Matter-wave clocks: measuring time and **Optical Manipulation of Single Cells in** Ultrafast Fiber Lasers and Bulk Lasers for Organic semiconductor distributed computing with multiple delays mass, and testing general relativity Femtosecond Laser Fabricated Material Processing - A Comparison feedback (DFB) laser pixels fabricated via •N. Hodgson, R. Knappe, and M. Bengtsson; •H. Mueller; University of California, Berke-•R. Martinenghi, A. Baylón-Fuentes, X. Fang, Lab-on-chip nanograting transfer and ink-jet printing M. Jacquot, Y.K. Chembo, and L. Larger; lev, Berkeley, United States •R. Martinez Vazquez¹, F. Bragheri¹, P. Coherent Inc., Santa Clara, CA, United States Minzioni², N. Bellini^{1,3}, P. Paiè¹, G. Nava², The technology and performance of high en-University of Franche-Comte & FEMTO-We demonstrate a clock referenced to the ST/Optics Dpt, Besancon, France Compton frequency of a cesium atom; a *R.* Ramponi¹, *I.* Cristiani², and *R.* Osellame¹; ergy picosecond and femtosecond lasers in ¹Istituto di Fotonica e Nanotecnologie IFN A versatile photonic nonlinear transient proposed gravitational Aharonov-Bohm exfiber and bulk solid state geometry are recomputer is reported. Its hybrid analogue - CNR, Dipartimento di Fisica, Politecnico viewed. Ultrafast laser systems providing periment; and tests of general relativity and di Milano, Milano, Italy; ²Dipartimento di and digital architecture allows for an easy their interpretation in the standard model pulse energies of up to 100s of microJoules reconfiguration, and for direct implementaextension. Matter waves are clocks. Ingegneria Industriale e dell'Informazione, are compared with respect to their applica-Università degli Studi di Pavia, Pavia, Italy; tion of in-line processing. Computational bility in material processing. many; ³InnovationLab GmbH, Heidelberg, efficiency in parameter space is reported. ³SUPA, School of Physics and Astronomy, University of St. Andrews, St. Andrews, Germanv United Kingdom Femtosecond laser micromachining has been successfully used to fabricate integrated optofluidic devices, which allows

CD-10.5 TUE

CD-10.4 TUE

10GHz bandwidth nonlinear delay electro-optic phase dynamics for ultra-fast nonlinear transient computing

•A. Baylon-Fuentes, R. Martinenghi, M. Jacquot, Y.K. Chembo, and L. Larger; University of Franche-Comte, FEMTO-ST/Optics Dpt, Besancon, France

Photonic computing is performed via complex nonlinear dynamical transients. Electro-optic nonlinear delay phase dynamics is designed with Telecom grade devices, allowing up to 10GHz bandwidth for information processing according to Reservoir Computing concepts.

17:15

CL-6.6 TUE

microfluidic chip.

17:15

Charge-driven dispensing of picolitre drops for biomolecules microarrays by Pyro-Electro-hydrodynamic system

the analysis of cell-mechanical properties,

fluorescence detection and sorting of single cells by means of optical forces inside a

•S. Grilli¹, L. Miccio¹, O. Gennari¹, S. Coppola^{1,2}, V. Vespini¹, P. Orlando³, and P. Ferraro¹; ¹CNR-INO, Pozzuoli, Italy; ²University of Naples Federico II, Napoli, Italy; ³CNR-IBP, Napoli, Italy

Spontaneous charge effects are used here for the first time for dispensing small volumes of DNA solution for microarray applications. The technique appears promising also for concentrating analytes in very diluted solutions.

CB-6.6 TUE

17:15

Room Temperature Plasmonic Nanowire Laser Near The Surface Plasmon Frequency

•T. Sidiropoulos¹, S. Geburt², R. Röder², M. Ogrisek², S. Maier¹, C. Ronning², and R. Oulton¹; ¹Imperial College London, London, United Kingdom; ²University of Jena, Jena, Germany

We present room temperature plasmonic lasing from semiconductor nanowires. Slow group velocity, associated with frequencies close to the surface plasmon resonance appears as a strong blueshift in the lasing frequency.

Generation of mm-wave signals from a three DFB laser system on a single chip is presented. Continuous tunability over a 40GHz range is demonstrated, with improved linewidths achieved through a fourwave-mixing, mutual injection locking pro-

17:00

•X. Liu^{1,2}, S. Klinkhammer^{1,2}, Z. Wang^{1,2}, K. Sudau³, N. Mechau^{1,3}, C. Vannahme^{2,1}, T. Mappes², and U. Lemmer¹; ¹Light Technology Institute (LTI) and Center for Functional Nanostructures (CFN), Karlsruhe Institute of Technology, Karlsruhe, Germany; ²Institute of Microstructure Technology (IMT), Karlsruhe Institute of Technology, Karlsruhe, Ger-

Nanograting transfer and ink-jet printing are demonstrated as two novel processing methods to fabricate spatially defined organic semiconductor distributed feedback (DFB) laser pixels with a high yield.

ROOM 14a

ROOM 14b

CLEO[®]/Europe-IQEC 2013 · Tuesday 14 May 2013 4b ROOM 21 ROO

ROOM EINSTEIN

NOTES

dissipating oscillators is studied and it is shown to witness robust non-classical correlations.

IB-4.4 TUE

Hybrid Quantum Teleportation

•S. Takeda¹, T. Mizuta¹, M. Fuwa¹, P. van Loock², and A. Furusawa¹; ¹Department of Applied Physics, School of Engineering, The University of Tokyo, Tokyo, Japan; ²Institute of Physics, Johannes-Gutenberg Universität Mainz, Mainz, Germany

We experimentally realize deterministic, unconditional quantum teleportation of photonic qubits through the hybrid technique: continuous-variable teleportation of qubits. Optimally tuning the teleporter's feedforward gain enables a faithful qubit transfer even with imperfect resource squeezing.

IB-4.5 TUE

Two Fundamental Experimental Tests of Nonclassicality with Qutrits

J. Ahrens¹, E. Amselem¹, A. Cabello², and •M. Bourennane¹; ¹Stockholm University, Stockholm, Sweden; ²Sevilla University, Sevilla, Spain

We report on experiments, the first one is the simplest task for which quantum mechanics provides an advantage over classical physics. The second one is on contextual correlations by sequentially measuring pairs of compatible observables.

CA-7.4 TUE

CA-7.5 TUE

sia

High-power and High-energy

cooling by liquid nitrogen jet

Cryogenically Cooled Disk Laser

•I. Mukhin, E. Perevezentsev, O. Vadimova,

I. Kuznetsov, O. Palashov, and E. Khazanov;

Institute of Applied Physics of the Russian Academy of Science, Nizhny Novgorod, Rus-

Cryogenic disk laser with ~0.12 J of output

energy at 0.5 kHz repetition rate was de-

veloped by using composite active elements

made of Yb:YAG ceramics and its active

17:00

17:15

High Energy and Power Cryogenic Composite-Thin-Disk Yb:YAG Laser

•L.E. Zapata¹, W. Huang¹, H. Cankaya², A.-L. Calendron², H. Lin¹, E. Granados¹, K.-H. Hong¹, and F.X. Kärtner^{1,2}; ¹Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA, United States; ²Center for Free-Electron Laser Science, DESY and Department of Physics, University of Hamburg, Hamburg, Germany A cryogenic Yb:YAG composite-thin-disk CPA design is presented with the ultimate goal of delivering 1J, 10 ps, pulses at 100 Hz. First results on the 100 mJ preamplifier stage will be presented

CG-2.2 TUE

17:00

17:15

Ultrafast Dynamics of Highly-Excited States in N2 Molecules Excited by Attoseconds Pulses

•F. Calegari¹, A. Trabattoni¹, S. Anumula¹, M. Lucchini², L. Wang³, F. Frassetto⁴, L. Poletto⁴, M. Hochlaf⁵, G. Sansone¹, M. Vrakking⁶, and M. Nisoli¹; ¹Politecnico di Milano, Department of Physics, CNR-IFN, Milano, Italy; ²ETH Zurich, Physics Departme, Zurich, Switzerland; ³Institute of Physics, Beijing National Laboratory for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China, People's Republic of (PRC); ⁴Institute of Photonics and Nanotechnologies, CNR-IFN, Padova, Italy; ⁵Université Paris-Est, MSME UMR 8208 CNRS, Marne-la-Vallée, France; ⁶Max-Born-Institut, Berlin, Germany

We used velocity-map-imaging to measure electronic and nuclear dynamics in N2 molecules excited by extreme-ultraviolet pulses. A time-to-space mapping of autoionization channel is demonstrated; complex dynamics of highly-excited states on sub-8femtosecond time-scale is found.

CG-2.3 TUE

Controlling Molecular Isomerization and Fragmentation with Laser-Induced Electron Recollision

X. Xie¹, K. Doblhoff-Dier², S. Roither¹, M. Schöffler¹, D. Kartashov¹, H. Xu^{1,3}, T. Rathje^{4,5}, G. Paulus^{4,5}, A. Baltuška¹, S. Gräfe², and •M. Kitzler¹; ¹Photonics Institute, Vienna University of Technology, Austria; ²Institute for Theoretical Physics, Vienna University of Technology, Austria; ³State Key Laboratory on Integrated Optoelectronics, College of Electronic Science and Engineering, Jilin University, Changchun, China, People's Republic of (PRC); ⁴Institute of Optics and Quantum Electronics, Friedrich-Schiller-University Jena, Germany; ⁵Helmholtz Institute Jena, Germany

We show experimentally and theoretically that fragmentation and isomerization reactions in polyatomic molecules can be controlled by selective electron removal from inner-valence shells during carrier-envelope phase-sensitive recollision induced double ionization with few-cycle laser pulses.

functional Inorganic Materials, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China, People's Republic of (PRC)

We present Yb:YAG ceramic crystals growth, spectroscopic characterization and laser experiments. In passive Q-switching operation, pumping with a fiber-coupled 25-W laser diode we demonstrated up to 4.4-Waverage power, 7-ns-long pulses at 48 kHz repetition rate.

17:00

17:15

CE-6.4 TUE

17:00

Fabrication and Characterization of Room-temperature-bonded Composite Lasers

•I. Shoji, T. Ishikawa, T. Yamauchi, K. Hara, and S. Matsumoto; Chuo University, Tokyo, Japan

We have succeeded in fabrication and laser oscillation of Nd:YAG/YAG and Yb:YAG/YAG composite lasers using the room-temperature-bonding technique. Development of new composites with superior thermal properties is expected by use of this technique.

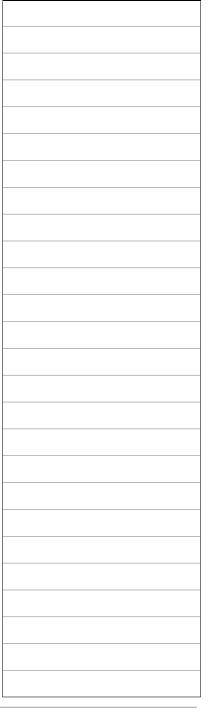
CE-6.5 TUE

17:15

Dispersion and Anisotropy of Thermo-Optical Properties of Tetragonal GdVO4 and YVO4 Laser Host Crystals

•P. Loiko¹, K. Yumashev¹, V. Matrosov², and N. Kuleshov¹; ¹Center for Optical Materials and Technologies, Belarusian National Technical University, Minsk, Belarus; ²Solix, Ltd., Minsk, Belarus

Thermo-optic coefficients and thermal coefficients of the optical path were determined in YVO4 and GdVO4 for wide spectral range of 0.4- 1.1μ m. Detailed analysis of anisotropic thermal lens effect was performed for Nd-doped vanadates.



13:00 - 14:00

CD-P: CD Poster Session

CD-P.1 TUE

Non-Permanent Optically Induced Long-Period Gratings for Energy Transfer between Transverse Fiber Modes using Femtosecond Pulses

•T. Walbaum, T. Hellwig, and C. Fallnich; Westfälische Wilhelm-Universität, Münster, Germany

We present the conversion of transverse fiber modes using non-permanent long-period gratings generated by femtosecond pulses via multimode interference, and the temporal as well as the spectral profiles of the converted pulses are analyzed numerically.

CD-P.2 TUE

Experimental Verification of Femtosecond Transverse Mode Conversion Induced by Non-Permanently Written Long-Period Gratings

•T. Walbaum, M. Schnack, T. Hellwig, and C. Fallnich; Institut für Angewandte Physik, Westfälische Wilhelm-Universität, Münster, Germany

We present the experimental demonstration of optically induced femtosecond transverse mode conversion. The necessary long-period grating is non-permanently written through the Kerr effect by the multimode interference of a co-propagating cross-polarized write beam.

CD-P.3 TUE

Brillouin gain spectra in all-solid chalcogenide-tellurite photonic bandgap fiber

•T. Cheng, M. Liao, W. Gao, Z. Duan, D. Deng, T. Suzuki, and Y. Ohishi; Toyota Technological Institute, Nagoya, Japan

A new way to suppress stimulated Brillouin scattering by using an all-solid chalcogenide-tellurite photonic bandgap fiber is presented. The compositions of the chalcogenide and the tellurite glass are As2Se3 and TZLB.

CD-P.4 TUE

Mid-Infrared Supercontinuum Generation in a 1.3 cm As2S3 Fiber with Suspended-Core Structure

•W. Gao¹, M.E. Amraoui², M. Liao¹, H. Kawashima¹, Z. Duan¹, D. Deng¹, T. Cheng¹, T. Suzuki¹, Y. Messaddeq², and Y. Ohishi¹; ¹Research Center for Advanced Photon Technology, Toyota Technological Institute, Nagoya, Japan; ²Centre d'optique, Photonique et Laser, Université Laval, Quebec, Canada

We demonstrate the mid-Infrared supercontinuum generation in a 1.3 cm suspended-core As2S3 microstructured optical fiber experimentally. The SC range changed with different pump wavelengths from 2200 to 2600 nm.

CD-P.5 TUE

Efficient Second-Harmonic Generation of Broadband Radiation in the Nonlinear Crystal with Constant Axial Temperature Gradient

•J. Želudevičius, K. Regelskis, N. Gavrilin, and G. Račiukaitis; Center for Physical Sciences & Technology, Vilnius, Lithuania

Results of numerical and experimental analysis of SHG in a nonlinear crystal with a constant axial temperature gradient are presented. The highly efficient (>65%) SHG of broadband radiation was demonstrated by use of this method.

CD-P.6 TUE

Formation and Amplification of Flat Top Picosecond Pump Pulses for OPCPA Systems

•J. Adamonis^{1,2}, R. Antipenkov², J. Kolenda^{2,3}, A. Michailovas^{2,3}, A. Piskarskas¹, A. Varanavicius¹, and A. Zaukevicius^{1,2}, ¹Vilnius University, Vilnius, Lithuania; ²Ekspla, Vilnius, Lithuania; ³Institute of Physics of Center for physical science and technology, Vilnius, Lithuania Flat top OPCPA pump pulses extending 50 ps plateau time interval were formed by cascade second harmonic generation. Shaped pulses were amplified up to F=0.128 J/cm2 energy fluence with modest pulse envelope temporal modulation.

CD-P.7 TUE

Multiphoton upconversion in rare earth doped nanocrystals for sub-diffractive microscopy

L. Caillat^{1,2}, F. Pellé¹, B. Hajj², •V. Shynkar², D. Chauvat², and J. Zyss²; ¹Chimie ParisTech, Paris, France; ²Ecole Normale Supérieure, Cachan, France

We propose a new microscopy with a significant improvement in lateral resolution below diffraction limit based on high nonlinear multy-photons low excitation energy upconversion process in rare earth doped nanoparticles for cellular and animal imaging.

CD-P.8 TUE

Indirect exciton mediated optical transistors

•J. Wilkes; Cardiff University, Cardiff, United Kingdom A new design for an all-optical transistor is proposed and analysed by numerical modelling. Dipole-orientated indirect excitons in coupled quantum wells are used as an operating medium to control the switching of light with light.

CD-P.9 TUE

Mid-infrared supercontinuum generation in tapered ZBLAN fiber with a standard Erbium mode-locked fiber laser

•I. Kubat¹, C. Agger¹, P.M. Moselund², and O. Bang^{1,2}; ¹DTU Fotonik, Kongens Lyngby, Denmark; ²NKT Photonics A/S, Birkerød, Denmark Short tapers implemented in realistic ZBLAN fiber results in an IR Supercontinuum in the $0.86-4.36\mu$ m spectral range covering much of the ZBLAN transmission window when using an Erbium fiber laser to drive the broadening process.

CD-P.10 TUE

40 GHz nonlinear all optical switching in a Mach-Zehnder interferometer integrated device

•C. Lacava¹, M.J. Strain², I. Cristiani¹, and M. Sorel²; ¹Dipartimento di Ingegneria Industriale e dell'Informazione, Università di Pavia, Pavia, Italy; ²School of Engineering, University of Glasgow, Glasgow, United Kingdom

Here we propose a fully integrated silicon Mach-Zehnder interferometer for all optical switching operation. A 40% switching level at f=40 GHz was obtained using a 27dBm pump power. No Free Carrier-related degradation effects were observed.

CD-P.11 TUE

Pulse comression in Er/Yb-doped fibres

M. Zajnulina¹, •J.M. Chavez Boggio¹, M. Böhm², A.A. Rieznik³, R. Haynes¹, and M.M. Roth¹; ¹Leibnitz-Institut für Astrophysik, Potsdam, Germany; ²University of Potsdam, Potsdam, Germany; ³Instituto Technologico de Buenos Aires and CONICET, Buenos Aires, Argentina The possibility of higher-order soliton compression was studied in Er/Yb-doped fibres. The stability of compressed pulses was investigated for such initial parameters as input power, nonlinear coefficient, and group velocity dispersion.

CD-P.12 TUE

High-power, Picosecond, Fiber-laser Green Source Based on BiB3O6 for Synchronous Pumping of MgO:sPPLT Optical Parametric Oscillator

•C.K. Suddapalli¹ and M. Ebrahim-Zadeh^{1,2}; ¹ICFO-The Institute of Photonic Sciences, Barcelona, Spain; ²Institucio Catalana de Recerca i Estudis Avancats (ICREA), Passeig Lluis Companys 23, Barcelona, Spain We report a high-power, picosecond, fiber-laser-green source based on BiB3O6, providing 5.4W (<0.24%rms) of green-power at 532nm to synchronously pump an MgO:sPPLT near-infrared OPO tunable across 874-1008nm(signal) and 1126-1359nm(idler) with >0.5W over entire tuning range.

CD-P.13 TUE

Intense Lyman- α light source for generation of ultra-slow Muon

•Y. Oishi¹, K. Okamura², K. Miyazaki¹, N. Saito¹, M. Iwasaki¹, and S. Wada^{1,2}; ¹RIKEN, Wako, Japan; ²MEGAOPTO Corp., Wako, Japan We develop an all-solid-state 1062.78 nm laser system. Its can applied to generation of intense Lyman-alpha coherent light source by use of two-photon resonant fourwave mixing.

CD-P.14 TUE

Soliton-Like Propagation in Dispersion-Managed Silicon Nanowaveguides

•O. Tsilipakos¹, D. Zografopoulos², and E. Kriezis¹; ¹Department of Electrical and Computer Engineering, Aristotle University of Thessaloniki, Thessaloniki, Greece; ²Consiglio Nazionale delle Ricerche, Istituto per la Microelettronica e Microsistemi, Roma, Italy

Dispersion-managed soliton-like pulse-train propagation in silicon nanowaveguides is theoretically studied. We investigate into the maximum achievable pulse repetition rate. The application of a carrier-sweep bias allows for bit rates beyond 1.28 Tbit/s.

CD-P.15 TUE

Double-seed stabilization of a continuum generated from fourth-order modulation instability

K. Hammani¹, C. Finot¹, R. Habert², A. Mussot², and •A. Kudlinski²; ¹Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France; ²Laboratoire PhLAM, Lille, France

We experimentally and numerically study a fourthorder modulation instability process in a microstructured fiber. Using a single seed cannot reduce the large fluctuations : two seeds slightly detuned from the maximum gain frequency are required.

CD-P.16 TUE

Guiding of meter scale AC discharges by laser filamentation in air

•A. Houard¹, Y. Brelet¹, G. Point¹, J. Carbonnel¹, Y.-B. André¹, B. Prade¹, L. Arantchouk², and A. Mysyrowicz¹; ¹Laboratoire d'Optique Appliquee, ENSTA ParisTech, Ecole Polytechnique, CNRS, Palaiseau, France; ²Laboratoire de Physique des Plasmas, Ecole Polytechnique, CNRS, Palaiseau, France

We report experiments of laser-guided discharges obtained in air with high voltage bursts delivered by a compact Tesla coil. Characteristics of the guided discharges are studied for electrode gaps ranging from 30 to 170 cm.

CD-P.17 TUE

Tunable multi-wavelength active conversion of 1550 nm signals in a Cr3+:LiCAF-PPSLT laser

•A.J. Torregrosa, H. Maestre, and J. Capmany; Communications Engineering Department, Universidad Miguel Hernandez, Elche, Spain

We report tunable and multiple wavelength conversion in the communications band from single-pass dif-

Hall B0

ference frequency generation in PPSLT crystals placed inside a tunable self-injection-locked diode-pumped Cr3+:LiCAF cavity.

CD-P.18 TUE

Optimized Nanosecond Broadband Laser Source for Application in Nonlinear Imaging

•F. El Bassri^{1,2}, A. De Angelis⁷, D. Pagnoux¹, and V. Couderc¹; ¹Xlim Institute, Photonics department, Limoges, France; ²CILAS, Orléans, France

We present an efficient source for nonlinear imaging emitting both broadband Stokes signal generated in a PCF and nanosecond pump signal, from a single microchip laser, spatially and temporally overlapped in a LMA fiber

CD-P.19 TUE

Nonlinear imaging of surfaces with confocal and interferometric SHG microscopy using a broadband 1550 nm fs-fiber laser

•A. Prylepa^{1,2}, J. Duchoslav^{1,2}, C. Reitböck^{1,2}, K. Hingerl², and D. Stifter^{1,2}; ¹Christian Doppler Laboratory for Microscopic and Spectroscopic Material Characterization, Linz, Austria; ²Center for Surface and Nanoanalytics (ZONA), Linz, Austria

Confocal and interferometric second harmonic generation microscope combined with linear low-coherence imaging capabilities was developed by using a broadband fs-fiber laser at 1550 nm and applied for investigations of materials surfaces and subsurfaces.

CD-P.20 TUE

Dual-correlated pumping scheme for phase-noise retention in FWM

•A. Anthur¹, R. Watts², J. O'Carroll², D. Venkitesh¹, and L. Barry²; ¹Department of Electrical Engineering, IIT Madras, Chennai, India; ²RINCE, School of Electronic Engineering, Dublin City University, Dublin, Republic of Ireland

A coherent technique is used to study the phase noise relationship between four-wave mixing (FWM) components. A new scheme is proposed to prevent the phase noise increase in conjugate, normally associated with FWM.

CD-P.21 TUE

Highly efficient SHG at 561 nm using a QD laser and a PPLN waveguide

•K. Fedorova^I, G. Sokolovskii^{1,2}, I. Krestnikov³, D. Livshits³, and E. Rafailov¹; ¹University of Dundee, Dundee, United Kingdom; ²Ioffe Physico-Technical Institute, St. Petersburg, Russia; ³Innolume GmbH, Dortmund, Germany

A compact high-power yellow-green CW laser source at 561nm based on frequency-doubling of a quantumdot fiber-Bragg-grating laser in a PPLN waveguide is demonstrated with output power in excess of 90mW and conversion efficiency of 52.34%.

CD-P.22 TUE

Experimental demonstration of stimulated Raman scattering in the evanescent field of a tapered nanofiber immersed in a liquid

•L. Shan¹, G. Pauliat¹, G. Vienne^{2,3}, L. Tong², and S. Lebrun¹; ¹Laboratoire Charles Fabry, Institut d*Optique, CNRS, Univ Paris-Sud, Palaiseau, France; ²State Key Laboratory of Modern Optical Instrumentation, Department of Optical Engineering, Zhejiang University, Hangzhou, China, People's Republic of (PRC); ³Present adress : Data Storage Institute, Agency for Science, Technology and Research, (A*STAR), Singapore, Singapore We present the first experimental demonstration of stimulated Raman scattering in the evanescent field of a nanofiber immersed in a liquid which opens the way to the study of a new kind of versatile experiments.

CD-P.23 TUE

Phase locking of two infrared sources separated by 500 nm (100 THz)

•N. Chiodo¹, F. Du-Burck², and O. Acef⁴; ¹LNE-SYRTE, Observatoire de Paris, CNRS, Paris, France; ²LPL, université Paris 13, CNRS, Villetaneuse, France We report on phase locking of two IR lasers separated by 500 nm (1.5 and 1.03 *m), using independent harmonic generation processes in PPLN crystals. The phase lock is

CD-P.24 TUE

Improving the Performance of Fiber Optic Parametric Amplifiers with Optical Phase Conjugation

achieved within a 500 kHz bandwidth.

•M. Jazayerifar, S. Warm, and K. Petermann; Technische Universität Berlin, Berlin, Germany

Using the optical phase conjugation method we propose a modified fiber optic parametric amplifier (FOPA) that causes less nonlinear cross-talk than a conventional FOPA in WDM communication systems and verify this comparison with numerical simulations.

CD-P.25 TUE

Terabit/s Physical Random Bit Generation Based on Optoelectronic Phase-Chaos Systems

•R.M. Nguimdo¹, P. Colet², and J. Danckaert¹; ¹Applied Physics Research Group, APHY, Vrije Universiteit Brussel, 1050 Brussels Belgium, Brussels, Belgium; ²IFISC (CSIC-UIB), Campus Universitat Illes Balears, E-07122 Palma de Mallorca, Spain, Palma de Mallorca, Spain We propose an optoelectronic phase-chaos system based on telecom components for parallel generation of statistically independent random bit streams. The system can generate 1 Tb/s sequences passing all NIST tests for randomness.

CD-P.26 TUE

Energy Shedding during Nonlinear Self-Focusing of Laser Pulses

•C. Travis¹, G.-L. Oppo¹, G. Norris², and G. McConnell²; ¹Department of Physics, University of Strathclyde, Glasgow, United Kingdom; ²SIPBS, University of Strathclyde, Glasgow, United Kingdom

Energy shedding takes place as ultra-short spatiotemporal pulses propagate in a nonlinear medium. We characterise different mechanisms of energy shedding depending on the balance of nonlinearity, dispersion, diffraction, and saturation in the system.

CD-P.27 TUE

All-optical control of discrete light propagation in Photonic Liquid Crystal Fibers

•K. Rutkowska, U. Laudyn, and P. Jung; Warsaw University of Technology, Warsaw, Poland

Results of theoretical studies and experimental tests on discrete light propagation in photonic crystal fibers are presented. Output spatial light intensity profile can be tuned dynamically by varying optical power of the signal beam.

CD-P.28 TUE

Linear detection of sub-bandgap energy photons in silicon : a photo-assisted Shockley-Read mechanism •B. Vest¹, E. Lucas¹, J. Jaeck¹, R. Haïdar^{1,2}, and E. Rosencher^{1,2}; ¹ONERA, The French Aerospace Lab, Palaiseau, France; ²École Polytechnique, Département de Physique, Palaiseau, France

We investigate the linear response of silicon PIN diodes to sub-bandgap photons (1.4 um-1.6 um). We propose a model, based on the Shockley-Read process, to explain this result observed by many authors.

CD-P.29 TUE

High repetition rates and high quality optical pulse train generator based on solitons over finite background

J. Fatome, B. Kibler, and •C. Finot; Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France

We take advantage of the strong temporal compression affecting a soliton over finite background evolving in a nonlinear fiber. A delay-line interferometer enables the generation of high-quality high-repetition rate pulse trains with the background annihilated.

CD-P.30 TUE

Tapered Liquid-Core All-Fibre Devices for Low-Threshold Raman Generation

L. Xiao, N. Healy, and •A. Peacock; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

The first demonstration of a highly compact tapered liquid-core all-fibre optical device is presented. The low integration and tapering losses allow for cascaded Raman scattering, with a threshold two times lower than an untapered structure.

CD-P.31 TUE

Monolithic PM Raman fiber laser at 1679 nm for Raman amplification at 1810 nm

•A.S. Svane and K. Rottwitt; DTU Fotonik, Department of Photonics Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark

We present a Monolithic PM Raman fiber laser at 1679 nm with 67 % slope efficiency and demonstrate a Raman amplifier at 1810 nm with 9 dB on/off gain in 4.3 km PM fiber.

CD-P.32 TUE

Degenerated four-wave mixing in chiral nematic liquid crystal exhibiting Bragg-like reflection

• P. Karpinski and A. Miniewicz; Wroclaw University of Technology, Wroclaw, Poland

We report about novel configuration for optical phase conjugation phenomenon in dye-doped chiral nematic liquid crystal exhibiting Bragg reflection. We observe temperature dependent light stop-band and enhancement of optical nonlinearity due to 'slow light' propagation.

CD-P.33 TUE

Highly Efficient Discrete Band Mid-Infrared to Near-Infrared Wavelength Conversion Relying on Si1-xGex Alloys

•A. Bogris^{1,2}, A. Kapsalis¹, D. Syvridis¹, M. Brun³, P. Labeye³, and S. Nicoletti³; ¹Department of Informatics and Telecommunications, University of Athens, Athens, Greece; ²Department of Informatics, Technological Educational Institute of Athens, Athens, Greece; ³CEA, LETI, Grenoble, France

The properties of mid-infrared to near-infrared upconverters relying on Si1-xGex alloys are numerically investigated. The aspects of the waveguide design for efficient wavelength conversion from $(4-5\mu m)$ to $(1.3-1.6\mu m)$ are highlighted for various Ge concentrations

CD-P.34 TUE

Generation of on-axis optical filaments by means of Dammann lenses

•J. Pérez-Vizcaíno¹, O. Mendoza-Yero¹, R. Borrego-Varillas^{1,2}, G. Mínguez-Vega¹, J. Rodríguez Vázquez de Aldana¹, and J. Lancis¹; ¹Instituto de Nuevas Tecnologías de la Imagen, Castellón, Spain; ²Universidad de Salamanca, Salamanca, Spain

Dynamical spatial shaping of a 30 fs laser beam by encoding Dammann lenses in a spatial light modulator allows us the formation up to six on-axis stable and stationary filaments in a fused silica sample.

CD-P.35 TUE

Nonlinear-optical response and Raman signals of nanocrystalline lithium niobate

•B. Knabe¹, K. Buse¹, G. Stone², and V. Dierolf²; ¹Department of Microsystems Engineering (IMTEK), University of Freiburg, Freiburg, Germany; ²Department of Physics, Lehigh University, Bethlehem, United States The non-centrosymmetric structure of lithium niobate nanocrystals is examined by frequency doubling and Raman spectroscopy. The nanocrystals exhibit the full nonlinear-optical coefficients. The measured vibrational modes indicate a crystal symmetry found in stoichiometric lithium niobate.

CD-P.36 TUE

hase matching for efficient nonlinear frequency generation in hybrid Si/Chalcogenide glass slot waveguides

P.W. Nolte, C. Bohley, and •J. Schilling; ZIK SiLi-nano, Martin-Luther-University, Halle, Germany We theoretically investigated the situation for degenerate four wave mixing in silicon slot waveguides which are infiltrated by a chalcogenide glass (e.g. As_2S_3) promising efficient frequency generation within the vicinity of the pump wavelength.

CD-P.37 TUE

Characterization of a Single-frequency-pumped

Continuous-wave Extracavity Diamond Raman Laser •O. *Kitzler, A. McKay, and R. Mildren; MQ Photonics Research Centre, Macquarie University, Sydney, Australia* We report a continuous-wave diamond Raman laser of output power 15W pumped by a single-longitudinalmode Yb fibre laser at 35% conversion efficiency. Operating conditions enabling single mode output are analysed.

CD-P.38 TUE

1.5W Compact Green Laser Module for Laser Display Applications

Y. Gan, J. Sun, and •C.-Q. Xu; McMaster University, Hamilton, Canada

We demonstrate a novel miniaturized green laser array using an mGreen laser module. A two-beam array shows a combined green light output power of over 1.5W with an optical-to-optical conversion efficiency of 30%.

CD-P.39 TUE

Directional Selective Nonlinear Transmission of Femtosecond Pulses in Glass-Metal Nanocomposites

•S. Mohan^{1,2}, H. Graener², M. Bache¹, and G. Seiferi³; ¹DTU Fotonik, Technical University of Denmark, Kgs. Lyngby, Denmark; ²Physics Institute, Martin-Luther-University Halle-Wittenberg, Halle, Germany; ³Centre of Innovation Competence SiLi-nano, Martin-Luther-University Halle-Wittenberg, Halle, Germany

Through femtosecond Z-scan measurements, we show that silver-doped nanocomposite glass samples give directionally sensitive optical limiting. A theoretical model explains this as interplay between self-focusing and two-photon absorption in the nanoparticle layer.

CD-P.40 TUE

Stimulated Raman scattering with a rapidly tunable non-collinear optical parametric oscillator •C. Hoffmann¹, T. Lang^{1,2}, and U. Morgner^{1,2,3};¹Institute

•C. Hoffmann¹, T. Lang^{1,2}, and U. Morgner^{1,2,3}; ¹Institute of Quantum Optics, Leibniz Universität Hannover, Hannover, Germany; ²Center for Quantum Engineering and Space-Time Research, Hannover, Germany; ³Laser Zentrum Hannover, Hannover, Germany

We present the fast acquisition of broadband Raman spectra covering the range of 3400-960 cm⁻¹ via stimulated Raman scattering (SRS) with an update rate of 19.6 Hz. For realization a rapidly tunable NOPO is employed.

CD-P.41 TUE

Self-phase-locked degenerate femtosecond optical parametric oscillator based on BiB3O6

•V.R. Badarla¹, A.E. Martin¹, and M.E. Zadeh^{1,2}; ¹Institute of Photonic Sciences (ICFO), Barcelona, Spain; ²Institucio Catalana de Recerca i Estudis Avancats (ICREA), Barcelona, Spain

We present the first self-phase-locked degenerate femtosecond OPO based on a birefringent material (BiB3O6) synchronously-pumped by Ti:sapphire laser. The OPO provides an output spectrum as broad as 46 nm with 190 fs pulses.

CD-P.42 TUE

Kerr effect induced transient group-velocity dispersion of fused silica measured via real-time MIIPS and spectral interferometry

G. Rasskazov¹, A. Ryabtsev¹, D. Pestov², V.V. Lozovoy¹, and •M. Dantus^{1,2}; ¹Department of Chemistry, Michigan State University, East Lansing, United States; ²Biophotonic Solutions Inc., East Lansing, United States We demonstrate the measurement of transient dispersion in fused silica by RT-MIIPS. The results are validated via Fourier Transform Spectral Interferometry. The observed dispersion modulation is explained within a theoretical model.

CD-P.43 TUE

High-speed stroboscopic imaging with frequency-doubled supercontinuum

•P. Ryczkowski¹, A. Nolvi², I. Kassamakov², G. Genty¹, and E. Haeggström²; ¹Tampere University of Technology, Tampere, Finland; ²University of Helsinki, Helsinki, Finland

We present a frequency-doubled supercontiunuum light source with 1ns long pulses and tunable repetition rate for 3D stroboscopic imaging with sub-100 nm accuracy.

CD-P.44 TUE

Nonlinear interaction of two crossing beams in chiral nematic liquid crystals

•U. Laudyn¹, F. Sala¹, M. Sierakowski¹, E. Nowinowski-Kruszelnicki², and M. Karpierz¹; ¹Warsaw University of Technology, Faculty of Physics, Warsaw, Poland; ²Military University of Technology, Warsaw, Poland

In this work, we present experimental and numerical results showing interaction of two crossing beams occurring in two planes simultaneously.

CD-P.45 TUE

Hole-Size Increasing PCFs for Blue-Extended Supercontinuum Generation

•S.T. Sørensen¹, C. Larsen¹, C. Jakobsen², C.L. Thomsen², and O. Bang^{1,2}; ¹DTU Fotonik, Technical University of Denmark, Kgs. Lyngby, Denmark; ²NKT Photonics A/S, Birkerød, Denmark

We demonstrate supercontinuum generation into the deep-blue in single-mode PCFs with increasing hole-size fabricated directly at the draw-tower, and report a record 3 dB spectral flatness in the region 363-628nm.

CD-P.46 TUE

Picosecond pulse burst generation using cascaded Stimulated Brillouin Scattering in a chalcogenide As2Se3 fiber cavity

•T.F.S. Buettner, I.V. Kabakova, D.D. Hudson, and B.J. Eggleton; Centre for Ultrahigh-bandwidth Devices for Op-

tical Systems (CUDOS), Institute of Photonics and Optical Science (IPOS), School of Physics, University of Sydney, Sydney, Australia

We demonstrate a compact approach for the generation of ultra-high frequency picosecond pulse bursts based on cascaded Stimulated Brillouin Scattering in a chalcogenide As2Se3 fiber cavity and investigate the stability of the laser.

CD-P.47 TUE

Highly Sensitive Dispersion Map Extraction from Highly Nonlinear Fibers Using BOTDA Probing of Parametric Amplification

•F. Alishahi¹, A. Vedadi¹, A. Denisov², M. Soto², K. Mehrany³, C.S. Brès¹, and L. Thévenaz²; ¹Photonics Systems Laboratory, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; ²Group for Fiber Optics, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland; ³Electronics and Electrical Dept., Sharif University of Technology, Tehran, Iran

Using an enhanced scheme for probing the distribution of parametric processes along fibers, a rapid and simple technique to map zero dispersion wavelength fluctuations of less than 0.02 nm with 2 meters resolution is demonstrated.

CD-P.48 TUE

Intensity Noise of Normal-Pumped Picosecond Supercontinuum Generation

•U. Møller¹ and O. Bang^{1,2}; ¹DTU Fotonik, Department of Photonics Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark; ²NKT Photonics A/S, Birkerød, Denmark

We investigate the intensity noise in normal-pumped picosecond supercontinuum generation, where higherorder Raman lines cross into the anomalous dispersion regime at high power levels. The noise properties are compared to those of anomalous-pumped supercontinuum generation.

CD-P.49 TUE

Non-quadratic intensity dependence of the second harmonic signal from the p^+ -Si/SiO₂ interface due to ultrafast photo-induced charge carrier screening

•P. Neethling¹, E. Rohwer¹, and H. Stafast^{1,2}; ¹Laser Research Institute, Physics department, University of Stellenbosch, Stellenbosch, South Africa; ²Institute of Photonic Technology (IPHT) and Faculty of Physics and Astronomy, Friedrich Schiller University, Jena, Germany The instantaneous electric field induced second harmonic signals from highly boron doped Si with natural oxide, attributed to the built-in interfacial electric field, show a non-quadratic dependence on the incident, twophoton resonant, femtosecond laser intensity.

13:00 - 14:00

CE-P: CE Poster Session

CE-P.1 TUE

Structural and optical properties of epitaxially grown Nd³⁺-doped InYO₃ thin films on Lu₂O₃

•S.-H. Waeselmann¹, S. Heinrich¹, C. Kränkel^{1,2}, and G. Huber^{1,2}; ¹Institute of Laser-Physics, Hamburg, Germany;² The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

Thin lattice matched Nd³⁺ doped InYO₃ films were grown epitaxially on Lu₂O₃ substrates via Pulsed Laser Deposition. We present several advantageous characteristics of the films, that make them interesting for optically active waveguides.

CE-P.2 TUE

Investigation of second order optical nonlinearity at the surface of GaP nanowaveguides

•M. Swillo¹, R. Sanatinia², and S. Anand²; ¹School of Engineering Sciences, Royal Institute of Technology (KTH), Stockholm, Sweden; ²School of Information and Communication Technology, Royal Institute of Technology (KTH), Kista, Sweden

Optical second order nonlinearity at the surface of GaP nanowaveguides is determined with respect to the bulk. Presented method utilizes polarization measurement of the second harmonic generation and mode confinement in nanowaveguides with various diameters.

CE-P.3 TUE

Ultra-Smooth Ridge Waveguides in Lithium Niobate Fabricated by Diamond Blade Dicing and High Temperature In-Diffusion of Titanium

•C.E. Rüter, S. Suntsov, and D. Kip; Helmut Schmidt University, Hamburg, Germany

Fabrication of ridge waveguides in lithium niobate with propagation losses below 0.1dB/cm is reported. The substrate covered with titanium is structured using optical grade dicing followed by in-diffusion at 1120°C, resulting in ultra-flat surfaces.

CE-P.4 TUE

Experimental Investigation of a Single Chrial Nano-Structure Made of a Composite Material

•P. Wozniak^{1,2}, K. Höflich¹, S. Fritsch^{1,2}, S. Christiansen^{1,3}, P. Banzer^{1,2}, and G. Leuchs^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Institute of Optics, Information and Photonics, Friedrich-Alexander-University Erlangen Nurnberg, Erlangen, Germany; ³Institute of Photonic Technology, Jena, Germany

Electron-beam-induced deposition results in nanostructures made of a composite material of unknown

Hall B0 optical parameters. By retrieving its refractive index,

we investigate the interaction between a single chiral

nano-structure and a tightly focused circularly polarized

•X. Xue, S. Uechi, W. Gao, T. Suzuki, and Y. Ohishi; Toy-

Er3+-doped LiYF4-bisphenol A ethoxylate diacrylates

nanocomposites were prepared. Under the excitation of

a 978 nm laser, the optically transparent nanocomposites

showed intense and broad emissions in S+C+L band.

Influence of Chromium and Niobium Co-doping on

Laser Damage Threshold of Raman Active Crystals

Russian Academy of Sciences, Moscow, Russia

•L. Ivleva, P. Zverev, I. Voronina, E. Dunaeva, and A.

Nekhoroshik; A.M. Prokhorov General Physics Institute,

Raman active CaMoO4 and BaWO4 crystals were grown

from the melt with special Cr3+ and Nb5+ impurity

dopants. The optimization of their concentration leads

Photoluminescent properties of the ZnSe:Yb crystals

•I. Radevici^{1,2}, K. Sushkevich², V. Sirkeli^{1,2}, H.

Huhtinen¹, D. Nedeoglo², and P. Paturi¹; ¹Wihuri Phys-

ical Laboratory, Department of Physics and Astronomy,

University of Turku, Turku, Finland; ²Faculty of Physics

and Engineering, Moldova State University, Chisinau,

Temperature evolution of the ZnSe:Yb samples photolu-

minescent spectra were studied. Edge band concentra-

tion shift to the higher energies was observed. An as-

sumption about occupation of selenium vacancies sites

90° Phase-matched Difference-frequency Generation

K. Kato^{1,2}, •T. Mikami², and V. Petrov³; ¹Chitose Institute

of Science and Technology, Chitose, Japan;²Okamoto Op-

tics Works, Inc., Yokohama, Japan; ³Max-Born-Institute

for Nonlinear Optics and Ultrafast Spectroscopy, Berlin,

The BaGa4S7 was used to generate the $5.34-7.48\mu m$

pulses by mixing the BBO/OPO output with its pump

source at $1.0642\mu m$ under the temperature-tuned 90°

phase-matching conditions. The new Sellmeier and

thermo-optic dispersion formulas are presented.

to significant increase of the laser damage threshold.

Er3+-doped LiYF4-Polymer Nanocomposites for

ota Technological Institute, Nagoya, Japan

beam.

CE-P.5 TUE

CE-P.6 TUE

CE-P.7 TUE

in the excitonic region

Moldova, Republic of

by Yb ions is made.

at 5.34-7.48 µm in BaGa4S7

CE-P.8 TUE

Germanv

S+C+L Band Amplification

CE-P.9 TUE

Thermal conductivity versus Yb3+ concentration in Yb :CALGO: a material for high power ultrafast laser •A. Jaffrès¹, A. Suganuma¹, B. Viana¹, P. Loiseau¹, S. Ricaud², P. Georges², and F. Druon²; ¹LCMCP, Paris, France; ²LCFIO, Palaiseau, France

Thermal conductivity values were experimentally determined for various ytterbium contents (2-15%) in the laser material Yb :CaGdAlO4. The variation is modeling with sites distribution and physical parameters.

CE-P.10 TUE

NIR to visible upconversion in double-clad optical fiber co-doped with Yb3+/Ho3+

•M. Kochanowicz, D. Dorosz, J. Zmojda, and J. Dorosz; Bialystok University of Technology, Bialystok, Poland In the paper the upconversion luminescence in antimony-silicate-germanate glass and double-clad optical fiber co-doped with Yb3+/Ho3+ was investigated. Luminescence bands at 547 nm (Ho3+:5S2(5F4)->5I8) and 659 nm (Ho3+:5F5->5I8) was obtained.

CE-P.11 TUE

Study on exposure strategy influences on optical propagation losses in silicon waveguides fabricated by electron beam lithography

•J. Bolten, C. Manecke, T. Wahlbrink, M. Waldow, and H. Kurz; AMO GmbH, Aachen, Germany

In this work we demonstrate the beneficial effect of a multi pass exposure strategy on optical propagation losses of silicon waveguide structures fabricated using electron beam lithography, reducing those losses by at least 1.5 dB/cm.

CE-P.12 TUE

Facet Machining of Silica Waveguides with Nanoscale **Roughness without Polishing or Lapping**

•L. Carpenter, H.L. Rogers, C. Holmes, J.C. Gates, and P.G.R. Smith; University of Southampton, Southampton, United Kingdom

We show optical quality facets can be machined into silica using a precision dicing technique, with a Sa = 4.9nm. In addition an integrated optic structure will be presented to characterise the interface loss.

CE-P.13 TUE

Evolution of a conically diffracted Gaussian beam in free space

•S. Grant and A. Abdolvand; University Of Dundee, Dundee, United Kingdom

Various parameters relating to the evolution of a Gaussian beam as it propagates along one of the optic axes of four KGd(WO4)2 crystals of differing lengths are reported, along with its cross section.

CE-P.14 TUE

Self-chaining of nanoparticles in polymethyl methacrylate through electrode-free dielectrophoresis

•O. Gennari¹, V. Pagliarulo¹, S. Coppola^{1,2}, V. Vespini¹, L. Miccio¹, S. Grilli¹, and P. Ferraro¹; ¹INO-CNR, Pozzuoli, Italy; ²Department of Chemical Materials and Production Engineering., Napoli, Italy

We propose an electrode-free dielectrophoretic approach for aligning nanoparticles into wires dispersed in non-aqueous suspensions of polymethyl methacrylate. The electric field gradients are generated through spontaneous charge templates arising pyroelectrically onto functionalized ferroelectric crystals.

CE-P.15 TUE

Cascade Conical Diffraction

•S. Grant and A. Abdolvand; University of Dundee, Dundee, United Kingdom

The use of multiple biaxial crystals in cascade configuration to produce conical diffraction is investigated. The polarization dependence and the effect of the relative angles of the crystals is reported as is the free-space crosssection.

CE-P.16 TUE

Laser texturing of ZnO:Al front contact for efficiency enhancement in thin-film silicon solar cells

•D. Canteli¹, S. Fernández¹, J.D. Santos¹, J.P. González¹, C. Molpeceres², I. Torres¹, J. Cárabe¹, and J.J. Gandía¹; ¹Centro de Investigaciones Energéticas, Medioambientáles y Tecnológicas, Madrid, Spain; ²Centro Láser de la Universidad Politécnica de Madrid, Madrid, Spain

A 355nm nanosecond laser source is used to texture AZO thin films. The textured films show appropriated morphology and good optoelectronic properties to be used in thin film silicon solar cells.

CE-P.17 TUE

Mapping Purity of Single-Walled Carbon Nanotubes in Bulk Samples with Multiplex Coherent Anti-Stokes Raman Microscopy

A.S. Duarte^{1,2}, J. Rehbinder¹, R.R.B. Correia², •T. Buckup¹, and M. Motzkus¹; ¹Physikalisch-Chemisches Institut, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany;²Instituto de Física, Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil

Multiplex Coherent anti-Stokes Raman microscopy was used to retrieve information about impurities in a spincoated SWNT distribution. An impurity map was constructed using the ratio between the D- and G-band in SWNTs vibrational spectrum.

110 -

Hall B0

CE-P.18 TUE

Kinetics of Equivalent Temperature of Nonlinear-Optical Crystals

O. Ryabushkin^{1,2}, D. Myasnikov^{1,2}, •A. Konyashkin^{1,2}, and O. Vershinin^{1,2}; ¹Moscow Institute of Physics and Technology, Dolgoprudnyy, Russia; ²NTO "IRE-Polus", Fryazino, Russia

Novel method is proposed for determination of nonlinear-optical crystal heat transfer and optical absorption coefficients by measuring kinetics of crystal*s temperature-dependent piezoelectric resonance frequency during interaction with laser radiation.

CE-P.19 TUE

Photoluminescence emission in Er-activated good quality fluorotellurite thin film glasses

•R. Morea¹, A. Miguel², T. Teddy-Fernandez¹, J. Fernandez^{2,3}, R. Balda^{2,3}, and J. Gonzalo¹; ¹Instituto de Optica, CSIC, Madrid, Spain; ²Dept. of Applied Physics I, Universidad del Pais Vasco UPV/EHU, Bilbao, Spain; ³Materials Physics Center CSIC-UPV/EHU and Donostia International Physics Center, San Sebastian, Spain Good quality Er-doped fluorotellurite thin films glasses are produced by pulsed laser deposition. We show that their photoluminescence emission characteristics can be greatly improved through annealing treatments and discuss the responsible processes for that behavior.

CE-P.20 TUE

Analysis and fabrication of optical active

nanostructures inspired by the blue Morpho butterfly •R.H. Siddique¹, S. Diewald², J. Leuthold^{1,3}, and H. Hölscher¹; ¹Institute for Microstructure Technology (IMT), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany; ²Center for Functional Nanostructures (CFN), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany; ³Institute of Photonics and Quantum Electronics (IPQ), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Morpho butterfly nanostructures reflect blue in wide angle that outplays the regular interference theorem. Our experimental and theoretic analysis reveals alternative thin layers with Christmas tree shape are the origin of this fascinating blue irradiance.

CE-P.21 TUE

New route to Bi+-doped crystals: preparation and NIR luminescence of K, Rb and Cs ternary chlorides, containing univalent bismuth.

 A. Romanov^{1,2}, A. Veber³, Z. Fattakhova⁴, D. Vtyurina⁴, O. Usovich⁵, F. Grigoriev^{1,2}, E. Haula⁴, L. Trusov⁵, P. Kazin⁵, V. Korchak⁴, V. Tsvetkov³, and V. Sulimov^{1,2}; ¹Research Computing Center of M.V. Lomonosov Moscow State University, Moscow, Russia; ²Dimonta Ltd., Moscow, Russia; ³A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia; ⁴N.N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, Moscow, Russia; ⁵Department of Chemistry, M.V. Lomonosov Moscow State University, Moscow, Russia

The ternary chlorides, doped with univalent bismuth can be prepared by crystallization from Lewis acidic melts. These crystals exhibit long-lived luminescence in NIR and can be the perspective optical media for broadband light amplification.

CE-P.22 TUE

Distributed Fibre Analysis with cm Resolution Using Gated Flexural Acoustic Waves

•E.P. Alcusa-Sáez¹, A. Díez¹, M. González-Herráez², and M.V. Andrés¹; ¹Universidad de Valencia, Burjassot, Spain; ²Universidad de Alcalá de Henares, Alaclá de Henares, Spain

Accurate characterization of small fibre inhomogeneities along sections of about 1m, with centimetric resolution, is demonstrated using a time-domain distributed in-fibre acousto-optic interaction based on the propagation of short flexural acoustic wave packets.

CE-P.23 TUE

Band-Edge and Random Lasing in Blue Phase Liquid Crystals

C.-W. Chen¹, H.-C. Jau¹, C.-C. Lin¹, •T.-H. Lin¹, C.-T. Wang¹, I.-C. Khoo², and C.-H. Lee¹; ¹Department of Photonics, National Sun Yat-Sen University, Kaohsiung, China, Republic of (ROC); ²Electrical Engineering Department, Pennsylvania State University, University Park, Pennsylvania, United States

The contribution has been withdrawn by the authors.

CE-P.24 TUE

Study of Femtosecond Laser-induced Grating in Lead Silicate Glasses

S. Chouli, M. Tondusson, and •E. Freysz; LOMA, Université Bordeaux 1, Talence, France

We have studied the formation of gratings in PbO glasses induced by femtosecond pulses. These efficient gratings are produced in few picoseconds. The photo-induced refractive index change scales almost linearly with the PbO molar content

CE-P.25 TUE

Luminescent properties of PMMA-based nanocomposites doped with Pr3+:YF3-Y2O3 nanocrystallites

•A. Jusza¹, L. Lipinska², P. Polis³, and R. Piramidowicz¹; ¹Institute of Microelectronics and Optoelectronics, Warsaw University of Technology, Warsaw, Poland; ²Institute of Electronic Materials Technology, Warsaw, Poland; ³Faculty of Material Science and Engineering, Warsaw University of Technology, Warsaw, Poland

In this work we report the recent results of our investigation on visible emission of the PMMA-based nanocomposites doped with YF3, YF3-Y2O3 (YOF) and Y2O3 activated with Pr3+ ions, synthesized from the singlesource precursor.

CE-P.26 TUE

Self-assembling of liquid crystal droplets on lithium niobate substrates driven by pyroelectric effect

•F. Merola¹, S. Grilli¹, S. Coppola^{1,2}, V. Vespini¹, S. De Nicola¹, P. Maddalena³, C. Carfagna⁴, and P. Ferraro¹; ¹CNR-INO, Pozzuoli, Italy; ²Università Federico II, Dip. Ingegneria, Napoli, Italy; ³Università Federico II, Dip. Scienze Fisiche, Napoli, Italy; ⁴CNR-ICTP, Pozzuoli, Italy Liquid crystal droplets are driven by pyroelectric effect on lithium niobate substrate covered with Polydimethylsiloxane. Droplets assemble themselves in different patterns such as microlens arrays.

CE-P.27 TUE

Photodarkening in optical fibres: comparative study of photo-induced defects using different photon sources

•D. Milanese¹, M. Chiesa², S. Taccheo³, K. Mattsson⁴, H. Gebavi³, T. Robin⁵, L. Lablonde⁵, D. Mechin⁶, A. Monteville⁶, F. Freyria¹, and B. Bonelli¹; ¹Politecnico di Torino - DISAT, Torino, Italy; ²Dipartimento di Chimica, Università di Torino, Torino, Italy; ³Swansea University, Swansea, United Kingdom; ⁴DTU Fotonik, Technical University of Denmark, Lyngby, Denmark; ⁵iXFiber S.A.S., Lannion, France; ⁶PERFOS, R&D Platform of Photonics Bretagne, Lannion, Italy

This report compares the effect of photon sources at different energies on Ce/Yb-doped optical materials for high power lasers. The investigation aims at studying the mechanism of photodarkening for the development of photodarkening-free fibres.

CE-P.28 TUE

Conical refraction: A dual-cone model

•G.S. Sokolovskii^{1,2}, D.J. Carnegie¹, T.K. Kalkandjiev³, and E.U. Rafailov¹; ¹University of Dundee, Dundee, United Kingdom; ²Ioffe Physico-Technical Institute, St.Petersburg, Russia; ³Conerefringent Optics SL, Barcelona, Spain

We propose a dual-cone model of conical refraction involving the interference of two light cones behind the exit facet of the crystal and demonstrating an excellent agreement with experiment.

CE-P.29 TUE

Microstructured Plastic Optical Fibers with Limited Modal Dispersion and Bending Losses

•K. Welikow¹, P. Gdula¹, P. Szczepanski^{1,2}, R. Buczynski^{3,4}, and R. Piramidowicz¹; ¹Institute of Microelectronics and Optoelectronics, Warsaw, Poland; ²National Institute of Telecommunication, Warsaw, Poland; ³Institute of Electronic Materials Technology, Warsaw, Poland; ⁴Faculty of Physics, University of Warsaw, Warsaw, Poland

New geometries of polymer microstructured fibers are proposed for limiting macrobending losses and modal dispersion. The numerical analyses are confronted with measurement results of manufactured mPOFs to verify applicability of developed model.

CE-P.30 TUE

DC electric field assisted fabrication and optical analysis of silver-doped nanocomposite glass

•S. Wackerow and A. Abdolvand; School of Engineering, Physics & Mathematics, University of Dundee, Dundee, United Kingdom

We present DC electric field assisted fabrication of glass with embedded silver nanoparticles. Optical analyses of the fabricated nanocomposites and their depth profiles were performed using cross-section images with an unprecedented clarity.

CE-P.31 TUE

Optical properties of the Bi+ centre in KAlCl4 crystal •A. Veber¹, A. Romanov^{2,3}, O. Usovich⁴, Z. Fattakhova⁵, E. Haula⁵, V. Korchak⁵, L. Trusov⁴, P. Kazin⁴, V. Sulimov^{2,3}, and V. Tsvetkov¹; ¹A.M. Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia; ²Research Computer Center, M.V. Lomonosov Moscow State University, Moscow, Russia; ³Dimonta Ltd., Moscow, Russia; ⁴Department of chemistry, M.V.Lomonosov Moscow State University, Moscow, Russia; ⁵N.N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, Moscow, Russia

Optical properties of the Bi+ center in KAlCl4 crystal host have been studied as a function of temperature. Experimental data were analyzed in terms of electronphonon interaction of Bi+ center with the host crystal.

CE-P.32 TUE

Investigating the efficiency limitations of GaN-based emitters

•B. Crutchley, I. Marko, A. Adams, and S. Sweeney; University of Surrey, Guildford, United Kingdom In this paper we investigate the efficiency droop causing

mechanisms in InGaN blue-green LEDs. From pressure and temperature dependence measurements we find that

Hall B0

a carrier density dependent defect-related process is likely to cause efficiency droop.

CE-P.33 TUE

Fast transient bleaching in Rh-6G functionalized TiO2 nanoparticles: charge transfer dynamics

•L. Menezes¹, E. Almeida¹, C. Araújo¹, A. Brito-Silva², A. Batista², and G. Machado²; ¹Departamento de Física, Universidade Federal de Pernambuco, Recife-PE, Brazil; ²Centro de Tecnologias Estratégicas do Nordeste (CETENE), Recife-PE, Brazil

Charge transfer dynamics in Rh6G-functionalized amorphous TiO2 nanoparticles is investigated using transient bleaching (TB) spectroscopy. The TB shows a faster signal as compared to the bleaching of the free dye in solution.

CE-P.34 TUE

Longitudinal acoustic phonons in 3-dimensional cobalt supracrystals detected by broadband picosecond acoustics •D. Polli¹, I. Lisiecki², C. Yan², E. Duval³, G. Cerullo¹, and M.-P. Pileni²; ¹Politecnico di Milano, Milano, Italy; ²Université Pierre et Marie Curie, Paris, France; ³ Université Lyon, Lyon, France

Longitudinal acoustic phonons with few-GHz frequency were launched with femtosecond pulses and detected in three-dimensional supracrystals of 7-nm cobalt nanocrystal spheres. We extract the speed of sound (1100 m/s), which interestingly strongly depends on temperature.

CE-P.35 TUE

Fabrication and Characterization of Zirconium doped Periodically Poled Lithium Niobate

M.V. Ciampolillo¹, G. Pozza¹, •M. Bazzan¹, N. Argiolas¹, A. Zaltron¹, L. Bacci¹, C. Sada¹, G. Nava², and P. Minzioni²; ¹University of Padova, Padova, Italy; ²University of Pavia, Pavia, Italy

We present here our recent result on the fabrication and characterization of periodically poled structures in optical damage resistant Zr * doped lithium niobate.

13:00 - 14:00

IC-P: IC Poster Session

IC-P.1 TUE

Towards a Bose-Fermi mixture experiment in a 2D optical lattice with high optical resolution

•N. Meyer^{1,2}, M. Perea-Ortiz¹, C. O'Neale¹, M. Holynski¹, M. Baumert¹, K. Bongs¹, and J. Kronjaeger¹; ¹School of Physics and Astronomy, Birmingham, United Kingdom; ²Institute of Laserphysics, Hamburg, Germany Presented is a versatile setup for Bose-Fermi mixtures in optical potential including simultaneous magnetooptical trapping of two species, magnetic transport and cooling towards a BEC. In the context of this project new technologies were developed.

IC-P.2 TUE

Chaotic Dynamics of Bose-Einstein Condensates in **Optical Cavities**

•M. Diver, G. Robb, and G.-L. Oppo; Institute of Complex Systems, SUPA and Department of Physics, University of Strathclyde, Glasgow, United Kingdom

We consider a Bose-Einstein condensate interacting with a laser beam in an optical cavity. The modulated optical lattice induces chaotic oscillations that occur when in-

creasing the amplitude of the pump beyond the bistable regime.

IC-P.3 TUE

Institut de Ciencies Fotoniques

•T. Vanderbruggen¹, S. Palacios¹, N. Martinez¹, and M. Mitchell^{1,2}; ^{°I}ICFO - Institut de Ciencies Fotoniques, Castelldefels (Barcelona), Spain; ²ICREA - Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain We propose a new method to produce a continuous source of spin-polarized cold atoms which are alloptically guided after their extraction from a magnetooptical trap (MOT).

IC-P.4 TUE

Microwave ring trap for ultracold atoms

•G. Sinuco, K. Burrows, and B. Garraway; School of Physics and Astronomy, University of Sussex, Brighton, United Kingdom

We propose a ring trap for ultracold alkali atoms via a combination of external and induced microwave fields. We consider the trapping characteristics, the trap lifetimes, and its feasibility in an atom-chip configuration.

IC-P.5 TUE

High-contrast spatial interference of BECs

C. Carson, M. Zawadzki, P. Griffin, E. Riis, and •A. Arnold; University of Strathclyde, Glasgow, United Kingdom

We use magnetic levitation and an optical plug to obtain 95% contrast spatial interference between two BECs. Interference patterns with fringe periods of 85microns (individual de Broglie wavelengths of 170microns) are possible with 200ms levitation.

IC-P.6 TUE

Towards an interferometer with thermal atoms trapped on a chip

M. Ammar¹, M. Dupont-Nivet¹, L. Huet¹, C. Guerlin^{1,2}, J. Reichel², P. Rosenbusch³, I. Bouchoule⁴, C. Westbrook⁴, and •S. Schwartz¹; ¹Thales Research and Technology, Palaiseau, France; ²Laboratoire Kastler-Brossel, Paris, France; ³LNE-SYRTE, Paris, France; ⁴Laboratoire Charles Fabry de l'Institut d'Optique, Palaiseau, France We will discuss the possibility of building a trappedatom interferometer without a Bose-Einstein condensate, to weaken the effect of atomic interactions, by using internal state labeling and two coplanar waveguides on an atom chip.

IC-P.7 TUE

Temperature Limits in Laser Cooling of Free Atoms with Three-level Transitions

•F. C. Cruz¹, M. L. Sundheimer², and W. C. Magno²; ¹Instituto de Fisica Gleb Wataghin, Universidade Estadual de Campinas, Campinas, Brazil; ²Departamento de Fisica, Universidade Federal Rural de Pernambuco, Recife, Brazil

We consider laser cooling of free atoms with simultaneous two-color excitation of three-level cascade transitions finding theoretically that temperatures below the Doppler limits associated with each one of the individual transitions are obtained.

IC-P.8 TUE

Collision of Discrete Breathers in Two-Species Bose-Einstein Condensates in Optical Lattices

•R. Campbell¹, M. Borkowski², and G.-L. Oppo¹; ¹University of Strathclyde, Glasgow, United Kingdom; ²University N Copernicus, Torun, Poland

Coupled discrete nonlinear Schrodinger equations describe two-species BEC in deep optical lattices. The collision of travelling discrete breathers can be either elastic or inelastic depending on the sign of the inter-species interaction parameter.

13:00 - 14:00

ISV-P: JSV Poster Session

JSV-P.1 TUE

Nano-Optical Measurements of Novel Superconducting Single Photon Detector Designs •R.M. Heath¹, M.G. Tanner¹, L. San-Emeterio-Alvarez², W. Jiang², Z.H. Barber², R.J. Warburton³, and R.H. $Hadfield^1$; ¹University of Glasgow, Glasow, United Kingdom; ²University of Cambridge, Cambridge, United Kingdom; ³University of Basel, Basel, Switzerland We present nano-optical studies of novel superconducting nanowire single photon detector designs, including

spatial-resolvable multi-photon absorption. Local response and timing properties are investigated especially of SNAPs, and more recent results enhancing photoresponse will be presented.

13:00 - 14:00

CI-P: CI Poster Session

CI-P.1 TUE

Comparison of 850-nm and 1550-nm VCSELs for Low-Cost Short-Reach IM/DD and OFDM SMF/MMF Links

•F. Karinou, L. Deng, R. Rodes, J. Bevensee Jensen, K.

Prince, and I. Tafur Monroy; Technical University of Denmark, Copenhagen, Denmark

We report on the experimental performance of a multimode 850-nm and a single-mode 1550-nm VCSEL employing IM/DD and OFDM-QPSK over SMF and MMF links for their potential application in low-cost, rack-torack optical interconnects.

CI-P.2 TUE

Theoretical Study on Linewidth Characteristics of SGDBR Lasers for Coherent Optical Communications

W. Chen¹, •Y. Yu¹, J. Zhao¹, K. Shi², and L. Barry²; ¹Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, Wuhan, China, People's Republic of (PRC); ²The Rince Institute, Dublin City University, Dublin, Republic of Ireland We investigate linewidth of SGDBR lasers with a model based on the TLLM method, in which spontaneous emission noise and shot noise are included. Simulated results show the linewidth varies with increasing the phase current.

CI-P.3 TUE

First order optical differentiator based on an FBG in transmission

•M.A. Preciado, X. Shu, P. Harper, and K. Sugden; Aston Institute of Photonic Technologies, Birmingham, United Kingdom

The experimental demonstration of a single element, all fiber approach for first-order differentiator based on a fiber Bragg grating in transmission is reported, showing a good performance over an operational bandwidth of \sim 2 nm.

CI-P.4 TUE

Free-space optical polarization demultiplexing and multiplexing by means of conical refraction

•A. Turpin¹, Y. Loiko¹, T.K. Kalkandjiev^{1,2}, and J. Mompart¹; ¹Departament de Física, Universitat Autònoma de Barcelona, Bellaterra, Spain; ²Conerefringent Optics SL, Avda Cubelles 28, Vilanova i la Geltrú, Spain

We present a novel technique for polarization multiplexing for free space optical communications by means of conical refraction that allows increasing in one order of magnitude the channel capacity in a propagation distance of 4m.

CI-P.5 TUE

Experimental Caracterization of a Burst-Enabled O-OFDM Transceiver

•J.M. Fabrega, M. Svaluto Moreolo, F.J. Vilchez, and L. Nadal; Centre Tecnologic de Telecomunicacions de Catalunya, Castelldefels, Spain

A burst-enabled tunable IM/DD O-OFDM based on Hartley transform is investigated and experimentally characterized. Its transmission performances have been assessed in terms of tunability and in the presence of EDFA transients.

CI-P.6 TUE

Noise suppression characteristics of negative

feedback optical amplifier using an optical triode •A. Syafiq, Y. Fujikawa, and Y. Maeda; Kinki University, Higashi-Osaka, Japan

We investigated the relationship of inverted negative feedback signal intensity with bit error rate using optical triode. It was found out that power penalty was improved by 15 dB and noise suppression characteristic was obtained.

CI-P.7 TUE

High-Power Dense Wavelength Division Multiplexer (HP-DWDM) for Diode Lasers using Volume Bragg Gratings (VBG)

•S. Hengesbach¹, N. Krauch², C. Holly¹, M. Traub², and D. Hoffmann²; ¹Chair for Laser Technology, Aachen, Germany; ²Fraunhofer Institute for Laser Technology, Aachen, Germany

The authors present a compact dense wavelength division multiplexer with 1.5 nm center wavelength spacing for five spectrally stabilized diode laser bars with low beam quality (14 mm mrad). The multiplexing efficiency amounts 85 %.

CI-P.8 TUE

An Optically Modulated Radio Frequency Backscatter Wireless Data Link

H. Cantu¹, •C. Ironside¹, B. Romeira², A. Kelly¹, and J. Figueiredo²; ¹University of Glasgow, Glasgow, United Kingdom; ²Universidade do Algarve, Faro, Portugal Optical modulation of the impedance of an antenna coupled photo-detector is used to convert data from optical to wireless domains. Radio frequency backscatter is exploited as a low cost, low power, data link technology solution.

CI-P.9 TUE

Mechanical Robustness of MMF Datacom

Interconnections using Center-Launching Technique •A. Boletti, A. Gatto, P. Boffi, P. Martelli, E. Centeno Nieves, and M. Martinelli; Politecnico di Milano, Milano, Italy

Robustness to mechanical perturbations of centerlaunching technique in multi-mode fiber is demonstrated compliant to ETSI recommendations to implement fully-transparent board-to-board and data server fiber interconnections where only the fundamental mode propagates without higher-order modes excitation.

CI-P.10 TUE

Generalized directional coupling for high-precision manipulation of the optical phase for classical and quantum light

•R. Heilmann, R. Keil, S. Nolte, and A. Szameit; Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-University, Jena, Germany

A precise method for optical phase manipulation of classical and quantum light in integrated waveguide structures is presented. We employ generalized directional couplers which allow the exact tuning of the effective index in such structures.

CI-P.11 TUE

Performance Comparison between Electrical and Optical Backplanes

•A. Boletti¹, D. Giacomuzzi², G. Parladori², P. Boffi¹, and M. Martinelli¹; ¹Politecnico di Milano, Milan, Italy; ²Alcate-Lucent Italia S.p.A., Vimercate, Italy

Comparison between performance of copper interconnections and fiber optics backplane is shown also by simulations to demonstrate their limitations in frequency and capabilities in terms of capacity, power budget and consumption.

CI-P.12 TUE

Optical Switch based on Microring Resonators and Phase change Materials

•M. Rudé¹, J. Pello², R. Simpson³, J. van der Tol², and V. Pruneri^{1,4}; ¹ICFO-Institut de Ciències Fotòniques, Castelldefels, Spain; ²Eindhoven University of Technology, Eindhoven, The Netherlands; ³Singapore University of Technology and Design, Singapore, Singapore; ⁴ICREA-Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain

We demonstrate optical switching at telecommunication wavelengths in a silicon microring resonator with a modulation of 10 dB, induced by a laser-driven transition from the amorphous to the crystalline phase of a Ge2Sb2Te5 overcladding layer.

CI-P.13 TUE

Equivalent Modeling of Micro-bending in Multimode-fibers with Parabolic Index Profile using Discrete Coupling

•A. Juarez, E. Krune, and K. Petermann; Technische Universität Berlin, Berlin, Germany

A discrete model to estimate modal-coupling and its losses in MMF is presented and validated using coupled mode theory. The amount of discrete-coupling points can be reduced significantly if the overall losses are the same.

CI-P.14 TUE

8QAM regeneration using a phase-sensitive amplifier with dual-conjugated pumps •B. Stiller^{1,2}, G. Onishchukov^{1,2}, B. Schmauss³, and G.

•B. Stiller^{1,2}, G. Onishchukov^{1,2}, B. Schmauss³, and G. Leuchs^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Institute of Optics, Information and Photonics, University of Erlangen, Erlangen, Germany; ³Institute of Microwaves and Photonics, University of Erlangen, Erlangen, Germany

Phase regeneration of an 8QAM signal with two amplitude levels in a phase-sensitive amplifier with two conjugated pumps is numerically investigated. Effects limiting regenerator performance are identified and improvement possibilities are considered.

CI-P.15 TUE

Investigating the influence of thermal coefficients on 2-D WH/TS OCDMA code propagation in optical fiber

•T. Osadola¹, S. Idris¹, I. Glesk¹, and W. Kwong²; ¹Department of Electronic and Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom; ²Hofstra University, Hempstead, United States

Extensive studies have been carried out to analyse the bit error rate of a 32-User, 2D-WH/TS OCDMA system propagating under the influence of environmental temperature variation caused by thermal coefficients of an optical fibre.

CI-P.16 TUE

Phase modulation technique for high modulation wide band planar Bragg grating fabrication

•C. Sima, J. Gates, C. Holmes, H. Rogers, P. Mennea, M. Zervas, and P. Smith; Optoelectronics Research Centre, Southampton, United Kingdom

A phase modulation controlled direct grating system is presented for fabricating high modulation, wide spectral band integrated Bragg gratings. The method also offers greater fabrication speed with a higher fidelity of control.

CI-P.17 TUE

WDM-Filters fabricated with Hydrogenated Amorphous Silicon Ring and Racetrack Resonators

•T. Lipka, J. Amthor, and J. Müller; Hamburg University of Technology, Institute of Micro Systems Technology, Hamburg, Germany

Wavelength-division multiplexers with low footprint were designed and realized with low-loss hydrogenated amorphous silicon. Four and eight channel devices based on cascaded racetrack and ring resonators were optically characterized and will be presented.

$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Tuesday 14 May 2013

NOTES	
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8:30

8:45

9:00

ROOM 4a

8:30 - 10:00

II-1: Quantum and Graphene Plasmonics

Chair: Peter Nordlander, Rice University, Houston, USA

II-1.1 WED

Excitation of plasmon modes in a graphene monolayer supported on a 2D subwavelength silicon grating

•X. Zhu^{1,2}, W. Yan^{1,2}, P.U. Jepsen¹, O. Hansen^{3,4}, A. Mortensen^{1,2}, and S. Xiao^{1,2}; ¹Department of Photonics Engineering, Technical University of Denmark, DK-2800 Kongens Lyngby, Denmark; ²Center for Nanostructured Graphene (CNG), Technical University of Denmark, DK-2800 Kongens Lyngby, Denmark; ³Department of Micro and Nanotechnology, Technical University of Denmark, DK-2800 Kongens Lyngby, Denmark; ⁴Center for Individual Nanoparticle Functionality (CINF), Technical University of Denmark, DK-2800 Kongens Lyngby, Denmark We experimentally demonstrate graphene-plasmon excitation in a continuous graphene monolayer resting on a 2D subwavelength silicon grating. Measured transmission spectra illustrate the excitation of grapheneplasmons, which is further supported by numerical simulations.

II-1.2 WED	
I Iléne sénemen liebé	

Ultrastrong light-matter coupling between high-mobility 2DEG and superconducting THz metasurfaces.

•G. Scalari¹, C. Maissen¹, S. Cibella², R. Leoni², E. Giovine², P. Carelli³, D. Hagenmüller⁴, S. de Liberato⁴, C. Ciuti⁴, F. Valmorra¹, M. Beck¹, and J. Faist¹; ¹Institute of Quantum Electronics, ETH Zürich, Zürich, Switzerland; ²CNR-IFN, Institute for Photonics and Nanotechnologies, Rome, Italy; ³DSFC, Università dell' Aquila, L'Aquila, Italy; ⁴Laboratoire Matériaux et Phénomènes Quantiques, Université Paris Diderot-Paris 7 and CNRS, Paris, France We demonstrate ultrastrong light-matter coupling between a superconductor-based THz metasurface and the cyclotron transition of a single high-mobility two-dimensional electron gas. We measure a normalized coupling ratio of $\Omega/\omega = 0.27$ for $\omega = 420$ GHz.

II-1.3 WED (Invited)

Quantum effects in tunnelling plasmonics

•J. Aizpurua¹, R. Esteban¹, P. Nordlander², and A. Borisov³; ¹Materials Physics Center (CSIC-UPV/EHU) and DIPC, Donostia-San Sebastián, Spain; ²Laboratory for Nanophotonics, Rice University, Houston, United States; ³Institut des Sciences Moléculaires d'Orsay, CNRS-Université Paris-Sud, Orsay, France

As dimensions between metallic nanoparticles become subnanometric, quantum effects such as electron spill-

ROOM 4b

8:30 - 10:00

CI-3: Optical Signal Processing *Chair: Stefan Wabnitz, University of Brescia, Italy*

Chair: Siejan Waoniiz, University of Brescia, Italy

CI-3.1 WED

8:30

8:45

9:00

CI-3.2 WED

CI-3.3 WED

Fiber Optical Parametric Polarizer

trical Engineering, Baltimore, United States

A universal all-fiber Omnipolarizer

J. Fatome¹, S. Pitois¹, P. Morin¹, P.-Y. Bony¹, E. Assémat¹, D. Sugny¹, A. Picozzi¹, H.-R. Jauslin¹, G. Millot¹, V. Kozlov^{2,3}, •M. Guasoni¹, and S. Wabnitz²; ¹Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France; ²Università di Brescia, Brescia, Italy; ³St.-Petersburg State University, St.-Petersburg, Russia

We experimentally demonstrate an unexpected capability of light to self-organize its own state-of-polarization in optical fibers into universal, environmentally robust states. This polarizing device: Omnipolarizer, can operate as a digital PBS or as ideal polarizer.

•T. Sylvestre¹, B. Stiller¹, J. Fatome², P. Morin², S. Pitois²,

and C. Menyuk³; ¹Institut FEMTO-ST, Besancon, France;

²Laboratoire Interdisciplinaire Carnot de Bourgogne, Di-

jon, France; ³Department of Computer Science and Elec-

We demonstrate a fiber-optical parametric polarizer, i.e.,

a polarizing device based on parametric amplification in

optical fibers. A large degree of polarization was achieved

for both the signal and idler waves with 25 dB gain.

All-Optical Phase Regeneration of Multi-level

Research Centre, Southampton, United Kingdom

•G. Hesketh¹ and P. Horak²; ¹Optoelectronics Research

Centre, Southampton, United Kingdom; ²Optoelectronics

We investigate the effect of four-wave-mixing based

phase regeneration on the transmission capacity of fiber

optic links for complex modulation formats. The bene-

fits of a novel regenerator with reduced excess amplitude

Amplitude and Phase Shift Keyed Signals

ROOM 13a

8:30 - 10:00

CA-8: High Inversion Laser System

Chair: Frédéric Druon, Institut d'Optique Graduate School, Laboratoire Charles Fabry, Palaiseau, France

CA-8.1 WED

Diode-pumped Yb:LuAG and Yb:YAG disk laser amplifiers with high pulse energies

•M. Siebold¹, M. Loeser¹, D. Albach¹, F. Röser¹, S. Banerjee², and U. Schramm¹; ¹Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany; ²Central Laser Facility, STFC Rutherford Appleton Laboratory, Didcot, United Kingdom

We report the first short-pulse amplification to several hundred millijoule energies in ceramic Yb:LuAG. We demonstrated ns-pulse output from a diode-pumped Yb:LuAG amplifier at an energy of 580 mJ and an efficiency of 28%.

8:45

9:00

8:30

Millijoule Femtosecond Pulses at 5 kHz from cw-Pumped Ho:YAG Regenerative Amplifier

•P. Malevich¹, G. Andriukaitis¹, T. Floery¹, A. Verhoef¹, S. Alisauskas¹, A. Pugzlys¹, A. Baltuska¹, L. Tan^{2,3}, C.F. Chua², P.B. Phua^{2,3}, and A. Fernandez¹; ¹Photonics Institute, Vienna University of Technology, Vienna, Austria; ²Nanyang Technological University, Singapore, Singapore; ³DSO National Laboratories, Singapore, Singapore

A novel cw Tm-fiber laser pumped femtosecond Ho:YAG room-temperature CPA system is presented. The 5-kHz system delivers 3mJ pulses with >12nm bandwidth and an average power of 15W. The output is compressed to 530fs FWHM.

CA-8.3 WED

CA-8.2 WED

High Energy, High Repetition Rate Picosecond Pulses from a Quasi-CW Diode Pumped Nd:YAG System •D.W.E. Noom, S. Witte, and K.S.E. Eikema; LaserLaB Amsterdam, VU University Amsterdam, Amsterdam, The Netherlands

We present a 300 Hz repetition rate quasi-CW diodepumped Nd:YAG laser system, producing 80 mJ, 60 ps pulses at 532 nm, aimed at parametric amplification of ultrashort pulses for high-flux soft X-ray generation.

ROOM 13b

8:30 - 10:00

JSII-1: Photonics for Defence and Security: Spectroscopy Imaging and Detection Chair: Eric Lallier, Thales Research and Technology, Palaiseau, France

JSII-1.1 WED (Invited)

QCL Based Detection of Hazardous Substances

•K.N. Patel; Pranalytica, Inc., Santa Monica, CA, United States

I will describe use of MWIR and LWIR QCLs, generating high power tunable radiation in the 3.5µm-12µm region, for high sensitivity in-situ and standoff detection of chemical warfare agents, hazardous toxic industrial chemicals and explosives.

JSII-1.2 WED

9:00

8:30

Kilometre-range, high resolution depth imaging using 1560 nm wavelength single-photon detection •A. McCarthy¹, N. Krichel^{1,2}, N. Gemmell¹, X. Ren¹, M. Tanner^{1,3}, S. Dorenbos⁴, V. Zwiller⁴, R. Hadfield^{1,3}, and G. Buller¹; ¹School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom; ²Helia Photonics Ltd, Livingston, United Kingdom; ³School of Engineering, University of Glasgow, Glasgow, United Kingdom; ⁴Kalvi Institute of Nanoscience, Delft

8:30

8:45

9:00

ROOM 14a

8:30 - 10:00

CI-5: High Peak Power Fibre Sources Chair: Oliver de Vries, IOF, Jena, Germany

CJ-5.1 WED

50 uJ, 90 ps monolithic fiber amplifier passively Q-switched microchip laser with low timing jitter

•G. Machinet, C. Pierre, and P. Dupriez; Alphanov, Talence. France

We report on a 50uJ, 90ps monolithic fiber amplifier system seeded by a passively Q-switched microchip laser incorporating a simple timing jitter reduction scheme while providing controlled tunable repetition rates.

ROOM 14b

8:30 - 10:00

CM-4: Ultrafast Phenomena and

Nanostructuring

8:30

Chair: Stefan Nolte, Friedrich Schiller University of Jena, Jena, Germany

CM-4.1 WED

Nanograting Imprinted with

Femtosecond-Laser-Induced Plasmonic Near-Field

•K. Miyazaki and G. Miyaji; Kyoto University, Uji, Japan We have shown that the ultrafast excitation of surface plasmon polaritons can be controlled to directly imprint a homogeneous nanograting on GaN surface in air, using a simple two-step process of femtosecond laser ablation.

ROOM 21

8:30 - 10:00

IA-4: Ouantum State Control

Chair: Valentina Parigi, Laboratoire Charles Fabry, Paris, France

IA-4.1 WED

Large Optical Phase Shift from a Single Trapped Atomic Ion

•A. Jechow^{1,2}, E. Streed¹, B. Norton¹, S. Haendel¹, V. Bluhms¹, and D. Kielpinski¹; ¹Centre for Quantum Dynamics, Griffith University, Brisbane, Australia; ²University of Potsdam, Institute of Physics and Astronomy, Photonics, Potsdam, Germany

We have used a single trapped atomic ion to induce and measure a large optical phase shift of 1.3 radians in light scattered by the atom by utilizing spatial interferometry based on absorption imaging.

ROOM EINSTEIN

8:30 - 10:00

CE-7: Nonlinear Materials

Chair: Markus Pollnau, University of Twente, The Netherlands

CE-7.1 WED

CE-7.2 WED

public of (PRC)

agreement with our results.

crystal

8:30

8:45

9:00

8:30

8:45

On the reactive ion etching of RbTiOPO4

•A. Choudhary¹, J. Cugat², P. Kannan¹, R. Sole², F. $Diaz^2$, M. Aguilo², H. Chong³, and D. Shepherd¹; ¹Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ²Universitat Rovira i Virgili, Tarragona, Spain; ³Electronics and Computer Science, University of Southampton, Southampton, United Kingdom

We discuss the reactive ion etching of a non-linear crystal, RbTiOPO4 in a fluorine rich environment and the process optimisation to fabricate single-mode channel waveguides in (Yb,Nb):RbTiOPO4 for lasing application around 1 micron.

the Kerr nonlinearity of the beta-barium borate

M. Bache¹, •H. Guo¹, B. Zhou¹, and X. Zeng^{1,2}; ¹Group of

Ultrafast Nonlinear Optics, DTU Fotonik, Technical Uni-

versity of Denmark (DTU), Kgs. Lyngby, Denmark; ²Key Laboratory of Special Fiber Optics and Optical Access Net-

works, Shanghai University, Shanghai, China, People's Re-

The beta-barium borate crystal is popular for ultrafast

cascading. We measure the main Kerr nonlinearity, and

after correcting similar literature data for deterministic

contributions we obtain an average value in excellent

CJ-5.2 WED

75kW peak power 50ps pulsed fiber laser system

•Y. Kamba¹, K. Tei¹, S. Yamaguchi¹, J. Enokidani², and S. Sumida²; ¹Tokai University, Hiratsuka, Japan; ²OPT-i Co., Ltd., Kashiwa, Japan

We report on a high peak power pulsed Yb-doped fiber laser with 75kW peak power and 30W average power. We demonstrated a tunable 50ps-2ns pulse width, a tunable 200kHz-8MHz repetition rate and wavelength conversion.

CJ-5.3 WED

Fiber Amplifier CPA System using Divided-Pulse Amplification for multi-mJ Extraction

•M. Kienel¹, A. Klenke^{1,3}, S. Breitkopf¹, T. Eidam^{1,3}, C. Jauregui¹, J. Limpert^{1,2,3}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany; ²Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany; ³Helmholtz-Institute Jena, Jena, Germany

8:45 CM-4.2 WED

9:00

Multiphoton-avalanche absorption yields with femtosecond laser pulses in the wavelength range 1300-2200nm

•S. Leyder¹, D. Grojo¹, P. Delaporte¹, W. Marine², M. Sentis¹, and O. Utéza¹; ¹Aix-Marseille Université, CNRS, LP3(Lasers, Plasmas et Procédés Photoniques), UMR7341, Marseille, France; ²Aix-Marseille Université, CNRS, CINAM(Centre Interdisciplinaire de Nanoscience de Marseille), UMR7325, Marseille, France

We measure multiphoton-avalanche absorption yields inside various band gap materials with femtosecond laser pulses at different wavelengths. It provides an original data set to test models for strong field ionization by femtosecond lasers.

CM-4.3 WED

Unambiguous Evidence of Two Plasmon Decay **During Ultrafast Laser Writing in Glass**

•A. Patel, M. Gecevičius, R. Drevinskas, M. Beresna, and P. Kazansky; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom $3\omega/2$ emission has been observed during ultrafast laser experiments in the regime of permanent modification in glass. This explicitly demonstrates the existence of two plasmon decay clarifying the issues of plasma concentra-

IA-4.2	WED	

Parametric feedback cooling of a single atom inside an optical cavity

•T. Wilk, C. Sames, H. Chibani, C. Hamsen, A.C. Eckl, P. Altin, and G. Rempe; Max-Planck-Institut für Quantenoptik, Garching, Germany

of the radial and axial motion of a single atom held in an intra-cavity standing wave dipole trap.

IA-4.3 WED

Coherent manipulation of cold cesium atoms in a nanofiber-based two-color dipole trap

•P. Schneeweiss, R. Mitsch, D. Reitz, C. Savrin, and A. Rauschenbeutel; Vienna Center for Quantum Science and Technology & Atominstitut, Vienna University of Technology, Vienna, Austria

We measure the ground state coherence properties of the clock transition of cesium atoms in a nanofiber-based two-color dipole trap. Using a sufficiently large magnetic

Freiburg, Germany

CE-7.3 WED

High-sensitivity measurement of residual absorption of lithium triborate crystals

•N. Waasem¹, F. Kühnemann¹, and K. Buse^{1,2}; ¹Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg, Germany; ²Department of Microsystems Engineering, University of Freiburg,

Absorption is measured from 410-2600 nm in lithium triborate crystals, employing a photoacoustic spectrome-

We observe for the first time parametric feedback cooling

9:15

9:30

9:45

ROOM 4a

out and coherent tunneling modify their optical response. We introduce a theoretical framework to describe quantum effects in realistic plasmonic systems.

ROOM 4b

ROOM 13a

Thermal and Non-Thermal Lensing of Yb:YAG and

•B. Fulford^{1,2}, D. Hall¹, J. Lee², and H. Baker¹; ¹Heriot-

Watt University, Edinburgh, United Kingdom; ²Rofin-Sinar UK Ltd., Kingston upon Hull, United Kingdom

The effective lens strength of edge-pumped Yb:YAG and

Tm:YAG thin slabs under various conditions are com-

pared. Discrepancy with a purely thermal model is dis-

cussed relative to the population difference profile and

Tm:YAG Thin Slab Laser Gain Media

electronic refractive index change.

ROOM 13b

University of Technology, Delft, The Netherlands Centimetre-scale resolution depth imaging of lowsignature targets at kilometre range was demonstrated using the single-photon time-of-flight approach at 1560nm wavelength with a superconducting nanowire single photon detector.

JSII-1.3 WED 9:15

Long Range Active Hyperspectral Target Identification Using Near-IR Supercontinuum Light Source

•A. Manninen¹, T. Kääriäinen¹, T. Parviainen², S Buchter³, M. Heiliö³, and T. Laurila^{1,4}; ¹Centre for Metrology and Accreditation, Espoo, Finland; ²Defense Forces Technical Research Centre, Lakiala, Finland; ³Lasersec Systems, Jorvas, Finland; ⁴Metrology Research Institute, Aalto University, Espoo, Finland

Active hyperspectral measurement at distances up to 250 meters in the daytime has been demonstrated. Cost efficient supercontinuum source employing a graded index optical fiber was used as the light source.

JSII-1.4 WED

9:30

9:15

Looking beyond smoke and flames. A challenge for people safety, met thanks to Digital Holography at

and P. Ferraro¹; ¹CNR-National Institute of Optics, Pozzuoli (Naples), Italy; ²CNR-National Institute of Optics

Here we show that a clear imaging of alive people through smoke and flames is possible by Digital Holography at far infrared. A lensless configuration is the key to get rid of the flame emissions.

JSII-1.5 WED

Q.42

Broadband Quantum Cascade Lasers monolithically multiplexed on Silicon for mid-infrared spectroscopy G. Maisons¹, •B. Gerard¹, B. Simozrag¹, V. Trinité¹, M Carras¹, M. Brun², S. Boutami², P. Labaye², and S. Nicoletti²; ¹III-V Lab, Palaiseau, France; ²CEA-LETI, Grenoble, France

We present the realizations of a QCL monolithic, widely tuneable, source in the mid-Infrared for laser spectroscopy.

CI-3.4 WED

Impact of Four-wave Mixing Phase Noise Transfer on Wavelength Converted QPSK Signals

•S. Tayeb Naimi, S. O Duill, and L. Barry; Dublin Citv University, Dublin, Republic of Ireland

We calculate impairments of a 10 GBaud QPSK signal due to the phase noise transfer of the four-wave mixing process. We show how this effect places limits on pump sources used in wavelength converters.

in mode-locked semiconductor lasers via strong

•R. Watts¹, R. Rosales², S. Murdoch³, F. Lelarge⁴, A.

Ramdane³, and L. Barry¹; ¹School of Electronic Engi-

neering, Dublin City University, Dublin, Republic of Ire-

land; ²CNRS Laboratory for Photonics and Nanostruc-

tures, Marcoussis, France; ³Physics Department, Univer-

nonlinear wavelength convertor to achieve wavelength conversion up to 25nm for 1ps-duration pulses via strong

CI-3.5 WED

9:30

Wavelength conversion of ps-duration pulses induced

optical injection.

external optical injection.

Magnetic graphene metamaterial

•N. Papasimakis¹, S. Thongrattanasiri², N. Zheludev^{1,3}, and F.J. Garcia de Abajo²; ¹Optoelectronics Research Centre & Centre for Photonic Metamaterials, Southampton, United Kingdom; ²Instituto de Química Física Rocasolano - Consejo Superior de Investigaciones Científicas, Madrid, Spain; ³Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore, Singapore

We demonstrate a magnetic graphene metamaterial consisting of split ring resonators with very high (>100) wavelength to unit-cell ratios and high quality factors not attainable by thin layers of conventional noble metals.

¹Weizmann Institute of Sciences, Rehovot, Israel; ²École

Polarized SHG imaging evidences strong coupling be-

tween metallic nanocavities at comparatively long range.

Coupled triangular nanocavities lose their individual

three-fold octupolar symmetry to adopt the lower sym-

From individual to strongly coupled metallic

Normale Supérieure de Cachan, Cachan, France

metry of a single dipolar entity.

II-1.5 WED

nanocavities

II-1.4 WED

9:45 CI-3.6 WED

All Optical Clock Recovery of 40 GHz Quantum Dash Mode-Locked Laser to Return-to-Zero 160 Gb/s data A. Salomon¹, Y. Prior¹, R. Kolkowski², and •J. Zyss²; stream

Research and Technology", Marcoussis, France

•J. Parra-Cetina¹, J. Luo², N. Calabretta², and P. Landais¹; ¹Dublin City University, Dublin, Republic of Ireland; ²Cobra Research Institute, Eindhoven, The Netherlands

All optical clock recovery of 40 GHz quantum dash mode-locked laser has been achieved under injection of the 160 Gb/s coherent wavelength converted signal featuring no spectral component at 40 GHz.

CA-8.5 WED

CA-8.4 WED

Temperature Development in Yb:YAG Thin-Disk Lasers at High Inversion Densities Confirming Nonlinear Losses

•U. Wolters, K. Beil, C. Kraenkel, K. Petermann, and G. Huber; Institute of Laser Physics, University of Hamburg, Hamburg, Germany

At high outcoupling transmissions strong heat is generated in Yb:YAG thin-disk lasers, revealing a nonlinear loss process that reduces laser efficiency. These losses are analysed and compared to the photoconductivity results

Multimode Laser-Diode Pumped Continuous-Wave Stoichiometric Yb3Al5O12 Laser

•D. Kimura¹, S. Matsubara¹, K. Otani¹, T. Ueda¹, M. Inoue¹, N. Shimojo¹, Y. Sasatani¹, A. Maruko¹, D. Mizuno¹, M. Nishio¹, and S. Kawato^{1,2,3}; ¹Graduate School of Engineering, University of Fukui, Fukui, Japan; ²Research and Education Program for Life Science, University of Fukui, Fukui, Japan; ³Japan Synchrotron Radiation Research Institute (JASRI),, Sayo, Japan A laser-diode-pumped, continuous-wave microchip stoichiometric Yb3Al5O12 laser was realized at room temperature. It is the first for the laser-diode-pumped, continuous-wave stoichiometric Yb lasers, to our knowledge.

126

9:30

9:45

10.6µm •V. Bianco¹, M. Paturzo¹, M. Locatelli², E. Pugliese², A. Finizio¹, A. Pelagotti², P. Poggi², L. Miccio¹, R. Meucci²

Florence, Italv

CA-8.6 WED

sity of Auckland, Auckland, New Zealand; ⁴III-V Lab, ajoint laboratory of "Alcatel Lucent Bell Labs" and "Thales found in Yb:YAG. A 48GHz passively mode-locked semiconductor laser is used as both a high repetition-rate pulse source and also

noise are demonstrated.

9:15

9:30

9:45

ROOM 14a

A state-of-the-art chirped-pulse fiber amplification system for energy scaling is presented. Using divided-pulseamplification with an active stabilization sytem and pulse train tailoring, this system is able to extacting multi-mJ pulse energies from a LMA fiber.

CJ-5.4 WED

High Peak Power, High-Energy, High-Average Power Pulsed Fibre Laser System with Versatile Pulse

Duration and Shape

•A. Malinowski, P. Gorman, C. Codemard, F. Ghiringhelli, A. Boyland, A. Marshall, and M. Durkin; SPI Lasers UK Ltd, Southampton, United Kingdom

We demonstrate a 1061nm all-fibre MOPA system with average power of 265W, capable of pulse energies up to 10.6mJ, peak powers exceeding 100kW with adjustable pulse duration in the range 500ps-500ns.

CJ-5.5 WED

Imposing Temporal and Frequency Characteristics in a System of Coherently Combined High Peak Power Photonic Crystal Fiber Lasers

•B. Shulga and A. A. Ishaaya; Ben-Gurion University of the Negev, Beer-Sheva, Israel

We experimentally demonstrate efficient intracavity coherent combining of two high peak and average power rod-type photonic crystal fiber lasers. Furthermore, temporal and frequency content imposing of one channel on the other is investigated.

CJ-5.6 WED

Kilowatt level transform-limited 150 ns monolithic pulsed fiber laser emitting in the L band

•G. Canat, L. Lombard, J. Le Gouët, and A. Dolfi-Bouteyre; Onera, The French Aerospace Lab, Palaiseau, France

We report on a 1kW peak power pulsed fiber laser emitting at 1579nm limited by stimulated Brillouin scattering. This fiber monolithic MOPFA operates at 4kHz generating 150ns duration pulses with M2<1.2 for CO2 remote sensing.

9:45 CM-4.6 WED

120 nm resolution and 55nm line width achieved in visible light STED-lithography

•T.A. Klar, R. Wollhofen, and J. Jacak; Institute of Applied Physics, Johannes Kepler University, Linz, Austria Adding stimulated emission depletion (STED) to two photon lithography enables substantial sub-Abbe lithography. Using 780nm for two-photon excitation and 532nm for STED, we obtain structure sizes of 55 nm, and a resolution of 120 nm.

IA-4.4 WED

Detecting The Motional State Of Single Atoms In A High-Finesse Optical Cavity By Heterodyne Spectroscopy

•S. Yoon¹, R. Reimann¹, S. Manz¹, T. Kampschulte^{1,2}, N. Thau¹, W. Alt¹, and D. Meschede¹; ¹institut für Angewandte Physik, Universität Bonn, Bonn, Germany; ²Departement Physik, Universität Basel, Basel, Switzerland

We observe the quantized motion of single atoms strongly coupled to a high-finesse optical cavity and investigate dynamics of cavity-assisted atom cooling by means of photon-counting heterodyne spectroscopy.

IA-4.5 WED

Excitation of a single atom with a temporally shaped light pulses

S.A. Aljunid^{1,2}, •V. Leong¹, D.H. Lan³, Y. Wang¹, G. Maslennikov¹, V. Scarani^{1,4}, and C. Kurtsiefer^{1,4} Centre for Quantum Technologies, Singapore, Singapore; ²L'Universite Paris Nord, Paris, France; ³University of Twente, Twente, The Netherlands; ⁴Physics Department, National University of Singapore, Singapore, Singapore We demonstrate that temporal shaping of the envelope of a weak coherent optical pulses changes the excitation probability of a single trapped atom. Pulses with rising exponential envelope outperform other shapes in accordance with calculations.

IA-4.6 WED

Magneto-optical traps on a chip using micro-fabricated gratings

C. Nshii¹, M. Vangeleyn¹, J. Cotter², P. Griffin¹, E. Hinds², C. Ironside³, P. See⁴, A. Sinclair⁴, E. Riis¹, and •A. Arnold¹; ¹University of Strathclyde, Glasgow, United Kingdom; ²Imperial College, London, United Kingdom; ³University of Glasgow, Glasgow, United Kingdom; ⁴National Physical Laboratory, Teddington, United Kingdom

We have realised a single-input-beam magneto-optical chip trap which loads 10^8 atoms from a 1 cm^3 capture volume and delivers sub-Doppler temperatures. The onchip gratings will also enable simple formation of stable 3D optical lattices.

ROOM EINSTEIN

ter. Crystals from different manufacturers are compared. The measurements reveal large differences in the residual absorption at wavelengths below 550 nm.

CE-7.4 WED

9:15

9:30

9:45

Second order nonlinear optical susceptibility of nonelectrically poled DR1-doped PMMA host-guest polymers

•A. Sugita, Y. Sato, K. Ito, K. Murakami, N. Mase, and Y. Kawata; Shizuoka University, Hamamatsu, Japan We will present second order nonlinear optical susceptibility of nonelectrically poled DR1-doped PMMA hostguest polymers. The nonlinearity of deff~1.0pm/V was obtained from the materials with 1.0 micron-thickness just by annealing without external field applications.

CE-7.5 WED

9:30

9:15

Ferroelectric Liquid-Crystalline Polymers for Photoinduced Switching of Nonlinear Optical Response

•M. Virkki¹, A. Priimagi^{2,3}, K. Ogawa², J.-i. Mamiya², M. Kauranen¹, and A. Shishido²; ¹Department of Physics, Tampere University of Technology, Tampere, Finland; ²Chemical Resources Laboratory, Tokyo Institute of Technology, Yokohama, Japan; ³Department of Applied Physics, Aalto University, Espoo, Finland

We present the first observation of high-contrast photoinduced switching of second-order nonlinear optical response in crosslinked ferroelectric liquid-crystalline polymers. The fully reversible switching behaviour is triggered by two-photon absorption-induced photoisomerization of the crosslinking azobenzene molecules.

CE-7.6 WED

9:45

Multimodal Nonlinear Imaging of Suspended Carbon Nanotubes Using Circular Polarizations

•G. Bautista¹, M.I. Huttunen¹, O. Herranen², A. Johansson², P. Myllyperkiö³, M. Ahlskog², M. Pettersson³, and M. Kauranen¹; ¹Department of Physics, Tampere University of Technology, Tampere, Finland; ²Nanoscience Center, Department of Physics, University of Jyväskylä, Jyväskylä, Finland; ³Nanoscience Center, Department of Chemistry, University of Jyväskylä, Jyväskylä, Finland We demonstrate multimodal second-harmonic and third-harmonic generation microscopy of suspended carbon nanotubes using circularly polarized excitation. Our results suggest the possibility of performing nonlinear chirality detection at the single nanotube or nanotube bundle levels.

tion and nanograting formation.

CM-4.4 WED

odic nanostructures.

CM-4.5 WED

repetition rate fs-laser.

9:15

9:30

ROOM 14b

Role of Multiple Shots of Femtosecond Laser Pulses in

Periodic Nanostructure Formation on Silicon Surface

•G. Miyaji and K. Miyazaki; Kyoto University, Uji, Japan

Pump-probe measurements of reflectivity have shown

that superimposed multiple shots of low-fluence fem-

tosecond laser pulses on silicon surface accumulate non-

thermal bonding structure change to decrease the abla-

tion threshold and induce subsequent formation of peri-

Large area, high speed inscription of laser-induced

periodic surface structures (LIPSS) in Cr using a high

•A. Ruiz de la Cruz¹, R. Lahoz Espinosa², J. Siegel¹, G.

de la Fuente Leis², and J. Solís Céspedes¹; ¹Laser Pro-

cessing Group, Instituto de Óptica (CSIC), Madrid, Spain;

²Instituto de Ciencia de Materiales de Aragón, CSIC, Uni-

We have produced highly uniform LIPSS over large areas

 $(\sim cm^2)$ on Cr with a fs-laser at high repetition rates.

The structures can be fabricated at very high scan speeds

versidad de Zaragoza, Zaragoza, Spain

 $(\sim m/s)$ over a large processing window.

ROOM 21

offset field, coherence times in the milliseconds-range have been obtained.

ROOM 4a

10:30 - 12:00

II-2: Plasmonics Antennas and Waveguides

Chair: Javier Aizpurua, CSIC-UPV EHU, Donostia-San Sebastian, Spain

II-2.1 WED

Third harmonic spectroscopy of complex plasmonic Fano structures

•B. Metzger¹, M. Hentschel^{1,2}, T. Schumacher^{1,2}, M. Lippitz^{1,2}, and H. Giessen¹; ¹4th Physics Institute and Research Center SCoPE, University of Stuttgart, Stuttgart, Germany; ²Max Planck Institute for Solid State Research, Stuttgart, Germany

We perform third-harmonic spectroscopy of complex plasmonic nanoantennas which exhibit EIT-like Fano resonances in their linear extinction spectrum. Strong third harmonic emission is found at the lower energy mode of the coupled plasmonic system.

II-2.2 WED

Nanoantenna probes: Mode mapping and Nanoscale Imaging

•A. Singh¹, G. Calbris¹, and N.F.v. Hulst^{1,2}; ¹ICFO - The Institute of Photonic Sciences, Castelldefels (Barcelona), Spain; ²ICREA - Instutucio Catalana de Recerca i Estudis Avancats, Barcelona, Spain

We present stand-alone nanoantenna probes, where the nanoantenna is fabricated onto a fiber tip using FIB. We demonstrate a novel near-field scanning technique for sub-wavelength size mode imaging of dipole and gap optical nanoantenna tips.

II-2.3 WED

Deeply subwavelength SPP components for nanophotonic circuitry

•A. Kriesch^{1,2,3}, S.P. Burgos³, D. Ploss^{1,2}, H. Pfeifer^{1,2}, H.A. Atwater³, and U. Peschel^{1,2,3}; ¹Institute of Optics, Information and Photonics, University of Erlangen-Nuremberg and Max Planck Institute for the Science of Light, Erlangen, Germany; ²Erlangen Graduate School in Advanced Optical Technologies, University of Erlangen-Nuremberg, Germany and Cluster of Excellence for *Engineering of Advanced Materials* (EAM), University of Erlangen-Nuremberg, Erlangen, Germany; ³Thomas J. Watson Institute of Applied Physics, California Institute of Technology, Pasadena, United States

We propose a novel scheme for plasmonic nanocircuits based on different plasmonic functional units like optimized optical Yagi antennas and ultrashort optical directional couplers. Those units are interconnected with low loss plasmonic SPP gap waveguides.

ROOM 4b

10:30 - 12:00

CI-4: Opto-Electronic Devices

Chair: Daniele Modotto, Università di Brescia, Brescia, Italy

CI-4.1 WED 10:30

All-optical, Non-volatile, Chalcogenide Phase-change Meta-switch

B. Gholipour¹, I. Zhang¹, I. Maddock¹, •K.F. MacDonald¹, D.W. Hewak¹, and N.I. Zheludev^{1,2}; ¹University of Southampton, Southampton, United Kingdom; ²Nanyang Technological University, Singapore, Singapore

Bistable all-optical switching in a chalcogenide phasechange metamaterial delivers high-contrast optical signal modulation across the visible to mid-infrared spectral range in device structures down to 1/27 of a wavelength thick.

Electrostatic Control of Dual-core Optical Fibre with

•N. Podoliak, Z. Lian, P. Horak, and W.H. Loh; University

We model an optical fibre with suspended cores for elec-

trostatic actuation of the cores. With metal wires in the

cladding, an applied voltage of 30V will move the cores,

of Southampton, Southampton, United Kingdom

electro-optically induced waveguides based on

•M. Blasl, H. Hartwig, K. Bornhorst, and F. Costache;

Fraunhofer Institute for Photonic Microsystems, Dresden,

A model for loss and guiding mechanisms in electro-

optically induced waveguide devices based on nematic

liquid crystals in isotropic phase was developed. To-

gether with experimental data, an in-depth understand-

ing of device characteristics was achieved.

isotropic phase liquid crystals

and change the fibre optical properties.

10:45

wavelength-selective grating-mirrors for Yb:YAG thin-disk lasers

•M. Rumpel¹, M. Möller², F. Habel³, A. Voss¹, C. Moormann², M. Schacht³, M. Abdou Ahmed¹, and T. Graf¹; ¹IFSW Universität Stuttgart, Stuttgart, Germany; ²AMO GmbH, Aachen, Germany; ³LASER COMPO-NENTS GmbH, Olching, Germany

disk lasers are presented. Very high laser efficiency, narrow spectral emission bandwidth, large wavelength tuning range and high polarization purity were achieved without thermal problems.

CA-9.3 WED

11:00

Thin-Disk Lasers

•S. Piehler, B. Weichelt, A. Voss, M. Abdou Ahmed, and T. Graf; Institut für Strahlwerkzeuge, Stuttgart, Germany Power scaling of fundamental-mode thin-disk lasers is limited by the aspherical phase-distortions in the laser crystal. We will present recent results achieved with deformable mirrors for intra-cavity compensation of these distortions at the kW-level.

ROOM 13a

10:30 - 12:00

CA-9: Novel Solid-State Laser Concepts

Chair: Patrick Georges, Institut d'Optique Graduate School, Palaiseau, France

CA-9.1	WFD	
CA-5.1		

Rotating Cavity Laser: A New Approach for Power Scaling Solid State Lasers

•M. Eckold, I.I. Mackenzie, and W.A. Clarkson; Optoelectronics Research Centre, University of Southampton,, Southampton, United Kingdom

A novel laser architecture for scaling output power and avoiding deleterious thermal effects based on a resonator with a rotating periscope is described. The laser yielded 16W of output limited by available pump power.

CA-9.2 WED

High-performance intra-cavity polarization- and

The latest results obtained with grating-mirrors for thin-

Active Mirrors For kW-Class Fundamental-Mode

ROOM 13b

10:30 - 12:00

10:30

10:45

11:00

JSII-2: Photonics for Defence and Security: **Coherent Sources**

Chair: Hans Joachim Wagner, IAF Freiburg, Germany

JSII-2.1 WED

100mJ Q-Switched Er:YAG diode-pumped laser system

•C. Larat¹, M. Schwarz¹, E. Lallier¹, and E. Durand²; Thales Research & Technology France, Palaiseau, France; Thales Optronique SAS, Elancourt, France

We report on a Er:YAG laser system delivering 100mJ in 100ns pulses at 1645nm. Oscillator and amplifiers are end-pumped with 1470nm fibre-coupled laser-diodes. Repetition rate: 30Hz; beam quality: M2<3.6.

JSII-2.2 WED

10:45

11:00

10:30

Multi-wavelength and multi-band infrared semiconductor lasers

•R. Ostendorf, S. Hugger, M. Rattunde, C. Schilling, S. Kaspar, R. Aidam, A. Baechle, C. Manz, R. Driad, F. Fuchs, and J. Wagner; Fraunhofer Institute for Applied Solid State Physics, Freiburg, Germany

We present a comprehensive overview of various techniques to combine different types of short- and midinfrared semiconductor-based laser sources for use in sensing and security related applications.

JSII-2.3 WED (Invited)

CW mid-IR OPO based on OP-GaAs

•P. Schunemann, L. Pomeranz, S. Setzler, C. Jones, and P. Budni; BAE Systems, Inc., Nashua, NH, United States The first successful OP-GaAs continuous wave optical parametric oscillator, and the first cw OPO in any crystal pumped at a wavelength > 1.55 microns, achieved 5.3 W of mid-IR output from 24.7 W pump.



Germany

10:30

10:45

CI-4.2 WED

NEMS Functionality

10:30

10:45

11:00

ROOM 14a

10:30 - 12:00

CI-6: Ultrafast Fibre Sources

Chair: Thomas Andersen, NKT Photonics, Birkerod, Danemark

CJ-6.1 WED

fs mode-locked fiber laser continuously tunable from 976 nm to 1070 nm

•R. Royon¹, J. Lhermite¹, L. Sarger², and E. Cormier¹; ¹CELIA BORDEAUX 1, TALENCE, France; ²LOMA BORDEAUX 1, TALENCE, France

We report on tunable femtosecond pulse generation from an all-normal dispersion Yb-doped-fiber-oscillator emitting from 976nm to 1070nm. The laser delivers chirped pulses of 10ps with an energy of 220nJ. Pulses are externally recompressed below 350fs.

CJ-6.2 WED

Discrete spatial dispersion scheme for amplification and shaping of femtosecond pulses in a multicore fiber

•P. Rigaud¹, T. Mansuryan¹, G. Bouwmans², D. Labat², V. Kermene¹, Y. Quiquempois², A. Desfarges-Berthelemot¹, and A. Barthélémy¹; ¹XLIM Institut de Recherche, Limoges, France; ²Institut IRCICA, Villeneuve d'Ascq, France A compact scheme for amplification of ultrashort pulses is investigated based on the pulse spectrum splitting in narrow bands which are separately amplified in the different cores of a multicore fiber and subsequently coherently recombined

CJ-6.3 WED

33-fs Yb-fiber laser comb locked to Cs-atomic clock •C. Şenel^{1,2}, R. Hamid¹, C. Erdogan¹, M. Çelik¹, O. Kara¹, and O. Ilday²; ¹TÜBITAK National Metrology Institute (UME), Kocaeli, Turkey; ²Department of Physics, Bilkent University, Ankara, Turkey

We report an oscillator, designed using a new theoretical methodology, the output of which was amplified in a scheme that eliminates gain filtering and stabilized its repetition and carrier-envelope-offset frequency to Cs atomic clocks.

ROOM 14b

10:30 - 12:00

CM-5: Material Processing with Shaped Laser Beams

Chair: Marc Sentis, Aix Marseille University, Marseille, France

CM-5.1 WED

Spiral relief formation in an azo-polymer film by the irradiation of a circularly polarized optical vortex beam

•M. Watabe¹, K. Miyamoto¹, and T. Omatsu^{1,2}; ¹Chiba University, Chiba, Japan; ²JST CREST, Tokyo, Japan Spiral-relief formation in an azo-polymer by the irradiation of a circularly-polarized vortex beam was presented. The phenomenon was originated by the angular momentum transfer of the vortex beam to the azopolymer through light-induced mass migration.

CM-5.2 WED

CM-5.3 WED

10:30

10:45

11:00

Double Surface Plasmon Resonances Obtained with Bessel-Beam-Written Nanoslits Arrays

•R. Sahin¹, E. Simsek², and S. Akturk¹; ¹Istanbul Technical University, Department of Physics, Istanbul, Turkey; ²George Washington University, Electrical and Computer Engineering, Washington DC, United States

We fabricate nanoslit arrays on semi-transparent gold films, with femtosecond laser Bessel beams. We measure transmission spectra and obtain double resonance dips resulting from metal-air and metal-glass interfaces. Our theoretical studies confirm the observed behavior.

Modification of Transparent Materials by Tightly Focused Annular, Radially and Azimuthally Polarized Ultrafast Laser Beams

•J. Zhang, M. Gecevičius, M. Beresna, and P. Kazansky; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

Cylindrically polarized annular beam is produced by femtosecond laser written S-waveplate. Self-assembled nanostructures cannot be produced by longitudinal field component radial polarization. Despite lower intensity ring-shaped azimuthally polarized beam induced larger retardance than radial.

ROOM 21

IA-5: Non-Classical Light

10:30 - 12:00

Chair: Ana Predojevic, University of Innsbruck, Innsbruck, Austria

IA-5.1 WED (Invited)	10:30
17 (J.1 VILD)	mvitcu	/	10.00

Biological measurement beyond the quantum limit •M. Taylor¹, J. Janousek², V. Daria², J. Knittel¹, B. Hage², H.-A. Bachor², and W. Bowen¹; ¹Centre for Engineered Quantum Systems, University of Queensland, Brisbane, Australia; ²Department of Quantum Science, Australian National University, Canberra, Australia

We demonstrate the first biological measurement with precision surpassing the quantum noise limit. Lipid particles within a living yeast cell are tracked with sub-shot noise sensitivity, thereby revealing the biological dynamics of the cellular cytoplasm.



Observation of scalable, highly multimode entanglement in frequency combs with ultrafast pulse shaping

•J. Roslund, R. Medeiros de Araújo, C. Fabre, and N. Treps; Laboratoire Kastler Brossel, Paris, France

Ultrafast pulse shaping is utilized to fully characterize the squeezed vacuum output of an OPO synchronously pumped by a femtosecond pulse train. This experiment demonstrates scalable, highly multimode state creation in a single beam.

ROOM EINSTEIN

10:30 - 12:00

CE-8: Lithium Niobate - Fabrication and Characterization

Chair: Volkmar Dierolf, Lehigh University, Bethlehem, USA

CE-8.1 WED

UV laser-induced poling inhibited domain building blocks for photonic and nonlinear optical microstructures

G. Zisis¹, •S. Mailis¹, Y. Ying², and E. Soergel³; ¹Optoelectronics Research Centre University of Southampton, Southampton, United Kingdom; ²Avago Technologies, Singapore, Singapore; ³Institute of Physics, University of

We demonstrate that partial overlap of UV laser irradiated tracks on the +z face of lithium niobate crystals allows the composition of arbitrary shaped complex large scale ferroelectric domain structures by inhibition of poling.

CE-8.2 WED 10:4

Domain Wall Motion of MgO Doped Stoichiometric Lithium Niobate

J.W. Choi¹, D.-K. Ko¹, J.H. Ro², and •N.E. Yu¹; ¹Gwangju Institute of Science and Technology, Gwangju, Korea, South; ²Pusan National University, Busan, Korea, South In stoichiometric LN, sidewise wall velocity of a single hexagonal domain was measured to 0.015 ~ 4.58 μ m/s in range 0.6 to 3.9 kV/mm. Asymmetric in-out shape and lattice interaction was estimated using Ising-model.

CE-8.3 WED

11:00

11:00

10:30

Control of the properties of micro-structured waveguides in LiNbO3 fabricated by direct femtosecond laser inscription

•H. Karakuzu, M. Dubov, and S. Boscolo; Aston University, Birmingham, United Kingdom

We report on buried waveguides fabricated in lithium niobate by the method of direct femtosecond laser inscription. We demonstrate numerically that the dispersion and other properties of such waveguides can be controlled by their geometry.

Bonn, Bonn, Germany

11:15

11:30

11:45

ROOM 4a

11:15

11:30

11:45

Optical phased array nanoantenna link

•D. Dregely¹, K. Lindfors^{1,2}, M. Lippitz^{1,2}, and H. Giessen¹; ¹4th Physics Institute and Research Center *SCoPE*, University of Stuttgart, Stuttgart, Germany; ²Max Planck Insitute for Solid State Research, Stuttgart, Germanv

We experimentally realized an optical phased array nanoantenna link using plasmonic antennas as transmitter and receiver. Phase control of the individual array elements led to beam steering at optical frequencies.

II-2.5 WED

II-2.4 WED

Scattering, interference, and switching of ultrashort surface plasmon polaritons

•C. Reinhardt, T. Birr, W. Cheng, U. Zywietz, A. Evlyukhin, and B. Chichkov; Laser Zentrum Hannover, Hannover, Germany

Interference and scattering of ultrashort surface plasmon-polaritons (SPPs) are studied. Interference of SPPs is applied to tracking and autocorrelation of ultrashort SPPs. Ultrafast SPP-light scattering is demonstrated and applications as ultrafast switches are discussed.

II-2.6 WED

Properties of Highly-Nonlinear Hybrid Silicon-Plasmonic Waveguides

•A. Pitilakis and E. Kriezis; Aristotle University of Thessaloniki, Thessaloniki, Greece

We provide a theoretical investigation of nonlinear hybrid silicon-plasmonic waveguides exploiting a metal wedge. These waveguides can provide an exceptionally high nonlinear parameter, while limiting the relative importance of the detrimental free-carrier effects.

ROOM 4b

CI-4.4 WED

Magnetic-Force-Induced Tunable Long-Period Fibre Grating and Its Application in Erbium-Doped Fibre Systems

•H. Sakata, K. Yamahata, and K. Wakamiya; Shizuoka University, Hamamatsu, Japan

We present a tunable notch filter based on magneticforce-induced fibre grating. A loss amplitude is adjustable over 20 dB using a magnet with a coil spring. The device is also demonstrated in erbium-doped fibre systems.

CI-4.5 WED

Broadband All-Fiber Mode Multiplexer for Future MDM-WDM Transmission over Few-Mode Fibers

•C. Tsekrekos and D. Syvridis; National and Kapodistrian University of Athens, Athens, Greece

An all-fiber broadband mode multiplexer for mode and wavelength division multiplexing over few-mode fibers (FMFs) is analyzed. The multiplexer is based on cascaded FMF couplers and is optimized for operation over the C band.

CI-4.6 WED

Observation of Switching and Pulsed Behaviour in a Noise-Driven Resonant Tunneling Diode Excitable **Optoelectronic Oscillator**

•B. Romeira¹, J. Javaloyes², C. Ironside³, J. Figueiredo¹, S. Balle², O. Piro², H. Cantu³, and A. Kelly³; ¹Centro de Electrónica, Optoelectrónica e Telecomunicações, Departamento de Física, Universidade do Algarve, Faro, Portugal; ²Departament de Fisica, Universitat de les Illes Baleares, Palma, Spain; ³School of Engineering, University of Glasgow, Glasgow, United Kingdom

We demonstrate, experimentally and numerically, the dynamical behaviour of a simple noise activated optoelectronic oscillator comprising a resonant tunnelling diode-laser diode (RTD-LD) circuit, which exhibits switching and pulsed behavior that is characteristic of excitable systems.

ROOM 13a

CA-9.4 WED

650fs pulses at 1045nm from a passively Q-switched Nd:YVO4 microchip laser system

•R. Lehneis¹, A. Steinmetz¹, J. Limpert¹, and A. Tünnermann^{1,2}; ¹Friedrich-Schiller-Universität Jena, Abbe Center of Photonics, Institute of Applied Physics, Albert-Einstein-Str. 15, 07745 Jena, Germany; ²Fraunhofer Institute for Applied Optics and Precision Engineering, Albert-Einstein-Str. 7, 07745 Jena, Germany We present a novel concept to produce sub-ps pulses from a passively Q-switched Nd:YVO4 microchip laser system with a tunable emission wavelength. Pedestalfree 650fs pulses are demonstrated with a wavelength shift from 1064nm to 1045nm.

CA-9.5 WED

Compact 'prism-by side-pumped' solid-state laser

•T. Dascalu, G. Salamu, N. Pavel, O. Grigore, and F. Voicu; National Institute for Laser Plasma & Radiation Physics, Magurele, Romania

A novel laser geometry that couples the pump beam into the active crystal through a prism is proposed. A rectangular-shaped Nd:YAG laser that yields pulses with 1.8-mJ energy at optical efficiency of 18% is demonstrated.

CA-9.6 WED

Laser Pulse Control of a Q-switched Nd:YVO4 Bounce Geometry Laser using a Secondary Cavity

•E. Arbabzadah¹, P. Shardlow², and M. Damzen¹; ¹Imperial College London, London, United Kingdom; ²Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

A novel method for pulse control in an ultrahigh gain Oswitched Nd:YVO4 laser is presented. A secondary cavity clamps excessive amplifier gain allowing single pulsed operation from very high (800kHz) to low (e.g.1kHz) repetition rates.

JSII-2.4 WED

11:15

11:30

11:45

Widely tunable optoelectronic oscillator based on a dual-frequency laser

11:30

11:45

•J. Maxin, G. Pillet, L. Morvan, and D. Dolfi; Thales Research and Technology France, Palaiseau, France We present a widely tunable (2.5 to 5.5 GHz) and low noise(10Hz linewidth and -110 dBc/Hz @10 kHz phase noise) optoelectronic oscillator, that can find applications either in radar, electronic warfare or lidar systems.

JSII-2.5 WED

Large bandwidth interferometric technique for coherent beam combining

•M. Antier, J. Bourderionnet, C. Larat, E. Lallier, E. Lenormand, and A. Brignon; Thales Research & Technology, Palaiseau, France

We demonstrate fiber phase-locking system using an interferometric method. The system allows complete phase error map measurement in a single acquisition. A 1kHz correction loop bandwidth was achieved, with a residual lambda/50 rms phase error.

ROOM 1

14:00 - 15:30

CD-11: Application of Solitons Chair: Ulf Peschel, University of Erlangen, Er-

langen, Germany

IG-2: Light Beam Propagation in **Disordered and Periodic Systems** Chair: Gian-Luca Oppo, University of Strathclyde, Glasgow, United Kingdom

ROOM 4a

14:00 - 15:30

ROOM 4b 14:00 - 15:30

CI-5: Advanced Concepts for Communications

Chair: Sonia Boscolo, Aston University, Birmingham, United Kingdom

ROOM 13a

14:00 - 15:30

CA-10: Beam Control Chair: Jacob Mackenzie, University of Southampton, United Kingdom

ROOM 13b

14:00 - 15:30

JSIII-1: Light Emission and **Propagation in Random Media** Chair: Goëry Genty, Tampere University of Technology, Tampere, Finland

ROOM 13b

11:15

11:30

ROOM 14a

11:15

11:30

11:45

CJ-6.4 WED

Compression of uJ-level fs Pulses from a Monolithic Yb-fiber Amplifier at 1 um Wavelength in a Hollow-Core Photonic Bandgap Fiber

•A. Verhoef¹, T. Andersen², T. Flöry¹, L. Zhu¹, A. Galvanauskas³, A. Baltuska¹, and A. Fernández¹; ¹Institut für Photonik, Technische Universtität Wien, Wien, Austria; ²NKT Photonics A/S, Birkerød, Denmark; ³Center for Ultrafast Optical Science, University of Michigan, Ann Arbor, United States

We present pulse compression results from an all Yb-FCPA. The use of a DCF stretcher and HCPBF compressor allowed to obtain 250-nJ, 220-fs pulses, enabling direct fiber delivery of microjoule-energy femtosecond laser pulses.

CJ-6.5 WED

Balancing Gain Narrowing with Self Phase Modulation: 100-fs, 800-nJ from an All-Fiber-Integrated Yb Amplifier

•A. Rybak^{1,2}, I. Pavlov^{1,2}, C. Senel^{1,3}, and F.Ö. Ilday¹; ¹Bilkent University, Ankara, Turkey; ²TUBITAK National Metrology Institute (UME), Kocaeli, Turkey; ³Institute of Physics, Kiev, Ukraine

We developed an all-fiber-integrated Yb-amplifier, generating 1.15-microjoule, 20-ps pulses, compressed to 100 fs. Gain narrowing is balanced by Kerr nonlinearity through optimization of each amplifier stage using numerical simulations.

CJ-6.6 WED

Frequency-doubled pico-second vortex fiber laser formed by a stressed Yb-doped fiber MOPA system •M. Koyama¹, T. Hirose¹, A. Shimomura¹, K. Miyamoto¹, and T. Omatsu^{1,2}; ¹Chiba Univ., Chiba, Japan; ²JST-CREST, Tokyo, Japan

Frequency-doubling of a pico-second vortex laser formed of a stressed Yb-doped fiber was performed. Conversion efficiency of 21% was obtained. The helicity of frequency-doubled vortex output was controlled by tuning the stress in the fiber.

ROOM 14b

CM-5.4 WED

Silicon chiral bump formed by optical vortex laser ablation

•S. Takizawa¹, F. Takahashi¹, K. Toyoda¹, K. Miyamoto¹, R. Morita^{2,3}, and T. Omatsu^{1,3}; ¹Chiba University, Chiba, Japan; ²Hokkaido University, Hokkaido, Japan; ³IST CREST, Tokyo, Japan

Silicon (Si) chiral bump formation by the single-shot deposition of the optical vortex pulse was demonstrated. The chiral bump formed on the proceeded surface exhibited a height of 1.5um and tip diameter of 0.8um, respectively.

CM-5.5 WED (Invited)

Femtosecond laser micro and nano processing with nondiffracting Bessel and accelerating Airy beams

•F. Courvoisier¹, A. Mathis¹, J. Zhang¹, L. Froehly¹, V. Jukna², L. Furfaro¹, M. Jacquot¹, R. Giust¹, P.-A. Lacourt¹, A. Couairon², and J. Dudley¹; ¹Universite de Franche-Comte, Besancon, France; ²Ecole Polytechnique, Palaiseau, France

The control of nonlinear light propagation with nondiffracting Bessel and Airy beams has open up several exciting applications in the field of ultrafast laser micronano machining. High aspect ratio and curved machining are reported.

ROOM 21

IA-5.3 WED Multi-mode Quantum Networks

•J. Janousek¹, S. Armstrong¹, B. Hage¹, J.F. Morizur², P.K. Lam¹, and H. Bachor¹; ¹Australian National University, Canberra, Australia; ²Laboratoire Kastler Brossel, Paris, France

We report on the experimental preparation of various multi-mode entangled states, with the ability to switch between them in real-time. Up to N-mode entanglement is measured with just one detector, here N = 8.

IA-5.4 WED

Measuring nonlocal coherence with weak-field homodyne detection

•T. Bartley¹, G. Donati¹, X.-M. Jin^{1,2}, A. Datta¹, M. Barbieri¹, and I. Walmsley¹; ¹Clarendon Laboratory, Department of Physics, University of Oxford, Oxford, United Kingdom; ²Department of Physics, Shanghai Jiao Tong University, Shanghai, China, People's Republic of (PRC) Using a weak-field homdodyne detector, we experimentally observe nonlocal coherence between different photon number components across two modes. This is a direct application of a hybrid detector which counts photons with a phase reference.

IA-5.5 WED

Entanglement-enhanced probing of a delicate material system

•F. Wolfgramm¹, C. Vitelli², F. Beduini¹, N. Godbout³, and M.W. Mitchell^{1,4}; ¹ICFO - Institut de Ciencies Fotoniques, Castelldefels (Barcelona), Spain; ²Center of Life Nanoscience at La Sapienza, Istituto Italiano di Tecnologia, Rome, Italy; ³COPL, Département de Génie Physique, École Polytechnique de Montréal, Montréal, Canada; ⁴ICREA-Institució Catalana de Recerca i Estudis Avançats, barcelona, Spain

Using atom-tuned narrowband NooN states we demonstrate non-destructive probing of an atomic ensemble with sensitivity per photon and sensitivity per damage to the ensemble beyond the standard quantum limit.

ROOM EINSTEIN

14:00 - 15:30**CE-9: Functional Optical Materials** Chair: Harald Schwefel, Max-Planck-Institut für die Physik des Lichtes, Erlangen, Germany

ROOM EINSTEIN CE-8.4 WED

11:15

Photorefractivity Vs. Wavelength a Comparative Study of Mg- and Zr- Doped Lithium Niobate Crystals •G. Nava¹, P. Minzioni¹, I. Cristiani¹, N. Argiolas², M.

Bazzan², M.V. Ciampolillo², G. Pozza², A. Zaltron², and V. Degiorgio¹; ¹Quantum Electronics Lab, Dip. di Ingegneria Industriale e dell*Informazione, University of Pavia, Pavia, Italy; ²Dip. di Fisica e Astronomia, University of Padova, Padova, Italy

Photorefractivity of Mg- and Zr- doped Lithium Niobate samples was compared considering different wavelengths and high intensities. Zr doping yield the same photorefractivity suppression og Mg while requiring half of the dopant concentration.

CE-8.5 WED

11:15

11:30

11:45

11:30

Equivalent Temperature of Nonlinear-Optical

Crystals in Process of Laser Frequency Conversion O. Ryabushkin^{1,2}, •A. Konyashkin^{1,2}, D. Myasnikov^{1,2}, V. Tyrtyshnyy², and A. Baranov^{1,2}; ¹Moscow Institute of Physics and Technology, Dolgoprudnyy, Russia; ²NTO "IRE-Polus", Fryazino, Russia

Novel method of piezoelectric resonance spectroscopy allows to measure precisely the nonlinear-optical crystal equivalent temperature in process of laser frequency conversion. This method was applied for PPLN crystal temperature measurement in second harmonic generation experiment.

CE-8.6 WED 11:45

High-sensitivity absorption spectroscopy of lithium niobate crystals in the near and mid infrared regime

•S. Fieberg¹, F. Kühnemann¹, and K. Buse^{1,2}; ¹Fraunhofer Institute for Physical Measurement Techniques IPM, Freiburg, Germany; ²Department of Microsystems Engineering IMTEK, University of Freiburg, Freiburg, Germanv

Impurity band strengths of lithium niobate crystals of different stoichiometry and doping are studied in the wavelength range 1460 to 1890 nm and 2450 to 4000 nm using a photothermal common-path interferometer.

NOTES

ROOM 14a

14:00 - 15:30

CJ-7: Wavelength-Tuning and Conversion

Chair: Carsten Thomsen, NKT Photonics, Birkerod, Danemark

ROOM 14b 14:00 - 15:30

CF/IE-8: Ultrafast Fibre and Waveguide Lasers Chair: Lasse Orsila, ORC Tampere, Tampere, Finland

ROOM 21

14:00 - 15:30

IA-6: Coherent Effects Chair: Morgan Mitchell, ICFO, Barcelona, Spain

ROOM 1

CD-11.1 WED

Robustness of Gap-Solitons in disordered photonic crystal waveguides

•S. Malaguti, G. Bellanca, and S. Trillo; Department of Engineering, University of Ferrara, Ferrara, Italy

We demonstrate a localized-to-ballistic transition for Gap-Solitons in disordered photonic crystal waveguides. We prove that for solitons this transition goes faster than the square of the group velocity, highlighting their improved robustness against disorder.

CD-11.2 WED

Spontaneous generation of spectral incoherent solitons through supercontinuum generation

B. Kibler¹, •G. Xu¹, C. Michel¹, A. Kudlinski², B. Barviau^{1,2}, G. Millot¹, and A. Picozzi¹; ¹Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France; ²Laboratoire PhLAM, Lille, France

We study experimentally the incoherent regime of supercontinuum generation in photonic crystal fibers. We report a transition from continuous to discrete spectral incoherent solitons in the low-frequency edge of the supercontinuum spectrum.

CD-11.3 WED

near- and mid-IR few-cycle self-defocusing soliton compression in PPLN waveguide

•H. Guo¹, X. Zeng^{1,2}, B. Zhou¹, and M. Bache¹; ¹Group of Ultrafast Nonlinear Optics, DTU Fotonik, Technical University of Denmark (DTU), Kgs. Lyngby, Denmark; ²Key Laboratory of Special Fiber Optics and Optical Access Networks, Shanghai University, Shanghai, China, People's Republic of (PRC) We demonstrate numerically near- and mid-

ROOM 4a

14:00

14:15

14:30

High-Resolution Imaging with Scattered Light

•A.P. Mosk; University of Twente, Enschede, The Netherlands

Wavefront shaping allows unprecedented control of scattered laser light. This discovery has spurred recent advances in focusing and imaging with scattered light, ranging from high-resolution microscopy to noninvasive optical imaging through scattering layers.

ROOM 4b

14:00

14:15

14:30

14:00 CI-5.1 WED

Optical Packet Switching by All-Optical Header Recognition Using 1.55- μ m Polarization Bistable VCSEL

•T. Katayama, T. Okamoto, and H. Kawaguchi; Nara Institute of Science and Technology, Ikoma, Japan

We demonstrated an optical header processing system that switches 40-Gb/s payloads to a designated port depending on the state of selected one bit in a 500-Mb/s 4-bit header using a 1.55- μ m polarization bistable VC-SEL.

ROOM 13a

CA-10.1 WED

Selective control of wavefront helicity in a side-pumped

•*M.* Sato¹, Y. Tokizane^{1,2}, K. Miyamoto¹, and T. Omatsu^{1,2}; ¹Chiba Univ., Chiba, Japan; ²CREST, Tokyo, Japan

Selective control of the wavefront helicity in a side-pumped Nd:YVO4 vortex laser was demonstrated by driving a pumping optics. A maximum vortex output power of 14W was achieved at a pump power of 47W.

ROOM 13b

14:00

Emission Properties of Random Laser Media with a Bubble Structure

JSIII-1.1 WED

14:00

•T. Okamoto and R. Yoshitome; Kyushu Institute of Technology, Iizuka, Japan

Lasing properties are investigated for dyedoped polymer random media in which non-scattering regions are distributed. Experimental results showed that the frequency selectivity of the inhomogeneous structure results in higher emission intensities than conventional random lasers.

CI-5.2 WED

Fiber non-Turing all-optical computer for solving complex decision problems

•K. Wu¹, J.G.d. Abajo^{2,3}, C. Soci¹, P.P. Shum¹, and N.I. Zheludev^{1,2}; ¹Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore, Singapore; ²Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ³IQFR-CSIC, Madrid, Spain

We demonstrate an all-optical computer that solves one of the most difficult complexity problems, the Hamiltonian challenge of finding if a map can be traveled in a way that each town is visited exactly once.

CA-10.2 WED

Controlling the handedness of directly excited Laguerre Gaussian modes in a solid-state laser

•D. Lin, J.M.O. Daniel, and W.A. Clarkson; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

A novel approach for directly exciting the lowest order Laguerre-Gaussian donut mode with controllable handedness of the helical phase front trajectory in an end-pumped solid-state laser is described.

14:15 JSIII-1.2 WED

14:15

14:30

A random laser with cold atoms

•W. Guerin, Q. Baudouin, N. Mercadier, V. Guarrera, and R. Kaiser; Institut Non Linéaire de Nice, CNRS, Université de Nice Sophia-Antipolis, Valbonne, France We report the observation of random lasing in a cold atom sample. The atoms simultaneously provide stimulated emission via Raman gain and feedback via multiple scattering. We discuss the properties of this system.

CI-5.3 WED

Stable 100 GHz Pulses Generated by Injection Locking of Multiple Lasers to an Optical Frequency Comb

•D.S. Wu, D.J. Richardson, and R. Slavík; University of Southampton, Optoelectronics Research Centre, Southampton, United Kingdom

Optical pulses were generated by combining three semiconductor lasers phase locked to

CA-10.3 WED

Tunable milli-joule level 2um fractional vortex optical parametric amplifier

14:30

•T. Yusufu¹, Y. Tokizane^{1,2}, M. Yamada¹, K. Miyamoto¹, and T. Omatsu^{1,2}; ¹Chiba University, Chiba, Japan; ²CREST, Tokyo, Japan Milli-joule-level tunable 2um fractional vortex laser formed by a 1um vortex pumped optical parametric oscillator and a parametric amplifier was demonstrated. Maximum

JSIII-1.3 WED (Invited)

Tailoring the Spatial Coherence of Random Lasers

•H. Cao¹, B. Redding¹, and M. Choma²; ¹Department of Applied Physics, Yale University, New Haven, United States; ²Department of Diagnostic Radiology, Yale School of Medicine, New Haven, United States We show that the spatial coherence of a random laser can be tuned by adjusting the scat-

_____ 132 _____

14:00

14:15

14:30

ROOM 14a

14:00

14:15

14:30

CJ-7.1 WED

Recent progress in passively stabilized single-frequency Brillouin fiber lasers with doubly-resonant cavities

•A. Fotiadi^{1,3,5}, V. Spirin^{1,2}, C. López-Mercado², D. Kinet¹, E. Preda¹, I. Zolotovskii³, E. Zlobina⁴, S. Kablukov⁴, and P. Mégret¹; ¹University of Mons, Mons, Belgium; ²CISESE, Ensenada, Mexico; ³Ulyanovsk State University, Ulyanovsk, Russia; ⁴Institute of Automation and Electrometry, RAS, Novosibirsk, Russia; ⁵Ioffe Physico-Technical Institute, St.Petersburg, Russia

Brillouin fiber lasers with doubly-resonant cavities are successfully stabilized through self-injection locking and dynamical population grating mechanisms. Pump-to-Stokes conversion efficiency of ~40% and Stokes linewidths <500Hz are achieved for both laser configurations.

CJ-7.2 WED

All-fiber laser source for CARS-Microscopy

•T. Gottschall¹, M. Baumgartl¹, M. Chemnitz¹, J. Abreu-Afonso², T. Meyer³, B. Dietzek³, J. Popp³, J. Limpert¹, and A. Tünnermann^{1,4}; ¹Friedrich-Schiller-Universität Jena, Institute of Applied Physics, Abbe Center of Photonics, Jena, Germany; ²Departmento de Física Aplicada-ICMUV, Universidad de Valencia, Burjassot, Spain; ³Institut für Photonische Technologien Jena (IPHT) e.V., Jena, Germany; ⁴Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany

An all-fiber CARS laser based on four-wavemixing (FWM) and its application to CARS microscopy is presented. In addition we demonstrate the enhancement of the spectral resolution by cw-seeding.

CJ-7.3 WED

High-power Yb- and Tm-doped Fiber Amplifiers Seeded by a Femtosecond Er:fiber System

•S. Kumkar, M. Wurnam, P. Storz, D. Fehrenbacher, D. Brida, and A. Leitenstorfer; Department of Physics, University of Konstanz, Konstanz, Germany

Synchronous high-power Yb: and Tm:fiber amplifiers coherently seeded by the same

ROOM 14b

CF/IE-8.1 WED

Picosecond pulses from a Fourier domain mode locked (FDML) laser

•C. Eigenwillig¹, S. Todor², W. Wieser¹, B. Biedermann¹, T. Klein¹, C. Jirauschek² and R. Huber¹; ¹Ludwig-Maximilians-Universität, Munich, Germany; ² Technische Universität, Munich, Germany

We present latest results of a novel approach for short pulse generation by using FDML lasers. Simulations based on our FDML theory predict how almost bandwidth limited pulses might be achieved in the future.

CF/IE-8.2 WED 14:15

Cladding-pumped high-power mode-locked thulium laser based on fiber prepared by powder sinter technology •D. Gaponov¹, R. Dauliat¹, R. Jamier¹, S Grimm², K. Schuster², and P. Roy¹; ¹Xlim UMR CNRS-Université de Limoges n°7252, Limoges, France; ²Institute of Photonic Technology, Jena, Germany

We report on generation of high average power picosecond pulses directly from the modelocked thulium fiber laser by using efficient cladding pumped Tm-doped fiber fabricated with new glass powder technology.

CF/IE-8.3 WED

Fundamentally mode-locked Yb3+-doped glass waveguide lasers with repetition rate of up to 15.2 GHz

•A. Choudhary¹, A. Lagatsky², P. Kannan¹ W. Sibbett², C. Brown², and D. Shepherd¹ **Optoelectronics** Research Centre, University of Southampton, Southampton, United Kingdom; ²SUPA, School of Physics and Astronomy, University of St. Andrews, St. Andrews,

ROOM 21

IA-6.1 WED

14:00

Loading and unloading of cavity excitation using a strongly coupled quantum dot in a photonic molecule

•R. Bose¹, K. Roy Choudhury¹, T. Cai¹, G.S. Solomon², and E. Waks¹; ¹Department of Electrical Engineering, University of Maryland, College Park, College Park, United States; ²National Institute of Standards and Technology, Gaithersburg, United States We will present the interaction of a single QD coupled to a 2D photonic molecule. We will discuss time-resolved experiments in this scheme.

ROOM EINSTEIN

CE-9.1 WED

NOTES

Flexible Optical Microcavities and Their Sensing Application

14:00

14:15

14:30

•V.D. Ta¹, R. Chen¹, D.M. Nguyen¹, and H. Sun^{1,2}; ¹Division of Physics and Applied Physics, School of Mathematical and Physical Sciences, Nanyang Technological University, Singapore 639798, Singapore; ²Centre for Disruptive Photonic Technologies (CDPT), Nanyang Technological University, Singapore 639798, Singapore

Two different kinds of microcatives namely microfibers and hemispheres are fabricated based on a novel material composition. By doping dye molecules into these structures, optically pumped microlasers and high sensitive refractive index sensors are demonstrated.

IA-6.2 WED

Experimental investigation of the transition between Autler-Townes splitting and electromagnetically-induced transparency models

L. Giner¹, •V. Lucile¹, B. Sparkes², A. Sheremet³, A. Nicolas¹, O. Mishina¹, M. Scherman¹, S. Burks¹, I. Shomroni⁴, D. Kupryanov³, P.K. Lam², E. Giacobino¹, and *J. Laurat*¹; ¹*Laboratoire Kastler Brossel*, Paris, France; ²Australian National University, Canberra, Australia; ³State Polytechnic University, Saint Petersburg, Russia; ⁴Weizmann Institute of Science, Rehovot, Israel

We experimentally investigated with cold Cesium atoms a quantitative test to objectively discerning Autler-Townes splitting from electromagnetically-induced transparency, and demonstrated that it is very sensitive to the specific properties of the medium.

IA-6.3 WED

14:30

Narrowband source of correlated photon pairs via four-wave mixing in a cold atomic ensemble

B. Srivathsan¹, G.K. Gulati¹, •M.Y.B. Chng¹, G. Maslennikov¹, D. Matsukevich^{1,2}, A. Cerè¹, and C. Kurtsiefer^{1,2}; ¹Center for Quantum Technologies, Singapore, Singapore; ²Department of Physics, National University of Singapore, Singapore, Singapore

CE-9.3 WED

Complex polarization in non z-cut

whispering gallery mode resonators
•F. Sedlmeir^{1,2,3}, M. Hauer², J. Fürst^{1,2}, D.V. Strekalov¹, and H.G.L. Schwefel^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Institute for Optics, Information and Photonics, University of Erlangen-Nürnberg, Erlangen, Germany; ³SAOT, School in Advanced Optical Tech-



CE-9.2 WED Binary oxide mixtures as a keystone for

new coated components in the UV: Multiscale study of nanosecond laser-induced damage

•C. Gouldieff¹, F. Wagner¹, J.-Y. Natoli¹, L. Jensen², M. Mende², and D. Ristau^{2,3}; ¹Institut Fresnel, Marseille, France; ²Laser Zentrum Hannover e.V., Hannover, Ger*many*; ³*QUEST*, *Hannover*, *Germany*

We investigate the laser damage resistance of oxide mixture thin films to multiple nanosecond pulses. Pure materials and binary mixtures are studied in the UV range to understand the physics of possible fatigue effects.

	CLEO [®] /Eur	ope-IQEC 2013 · Wednesday	15 May 2013	
ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
IR self-defocusing cascading quadratic non- linearities using all-normal dispersion PPLN waveguides. The chosen quasi-phase match- ing pitch gives octave-spanning bandwidths, allowing for few-cycle soliton compression and generation of an octave-spanning super- continuum.		a 250-MHz repetition rate frequency comb using a combination of optical and electri- cal phase locked loops. The timing jitter was only 193*6 fs.	fractional vortex energy of 3.1mJ was ob- tained at a pump-energy of 19mJ.	tering strength or the excitation volume. We then demonstrate speckle-free imaging us- ing a random laser with low spatial coher- ence.
CD-11.4 WED 14:45	IG-2.2 WED 14:45	CI-5.4 WED 14:45	CA-10.4 WED 14:45	
 Spatial Soliton Dynamics in Curved Photonic Lattices F. Diebel, P. Rose, M. Boguslawski, and C. Denz; Institut für Angewandte Physik and Center for Nonlinear Science (CeNoS), Westfälische Wilhelms-Universität Münster, 48149 Münster, Germany We report on the first experimental observa- tion of stable and oscillating solitons in pho- torefractive photonic Weber lattices. The ex- perimentally observed dynamic behavior of the Weber soliton is corroborated by com- prehensive numerical simulations. 	Bound states in a temporal fiber network with parity-time symmetry •A. Regensburger ^{1,2,3} , MA. Miri ⁴ , C. Bersch ^{1,2} , J. Naeger ¹ , G. Onishchukov ^{1,2,3} , D.N. Christodoulides ⁴ , and U. Peschel ^{1,3} ; ¹ Institute of Optics, Information and Pho- tonics, University of Erlangen-Nürnberg, Erlangen, Germany; ² Max Planck Institute for the Science of Light, Erlangen, Germany; ³ Erlangen Graduate School in Advanced Optical Technologies (SAOT), Erlangen, Germany; ⁴ CREOL, College of Optics and Photonics, University of Central Florida, Orlando, United States We report on the first experimental observa- tion of localized defect states in a large-scale parity-time (PT) symmetric photonic lattice. The system is realized in a time-multiplexed network consisting of two coupled optical fiber loops.	 Evaluation of Radio-over-Fiber Link for 45-GHz- and 60-GHz-Band Simultaneous Transmissions •A. Kanno and T. Kawanishi; National In- stitute of Information and Communications Technology, Koganei, Japan We configure and evaluate a broadband RoF signal simultaneous transmission system for 45-GHz and 60-GHz bands. Observed flat- ness of the frequency response at these bands and dynamic range are 2 dBp-p and 22 dB, respectively. 	high energy and broadband Yb:CaF2 multipass amplifier using passive coherent combining F. Friebel ¹ , S. Ricaud ^{1,4} , A. Pellegrina ² , M. Hanna ¹ , E. Mottay ⁴ , P. Camy ³ , JL. Doualan ³ , R. Moncorge ³ , P. Georges ¹ , F. Druon ¹ , and •D. Papadopoulos ^{1,2} ; ¹ Laboratoire Charles Fabry, Institut d'Optique, CNRS, Univ. Paris Sud, 2, Avenue Augustin Fresnel, Palaiseau, France; ² Laboratoire d'Utilisation des Lasers In- tenses, Ecole Polytechnique, Palaiseau, France; ³ Centre de recherche sur les Ions, les Matériaux et la Photonique, CEA-CNRS- ENSICAEN, Université de Caen, Caen, France; ⁴ Amplitude Systèmes, 11 avenue de Canteranne, Cité de la Photonique, Pessac, France We report a diode-pumped Yb:CaF2 160- mJ, 20 Hz multipass amplifier using coher- ent combining in order to overcome damage threshold problems. The combination effi- ciency of the passive coherent combination is up to 96%.	JSIII-1.4 WED 15:00 Observation of anomalous diffusion in a
CD-11.5 WED 15:00	IG-2.3 WED 15:00	CI-5.5 WED 15:00	CA-10.5 WED 15:00	1D optical random dimer •S. Stützer ¹ , U. Naether ² , T. Kottos ³ , R.A.
 Spatio-temporal cleaning of a femtosecond laser pulse by a filament conjugate mirror •A. Jarnac¹, M. Durand², A. Houard¹, Y. Liu¹, B. Prade¹, M. Richardson², and A. Mysyrowicz¹; ¹Laboratoire d'Optique Appliquée, ENSTA Paristech/CNRS/Polytechnique, Palaiseau, France; ²Townes Laser Institute, CREOL, University of Central Florida, Orlando, United States A phase conjugate mirror was formed in air with two counter propagating filaments. This mirror can clean efficiently a femtosecond laser pulse both spatially and temporally. 	Complex beam dynamics in PT-symmetric optical lattices •K. Makris ¹ , R. El-Ganainy ² , and D. Christodoulides ³ ; ¹ Department of Electrical Engineering, Princeton University, Princeton, United States; ² Max Planck Institute for the Physics of Complex Systems, Dresden, Germany; ³ College of Optics and Photonics (CREOL), University of Central Florida, Orlando, United States The complex beam dynamics close to the ex- ceptional point of a PT-symmetric optical lattice is systematically examined. Absence of anomalous diffraction, non-hermitian negative refraction, nonlinear evolution of power oscillations, and soliton formation are also investigated.	First Investigation of Fast OFDM Radio over Fibre System at 60 GHz Using Direct Laser Modulation •H. Shams and J. Zhao; Photonic Systems Group (PSG), Tyndall National Institute, University College Cork (UCC), Cork, Repub- lic of Ireland Fast OFDM (F-OFDM) was investigated for the first time in 60GHz radio-over-fiber sys- tem using direct laser modulation and opti- cal frequency quadruple technique. The per- formance was evaluated for 10.3Gbps 4ASK F-OFDM and 16QAM conventional OFDM.	 The Prospects for Yb- and Nd-Doped Tungstate Microchip Lasers •V. Savitski¹, R. Birch¹, E. Fraczek¹, A. Kemp¹, P. Loiko², K. Yumashev², N. Kuleshov², and A. Pavlyuk³; ¹Institute of Photonics, University of Strathclyde, Glasgow, United Kingdom; ²Center for Optical Materials and Technologies, Be- larusian National Technical University, Minsk, Belarus; ³A.V.Nikolaev Institute for Inorganic Chemistry, Siberian Branch of RAS, Novosibirsk, Russia Nd:KGd(WO4)2 and Yb:KY(WO4)2 crys- tals cut along the Ng-axis are used in quasi- microchip plane-plane lasers for the first time. Output powers up to 900mW are demonstrated. Cavity designs based on ther- mal lens sensitivity factors are discussed. 	Vicencio ² , M.I. Molina ² , A. Tünnermann ¹ , S. Nolte ¹ , D.N. Christodoulides ⁴ , and A. Szameit ¹ ; ¹ Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller- Universität, Jena, Germany; ² Departamento de Fisica and MSI-Nucleus on Advanced Optics, Center for Optics and Photonics (CEFOP), Facultad de Ciencias, Universidad de Chile, Santiago, Chile; ³ Department of Physics, Wesleyan University, Middletown (Connecticut), United States; ⁴ College of Optics and Photonics, University of Central Florida, Orlando, United States We experimentally demonstrate anomalous diffusion in a disordered system with short- range correlations. The prototypical case of a random dimer is realized in a waveguide array and a localization-delocalization tran- sition is observed.

	CLEO©/Eur	ope-IQEC 2015 · Wednesday	13 IVIAY 2013	
PROOM 14aultrabroadband and passively phase- stable Er:fiber system are demonstrated.ultrabroadband and passively phase- stable Er:fiber system are demonstrated.20-5: operation at a repetition rate of 10 but are achieved.21-2121-2221-23Efficient CW All-fiber Optical Parametric Cocillator Operating Below 1 µm1. S. Kablukov ¹ , and S. Babin ^{1,2} ; ¹ hrstitute of Automation and Electrometry, Siberian Branch of the Russian Academy of sciences, Novosibirsk, Russia; ² Novosibirsk State University, Novosibirsk, Russia; ² Novosibirsk State Optical parametric os- cillator based on photonic crystal fiber oper- ating below 1 µm is realized for the first time. The FOPO has 9.7% slope efficiency and 460 and wo utput power at 972 nm.	ROOM 14b United Kingdom Passive mode locking of a diode-pumped monolithic Yb:Glass channel waveguide laser is reported. 811 fs pulses are generated with an average power of 27 mW and a pulse repetition frequency of 15.2 GHz at 1047nm. CF/IE-8.4 WED 14:45 All-fiber femtosecond Cherenkov laser at visible wavelengths •X. Liu ¹ , J. Laegsgaard ¹ , U. Møller ¹ , H. Tu ² , S. Boppart ² , and D. Turchinovich ^{1,3} ; ¹ DTU Fotonik, Technical University of Den- mark, Kgs. Lyngby, Denmark; ² Biophotonics Imaging Laboratory, University of Illinois at Urbana-Champaign, Urbana, United States; ³ Max Planck Institute for Polymer Research, Mainz, Germany We demonstrate an all-fiber femtosecond Cherenkov laser with pulse duration of sub- lofs, and 3 dB spectral bandwidth not ex- ceeding 36 nm, operating at 580-630 nm. The laser intensity noise is as low as -103 dBc/Hz.	ROOM 21 We demonstrate a bright and narrowband source of time-correlated photon pairs of wavelength 762nm and 795nm generated via four-wave mixing in cold Rubidium-87 atoms using a cascade decay level scheme. <u>IA-6.4 WED</u> 14:45 Slow-Light-Enhanced Correlated Photon Pair Generation in a Silicon Photonic Crystal Coupled-Resonator Optical Waveguide •N. Matsuda ^{1,2} , H. Takesue ¹ , K. Shimizu ¹ , Y. Tokura ¹ , E. Kuramochi ^{1,2} , and M. Notomi ^{1,2} ; ¹ NTT Basic Research Laboratories, Atsugi, Japan; ² NTT Nanophotonics Center, Atsugi, Japan We generate quantum-correlated photon pairs from a silicon photonic-crystal coupled-resonator optical waveguide. A slow light mode enhanced the sponta- neous four-wave mixing from which we obtained photon pairs with a corresponding nonlinear constant of 9,000 /W/m.	13 May 2013 ROOM EINSTEIN Nologies, Erlangen, Germany Birefringent whispering gallery mode res- onators whose optical axis are tilted against their symmetry axis show complex polariza- tion eigenstates. We present Stoke measure- ments of the through- and outcoupled light. <u>CE-9.4 WED</u> 14:45 Dadaband multiple light scattering in <i>NuL. Vos¹, T.W. Tukker², A.P. Mosk¹, A.</i> <i>Lagendijk¹, and W.L. IJzerman³; ¹Complex</i> <i>Photonic Systems (COPS), MESA+ Institute</i> <i>for Nanotechnology, University of Twente</i> , <i>Enschede, The Netherlands; ²Philips Lighting</i> <i>- Light Sources and Electronics,, Eindhoven</i> , <i>The Netherlands; ³Philips Lighting - Optics</i> , <i>Eindhoven, The Netherlands</i> We present diffuse optical transmission and reflectivity of diffusers typical of commer- cial white LEDs. By invoking nanophotonic diffusion theory we derive the mean free path. A model without adjustable parame- ters agrees well with our data.	
CJ-7.5 WED 15:00 Ultra-broadband Wavelength Swept Tm-doped Fibre Laser •M. Tokurakawa ¹ , J.M.O. Daniel ¹ , C.S. Chenug ² , H. Liang ² , and W.A. Clarkson ¹ ; ¹ Optoelectronics Research Centre, University of Southampton, Southampton, United King- dom; ² School of Science & Technology, Nottingham Trent University, Nottingham, United Kingdom A wavelength-swept Tm fibre laser source employing two fibre gain stages to achieve wide wavelength tuning is reported. The laser yielded over 500mW of output and had scanning range from 1750nm to 2080nm.	CF/IE-8.5 WED (Invited)15:00High-Performance Fiber Lasers Based on Self-Similar Pulse Propagation•W. Renninger and F. Wise; Cornell University, Ithaca, United StatesStable mode-locking is achieved in a fiber laser based on self-similar propagation of a parabolic pulse in the amplifier section. Self- similar mode-locking offers routes to high energy, few-cycle pulses from low-noise all- fiber sources.	IA-6.5 WED15:00Photon Blockade Effect in the Ultrastrong Coupling Regime•A. Ridolfo ¹ , M. Leib ¹ , S. Savasta ² , and M.J. Hartmann ¹ ; ¹ Technische Universität München, Munich, Germany; ² Universitä di Messina, Messina, ItalyWe show photon coincidence counting statistics in the ultrastrong coupling regime. Exploiting the correct input-output relations within a suitable Master Equation approach, we calculate correlation functions that are valid for arbitrary degrees of light-matter in- teraction.	CE-9.5 WED 15:00 One-photon absorption direct laser writing: a novel approach for fabrication of three-dimensional sub-micrometric structures •MT. Do, Q. Li, T.T.N. Nguyen, I. Ledoux- Rak, and N.D. Lai; Ecole Normale Supérieure de Cachan, Cachan, France We demonstrate successfully the fabrica- tion of desired sub-micrometric structures on demand by using the low one-photon absorption direct laser writing technique. This technique presents great advantages, because 3D structures can be achievable with a simple continuous laser.	

ROOM 1

15:15

CD-11.6 WED

Kerr Frequency Comb Generation in the Normal Dispersion Regime of Dispersion Oscillating Telecom Fiber

•C. Finot¹, J. Fatome¹, A. Sysoliatin², A. Kosolapov², and S. Wabnitz³; ¹Université de Bourgogne, Dijon, France; ²Fiber Optics Research Center, Moscow, Russia; ³Università di Brescia, Brescia, Italy

We experimentally demonstrate the generation of unequal spacing Kerr frequency combs and multiple four wave mixing sidebands in the normal dispersion regime of a dispersion oscillating highly nonlinear telecom fiber.

ROOM 4a

Beam Shaping in Spatially Modulated

Broad Area Semiconductor Amplifiers •*R.* Herrero¹, *M.* Botey², *K.* Staliunas^{1,4}, and M. Radziunas³; ¹Universitat Politècnica de Catalunya, Terrassa, Spain; ²Universitat Politècnica de Catalunya, Barcelona, Spain; ³Weierstrass Institute, Berlin, Germany; ⁴Institució Catalana de Recerca i Estudis Avançats, Barcelona, Spain

15:15

We propose a beam shaping mechanism in broad area semiconductor amplifiers by spatial pump modulation on a micron scale. Spatial filtering and substantial improvement of the beam quality during amplification is predicted under realistic parameters.

ROOM 4b

CI-5.6 WED 15:15 Long-range, High Bit-rate Secure Key Distribution Link Utilizing Raman

Ultra-long Fiber Laser (UFL) •A. El-taher¹, O. Kotlicki², J. Scheuer², P. Harper¹, and S. Turitsyn¹; ¹Aston University, Birmingham, United Kingdom; ²Tel Aviv University, Tel Aviv, Israel

A novel, ultralong fiber-laser based, secure key distribution scheme comprising standard components, exhibiting error-free key distribution with record-levels 500km range and 100Bps bit-rate is demonstrated. The scheme represents an inexpensive, longrange technology for secure communication.

ROOM 13a

Solid-state dual-frequency laser free from

•A. El Amili¹, G. Loas¹, S. De², S. Schwartz³,

G. Feugnet³, J.-P. Pocholle³, F. Bretenaker², and M. Alouini^{1,3}; ¹Institut de Physique

de Rennes, Université de Rennes 1, Rennes,

France; ²Laboratoire Aimé-Cotton, CNRS-

Université Paris 11, Orsay, France; ³Thales

Research and Technology, Palaiseau, France

A reduction of more than 20 dB of the inten-

sity noise at the antiphase relaxation oscil-

lation frequency is experimentally demon-

strated in a two-polarization dual-frequency

solid-state laser without any optical or elec-

CA-10.6 WED

anti-phase noise

ROOM 13b

JSIII-1.5 WED

15:15

16:00

15:15

Position-Dependent Diffusion of Light in Disordered Waveguides

A. Yamilov¹, R. Sarma², B. Redding², B. Payne¹, H. Noh^{2,3}, and •H. Cao²; ¹Missouri University of Science and Technology, Rolla, United States; ²Yale University, New Haven, United States; ³Kookmin University, Seoul, Korea, South

Position-dependent diffusion coefficient is observed experimentally in disordered optical waveguides. Strong wave interference effects make the diffusion coefficient depend on the size, shape of the random medium as well as the material absorption.

16:00 - 17:30

CD-12: Solitons and Nonlinearly Driven Self-organization

Chair: Thomas Pertsch, Friedrich Schiller University, Jena, Germany

CD-12.1 WED

Soliton pulse compression in adiabatically tapered silicon photonic wires

•S. Lavdas¹, J. Driscoll², R. Grote², R. Osgood², and N. Panoiu¹; ¹University College London, London, United Kingdom; ²Columbia University, New York, United States

We demonstrate that one can achieve temporal compression of ultra-short optical pulses by more than three times in millimetre-long adiabatically tapered silicon photonic nanowire waveguides when the optical pulses propagate in the soliton regime.

16:00 - 17:30

IG-3: Polaritons and Quantum Fluids

Chair: Dmitry Skryabin, University of Bath, United Kingdom

IG-3.1 WED

16:00

Soliton and shock waves in an exciton polariton quantum pond

•L. Dominici^{1,2}, M. De Giorgi^{1,2}, D. Ballarini^{1,2}, E. Cancellieri³, F. Laussy⁴, E. Giacobino³, A. Bramati³, G. Gigli^{1,2,5}, and D. Sanvitto^{1,2}; ¹Istituto Italiano di Tecnologia, IIT-Lecce, Lecce, Italy; ²NNL, Istituto Nanoscienze - CNR, Lecce, Italy; ³Laboratoire Kastler Brossel, Université Pierre et Marie Curie-Paris 6, École Normale Supérieure et CNRS, Paris, France; ⁴Fisica Teorica de la Materia Condensada, Universidad Autonoma de Madrid, Madrid, Spain; ⁵Innovation Engineering Department, University of Salento, Lecce, Italy

We demonstrate for the first time the presence of shock waves and standing soliton formation in an exciton polariton condensate resonantly created in a semiconductor microcavity.

16:00 - 17:15

CH-3: Advances in Optical Sensor Devices

Chair: Stavros Pissadakis, Foundation for Research and Technology IESL-FORTH, Heraklion, Greece

CH-3.1 WED

16:00

Dual-polarization optofluidic biodetection based on polymer microring resonators

•C. Delezoide¹, C. Noguès², R. Castro¹, J. Lautru³, M. Buckle², I. Ledoux-Rak¹, J. Zyss³, and C.T. Nguyen¹; ¹LPQM -ENS Cachan, Cachan, France; ²LBPA -ENS Cachan, Cachan, France; ³Institut d'Alembert - ENS Cachan, Cachan, France We present the real-time dual-polarization optofluidic detection of binding events of an antigen/antibody biological system with a polymeric vertically-coupled microring resonator as transducer.

16:00 - 17:30

tronic feedback loop.

CK-6: Plasmonic Nanostructures and Applications

Chair: Sergei Romanov, Max Planck Institute for the Science of Light, Erlangen, Germany

CK-6.1 WED

16:00

Broad-spectrum chiral optical response in achiral structures patterned from silver nanoparticles by plasmon-assisted two-photon direct laser lithography

•X. Vidal^{1,2}, WJ. Kim², A. Baev², V. Tokar^{2,3}, H.S. Jee², M.T. Swihart^{2,4}, and P.N. Prasad^{2,4}; ¹Macquarie University, Sydney, Australia; ²Institute for Lasers, Photonics and Biophotonics, Buffalo, United States; ³Taras Shevchenko National University of Kyiv, Kyiv, Ukraine; ⁴University at Buffalo, Buffalo, United States

We demonstrate a combined bottom-up and top-down technique for producing submicron-patterned structures that exhibit chiral optical response from ultraviolet to infrared wavelengths. Plasmon-enhanced molecular chirality provides chiral response without broken symmetry in the patterned structures.

16:00 - 17:30

JSIII-2.1 WED

JSIII-2: Rogue Waves and Soliton Dynamics

Chair: Stefan Skupin, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany

16:00

RogueWaves of the Vector Nonlinear Schrodinger Equations

•F. Baronio¹, M. Conforti¹, S. Wabnitz¹, and A. Degasperis²; ¹University of Brescia, Brescia, Italy; ²Sapienza University, Roma, Italy We present a semirational vector solution of coupled nonlinear Schrodinger equations. This family of solutions includes known vector Peregrine solutions, bright- and darkrogue solutions, and novel vector freak waves.

	CLEO [®] /Eur	ope-IQEC 2013 · Wednesday	15 May 2013	
ROOM 14aCJ-7.6 WED15:15Mid-IR supercontinuum generation in thulium-doped fiber amplifier.•V. Kamynin ¹ , Y. Sadovnikova ² , A. Kurkov ¹ , and V. Tsvetkov ¹ ; ¹ Prokhorov General Physics Institute, Moscow, Russia; ² Moscow State University of Instrument Engineering and Computer Science, Moscow, RussiaThulium doped fiber amplifier was used as medium for Mid-IR supercontinuum gener- ation. High spectral power density and flat- ness in the range from 1850 to 2550 nm was observed.	ROOM 14b	ROOM 21IA-6.6 WED15:15Monolithic generation and manipulation of nondegenerate photon pairs within a silicon-on-insulator quantum photonic circuit•J. Silverstone ¹ , D. Bonneau ¹ , R. Hadfield ² , V. Zwiller ³ , J. Rarity ¹ , J. O'Brien ¹ , and M. Thompson ¹ ; ¹ University of Bristol, Bristol, United Kingdom; ² University of Glasgow, Glasgow, United Kingdom; ³ TU Delft, Delft, The NetherlandsWe report the first on-chip quantum in- terference between photons generated in two discrete spontaneous four-wave mixing sources, and the manipulation of this bipho- tonic state using silicon-on-insulator inte- grated optics.	ROOM EINSTEINZE-9.6 WED15:15Influence of the shell geometry on the state of charge of CdSe/CdS dot-in- rods nanonocrystals•M. Manceau ¹ , S. Vezzoli ¹ , F. Pisanello ^{2,4} , L. Carbone ³ , E. Giacobino ¹ , M. De Vittorio ^{2,4} , and A. Bramati ¹ ; ¹ Laboratoire Kastler Brossel, Université Pierre et Marie Curie, CNRS UMR 8552, Ecole Normale Supérieure, Paris, France; ² Istituto Italiano di Tecnologia (IT), Center for Bio-Molecular Nanotech- nology, Arnesano, Lecce, Italy; ³ Center for Neuroscience and Cognitive Systems @UNITN, Istituto Italiano di Tecnologia, Rovereto, Italy; ⁴ National Nanotechnology Laboratory, CNR-Nano, Università del Salento, Dipartimento Ingegneria dell innovazione, Arnesano, Lecce, ItalyThe state of charge of colloidal nanocrys- tals is critical for their application as light sources. Performing lifetime measurements on CdSe/CdS dot-in-rods, we show differ- ent charging trends depending on the length and thickness of the rods.	NOTES
16:00 – 17:30 CJ-8: Fibre Laser Sources Chair: Johannes Nold, Fraunhofer IOF, Jena, Germany	16:00 – 17:30 CF/IE-9: Ultrafast Optical Parametric Amplifiers Chair: Daniele Brida, Konstanz University, Konstanz, Germany	16:00 – 17:30 IH-2: Heat and Energy Control Chair: Rashid Zia, Brown University, Provi- dence, United States	16:00 – 17:30 CG-3: Plasma Based Sources Chair: Laszlo Veisz, Max-Planck-Institute of Quantum Optics, Garching, Germany	
CJ-8.1 WED 16:00 Eyesafe Wind LIDAR Based On A Coherently-Beam-Combined Laser Source • L. Lombard, M. Valla, C. Planchat, D. Goular, B. Augère, P. Bourdon, and G. Canat; Onera, The French Aerospace Lab, Palaiseau, France We report on a coherent wind LIDAR based on a pulse laser source made of two coherently-beam-combined amplifiers. The LIDAR performances are compared us- ing the combined-amplifier and the single- amplifier of the same power.	CF/IE-9.1 WED16:00Ultra-stable fiber pumped CEP-stabilized dual stage OPCPA System•). Matyschok ¹ , T. Binhammer ² , T. Lang ^{1,3} , O. Prochnow ² , S. Rausch ² , P. Rudawski ⁴ , C.L. Arnold ⁴ , A. L'Huillier ⁴ , and U. Morgner ^{1,3,5} ; ¹ Institute of Quantum Optics, Leibniz Universität Hannover, Hannover, Germany; ² VENTEON Laser Technologies GmbH, Garbsen, Germany; ³ Centre for Quantum Engineering and Space-Time Research (QUEST), Hannover, Germany; ⁴ Department of Physics, Lund University, Lund, Sweden; ⁵ Laser Zentrum Hannover (LZH), Hannover, Germany; OPCPA pulses with 800 MW of peak-power at high repetition rates with excellent power and CEO phase stability are reported, to- gether with detailed numerical analysis of the parametric amplification process.	 IH-2.1 WED (Keynote) 16:00 Broadband Management of Light Using Nanophotonics for Solar and Thermal Applications •S. Fan; Stanford University, Ginzton Laboratory, Stanford, CA, United States There is enormous potential for the use of nanophotonics in solar and thermal applications. In this talk, we show that one can use nanophotonic approach to enhance both the voltage and the current of the solar cells. We also show one can use nanophotonics effectively for a number of emerging thermal applications, including both novel approach for radiative cooling in the far field, and active control of heat flow in the near field. 	CG-3.1 WED 16:00 Effective interaction of intense ultra-short laser pulse with nano-structure targets •A. Andreev, Max Born Institute, Berlin, Germany It is shown that optimal foil target relief of nm scale significantly rise laser pulse absorption and improves fast particles and X-ray yield. Generated short electron bunches can be used for production of attosecond pulses	

ROOM 1

CD-12.2 WED

Appearances and Disappearances of Fermi Pasta Ulam Recurrence in Nonlinear Fiber Optics

•A. Mussot¹, A. Kudlinski¹, M. Droques¹, P. $Szriftgiser^1$, and N. Akhmediev²; ¹Laboratoire PhLAM UMR CNRS 8523. IRCICA, Université Lille 1, illeneuve d'Ascq, France; ²Optical Sciences Group, Research School of Physics and Engineering, The Australian National University, Canberra, Australia

We show experimentally and numerically that FPU recurence in low dispersion nonlinear fiber optics experiences multiple appearances and disappearances.

CD-12.3 WED (Invited)

Enlightening the rules of disorder: from broadband energy harvesting to many-body solitons and light condensation dynamics

Fratalocchi; PRIMALIGHT •A. (www.primalight.org); Faculty of Electrical Engineering, Faculty of Applied Mathematics and Computational Science, Thuwal, Saudi Arabia

In this invited talk I will discuss the dynamics of light in disordered systems, ranging from energy harvesting to light condensation dynamics, shock waves in disordered replicas and soliton gases, covering both theory and experiments.

IG-3.2 WED

16:15

16:30

IG-3.3 WED

Macroscopic self-trapping and non-linear Josephson oscillations in coupled polariton condensates

ROOM 4a

A. Amo¹, M. Abbarchi¹, •V.G. Sala¹, D.D. Solnyshkov², H. Flayac², L. Ferrier¹, I. Sagnes¹, E. Galopin¹, A. Lemaître¹, G. Malpuech², and J. Bloch¹; ¹Laboratoire de Photonique et Nanostructures, CNRS, Marcoussis, France; ²Institut Pascal, PHOTON-N2, Clermont Université, Blaise Pascal University, CNRS, Aubière, France

Exciton-polaritons are mixed light-matter particles with strong non-linearities. Here we report the experimental observation of macroscopic self-trapping and non-linear Josephson oscillations of two coupled polariton condensates in engineered photonic molecules etched in a semiconductor microcavity.

16:30

Spin-induced spontaneous symmetry breaking of exciton-polariton patterns

•A. Werner^{1,2}, O.A. Egorov^{1,2}, and F. Lederer^{1,2}; ¹Institute of Condensed Matter Theory and Solid State Optics, Jena, Germany; ²Abbe Center of Photonics, Jena, Germany

We study theoretically the influence of the exciton spin dynamics on the existence and stability of spatial polariton patterns in a semiconductor microcavity. We find spontaneous symmetry breaking of the polarization.

ROOM 4b

CH-3.2 WED

16:15

16:15

Fabry-Perot Vapor Microsensor onto Fibre Endface Fabricated by Multiphoton Polymerization Technique

•V. Melissinaki^{1,2}, M. Vamvakaki^{1,3}, M. Farsari¹, and S. Pissadakis¹; ¹Foundation for Research and Technology-Hellas (FORTH), Institute of Electronic Structure and Laser (IESL), Heraklion, Greece; ²Department of Physics, University of Crete, Heraklion, Greece; ³Department of Materials Science and Technology, Heraklion, Greece

A Fabry-Perot optical hybrid microsensor, fabricated by multiphoton polymerization technique onto a SMF28 fibre endface, is presented. This fibre sensing probe is investigated for measuring vapour concentration of organic solvents.

CH-3.3 WED

Study on Detection of Contamination of Pure Water Using Silica Microsphere

16:30

16:45

•J. Nishimura and T. Tanabe; Keio Univ., Yokohama, Japan

The resonance shift of silica microspheres is studied as regards monitoring the purity of water. We found that the adsorption lengthens the resonance wavelength while the reaction of silica with pure water shortens it.

CK-6.3 WED (Invited) 16:30

Integrated Plasmonic NanoBiosensors •H. Altug^{1,2}, R. Adato^{1,2}, A. Artar¹, K. Chen¹, and S. Aksu¹; ¹Boston University, Boston, United States; ²Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

ROOM 13a

•M.I. Huttunen¹, D. Andriano¹, I. Mäkitalo¹,

K. Lindfors², M. Lippit $z^{2,3}$, and M.

Kauranen¹; ¹Department of Physics, Tam-

pere University of Technology, Tampere,

Finland; ²Max Planck Institute for Solid

State Research, Stuttgart, Germany; ³4.

Physics Institute, University of Stuttgart,

We fabricate and characterize three-

dimensional winged nanocone optical

antennas, which can couple transverse field

components of incident light into localized

near-fields at the apex of the cones.

Three-dimensional Winged Nanocone

16:15

CK-6.2 WED

Optical Antennas

Stuttgart, Germany

We will demonstrate plasmonic and metamaterial based integrated nano-biosensors and ultrasensitive infrared absorption spectroscopy. These systems by enabling monitoring of molecular-protein interactions in real-time within aqueous solutions can be important for biomedical sciences and pharmacology.

ROOM 13b

JSIII-2.2 WED

Real time spectra and wavelength correlation maps: new insights into octave-spanning supercontinuum generation and rogue waves

16:15

•T. Godin¹, B. Wetzel¹, T. Sylvestre¹, Larger¹, J.-M. Merolla¹, A. Ben Salem² R. Cherif², M. Zghal², A. Kudlinsli³, A Mussot³, G. Genty⁴, F. Dias⁵, and J.M. Dudley¹; ¹Institut FEMTO-ST, Besançon, France; ²University of 7th November, Sup'Com, Cirta'Com Laboratory, Ariana, Tunisia; ³PhLAM/IRCICA - Université de Lille, Villeneuve d'Ascq, France; ⁴Department of Physics, Tampere University of Technology, Tampere, Finland; ⁵School of Mathematical Sciences, University College Dublin, Dublin, Republic of Ireland

We report real-time measurements of shotto-shot spectral instabilities of an octavespanning supercontinuum. Spectral correlations derived from experimental data reveal physical signatures of nonlinear processes including soliton-dispersive wave interactions and Raman soliton wavelength jitter.

JSIII-2.3 WED

Coherence and single-shot spectra of noise-like pulse trains

•A. Runge, C. Aguergaray, N.G.R. Broderick, and M. Erkintalo; University of Auckland, Auckland, New Zealand

We report on experimental of coherence and fluctuations in noise-like ultrafast fiber oscillators. Single-shot spectral measurements of the megahertz pulse train reveal significant roundtrip-to-roundtrip variations that are washed out when using conventional timeaveraged techniques.

JSIII-2.4 WED

16:45

16:30

Dissipative rogue waves through multi-pulse collisions in a fiber laser

•C. Lecaplain¹, P. Grelu¹, J.-M. Soto-Crespo² and N. Akhmediev³; ¹Laboratoire Interdisciplinaire Carnot de Bourgogne, U.M.R. 6303 C.N.R.S., Dijon Cedex, France; ²Instituto de Optica, C.S.I.C., Madrid, Spain; ³Optical Sciences Group, Research School of Physics and

IG-3.4 WED

Terahertz Josephson plasma solitons in high-Tc superconductors

•L. Zhang¹, E. Casandruc¹, M. Eckstein¹, A. Dienst², D. Fausti^{1,2,3}, Y. Laplace¹, and A. Cavalleri^{1,2}; ¹Max-Planck Research Department for Structual Dynamics, University of Hamburg-CFEL, Hamburg, Germany; ²Department of Physics, University of Oxford, CH-3.4 WED

16:45

Characterization of optical strain sensors based on silicon waveguides

•W. Westerveld^{1,2}, J. Pozo², P. Muilwijk², S. Leinders¹, P. Harmsma², E. Tabak², T. van den Dool², K. van Dongen¹, M. Yousefi³, and P. Urbach¹; ¹Delft University of Technology, Delft, The Netherlands; ²TNO, Delft, The Netherlands; ³Photonic Sensing Solu-

	CLLO / Lui	ope-IQLC 2013 · Wednesday	10 May 2010	
ROOM 14a CJ-8.2 WED 16:15 Single-mode Yb-free Er-doped all-fiber laser cladding-pumped at 976 nm with record efficiency of 40 % and output power of 75 W •L Kotov ^{1,2} , M. Likhachev ¹ , M. Bubnov ¹ , O. Medvedkov ¹ , M. Yashkov ³ , A. Guryanov ³ , S. Fevrier ^{4,5} , J. Lhermite ⁴ , and E. Cormier ⁴ ; ¹ Fiber optics research center of the Russian Academy of Sciences, Moscow, Russia; ² Moscow institute of physics and technology (state university), Dolgoprudny, Russia; ³ Institute of High Purity Substances of the Russian Academy of Sciences, Nizhny Novgorod, Russia; ⁴ Centre Lasers Intenses et Applications, Université Bordeaux 1, Talence, France; ⁵ Xlim, University of Limoges, Limoges, France We present the high power cladding pumped all-fiber laser based on the newly developed Erbium doped fiber. Output power of 75 W with record efficiency of 40 % was obtained through optimization of fiber design.	ROOM 14bCF/IE-9.2 WED16:15NIR and MIR tunable 130 fsSupercontinuum-Seeded OPA with 25 nJPulse Energy and 5 MHz Repetition Rate•T. Hansel ¹ , W. Köhler ² , A. Assion ² , J.Bethge ¹ , and E. Büttner ¹ ; ¹ AngewandtePhysik und Elektronik GmbH, Berlin, Germany; ² Femtolasers Produktions GmbH, Vienna, AustriaA novel OPA based femtosecond light sourcetunable in the NIR and MIR spectral regionwith 5MHz rep-rate and 140mW maximumpower is presented. The system is self-seededby a supercontinuum generated in a YAG-crystal.	ROOM 21	ROOM EINSTEINZG-3.2 WED16:15Sub-2-Cycle Laser-Driven WakefieldElectron Acceleration•SW. Chou ^{1,2} , J. Xu ¹ , D. Cardenas ¹ , D.Rivas ^{1,2} , T. Wittmann ¹ , F. Krausz ^{1,2} , S.Karsch ^{2,1} , and L. Veisz ¹ ; ¹ Max-Planck-Institut für Quantenoptik, Garching, Germany; ² Ludwig-Maximilians-Universität,Garching, GermanyWe report on the first laser-driven electronacceleration experiment with a sub-2-cycle(sub-5 fs) multi-TW laser. About 10 MeVdark-current-free mono-energetic electronbunches were observed with charge few pCcharge and few-10 mrad divergence.	NOTES
CJ-8.3 WED 16:30 Optical Repetition Rate Control of an Erbium-doped All-Fiber Laser •T. Hellwig, S. Rieger, T. Walbaum, and C. Fallnich; Institut für Angewandte Physik, Westfälische Wilhelms-Universität, Münster, Germany Optical repetition rate stabilization of a mode-locked all-fiber Erbium laser by changing the refractive index of an intra- cavity Ytterbium-doped fiber via optical pumping is presented.	 CF/IE-9.3 WED 16:30 Broadly-tunable near- and mid-IR source by direct pumping of an OPA with a 42 MLz femtosecond multi-Watt Yb:KGW oscillator J. Krauth¹, A. Steinmann¹, R. Hegenbarth¹, M. Conforti², and H. Giessen¹; ¹4th Physics Institute and Research Center SCOPE, University of Stuttgart, Stuttgart, Germany; ²CNISM, Dipartimento di Ingegneria dell'Informazione, Università di Brescia, <i>Strescia, Italy</i> We generate over half a watt tunable from 380-1830 nm, several hundred milliwatts from 2.41-4.22 µm and milliwatt level mid. Radiation (4.85-9.33 µm) by pumping an OPA directly with a Yb:KGW oscillator at 1.7 MHz. 		CG-3.3 WED 16:30 Isolated Attosecond Pulse Generation in Transition Metal Ablation Plumes •T. Witting ¹ , R. Ganeev ² , F. Frank ¹ , M. Tudorovskaya ³ , W. Okell ¹ , Z. Abdelraman ¹ , D. Fabris ¹ , C. Hutchinson ¹ , M. Lein ³ , J. Marangos ¹ , and J. Tisch ¹ ; ¹ Blackett Lab- oratory, Imperial College London, London, United Kingdom; ² Institute of Electronics, Tashkent, Uzbekistan; ³ Institut für Theoretis- che Physik and Centre for Quantum Engi- neering and Space-Time Research (QUEST), Leibniz Universität Hannover, Hannover, Germany. We generate high order harmonics in transition-metal ablation plumes using a sub-2-cycle driving pulse. The giant photo-ionization resonances allow drastic fux enhancements. TDSE modelling and first experiments suggest sub-fs pulse	
CJ-8.4 WED16:45SBS suppression in high power single frequency fiber amplifiers by longitudinal varying strainL. Zhang, J. Hu, S. Cui, and •Y. Feng; Shang- hai Institute of Optics and Fine Mechanics, Shanghai, China, People's Republic of (PRC) The contribution has been withdrawn by the authors.	CF/IE-9.4 WED 16:45 Impact of parasitic, cascaded, and spatial effects to the spatio-temporal pulse shaping dynamics in optical parametric amplifiers •T. Lang ^{1,2} , A. Harth ^{1,2} , M. Schultze ¹ , and U. Morgner ^{1,2} ; ¹ Institute of Quantum Optics, Leibniz Universität Hannover, Hannover, Germany; ² Centre for Quantum Engi-	IH-2.2 WED16:45Heat transfer and non-equilibrumCasimir forces in nanostructured surfaces•R. Guérout, S. Reynaud, and A. Lambrecht;Laboratoire Kastler-Brossel, ENS, UPMC,CNRS, Paris, FranceI'll review recent calculations for Casimir in- teractions between nanostructured surfacesboth at thermodynamic equilibrium and out	CG-3.4 WED16:45High-order harmonic generation from controlled plasma mirrors•S.•S. Monchocé; Commissariat à l'Energie Atomique, Gif-sur-Yvette, France We demonstrate experimentally that varying the density gradient of a plasma mirror al- lows control over the harmonic generation mechanisms. At very high intensity, this pa-	

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ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
	Oxford, United Kingdom; ³ Physics depart- ment, University of Trieste, Trieste, Italy We show that Josephson plasma solitions in layered high-temperature superconductors can be excited with a strong terahertz elec- tromagnetic field and detected by a trans- parency window in the perturbed loss func- tion of the material.	<i>tions, Amsterdam, The Netherlands</i> We present an extensive proof of the prin- ciple of silicon microring resonators operat- ing as strain sensors as well as a complete study of the influence of the design choices and physical effects.		<i>Engineering, Canberra, Australia</i> Following the first experimental observation of a new mechanism for rogue wave (RW) formation (PRL 108, 233901 (2012)), we provide an extensive experimental study in mode-locked laser where comparison with non-RW pulsating regimes is provided.
CD-12.4 WED 17:00	IG-3.5 WED 17:00	CH-3.5 WED 17:00	CK-6.4 WED 17:00	JSIII-2.5 WED (Invited) 17:00
Bright Dispersive Waves in Dual-Core Microstructured Fiber under Different Laser Pumps A. Tonello ¹ , K. Krupa ¹ , M. Andreana ¹ , V. Couderc ¹ , G. Manili ² , •D. Modotto ² , U. Minoni ² , S. Wabnitz ² , A. Barthélémy ¹ , A. Labruyère ¹ , B.M.I. Shalaby ¹ , P. Leproux ¹ , and A.B. Aceves ³ ; ¹ Université de Limoges, XLIM, Limoges, France; ² Université di Bres- cia, Brescia, Italy; ³ Southern Methodist Uni- versity, Dallas, United States An efficient dispersive wave generation around 1550 nm is obtained thanks to the dispersive properties of a dual-core mi- crostructured fiber. Experimental and nu- merical results on the role of pump pulse wavelength and duration are reported.	Temporal long-range order in dynamic condensates A. Hayat ¹ , C. Lange ¹ , L.A. Rozema ¹ , •R. Chang ¹ , S. Potnis ¹ , H.M. van Driel ¹ , A.M. Steinberg ¹ , M. Steger ² , D.W. Snoke ² , L.N. Pfeiffer ³ , and K.W. West ³ ; ¹ Department of Physics, Centre for Quantum Information and Quantum Control, and Institute for Op- tical Sciences, University of Toronto, Toronto, Canada; ² Department of Physics and As- tronomy, University of Pittsburgh, Pittsburgh, United States; ³ Department of Electrical En- gineering, Princeton University, Princeton, United States We study interference between two dynamic exciton-polariton condensates, resonantly injected at different times, observing for the first time long-range temporal coherence in this system. This constitutes a new probe of ultrafast coherent dynamics in exciton- polaritons.	 Diaphragm Etching in Extrinsic Fabry-Perot Interferometric Fiber Optic Pressure Sensors S. Poeggel, •D. Tosi, G. Leen, and E. Lewis; University of Limerick, Limerick, Republic of Ireland We present a novel technique for diaphragm etching in extrinsic Fabry-Perot interferometric fiber optic sensors. The proposed approach accurately monitors online the surface etching in hydrofluoric acid, modeling the Fabry-Perot cavity evolution. 	Geometrical Control of the Resonances and Mode Composition in Hybrid Plasmonic Photonic Crystals •S. Romanov ^{1,2} , K. Bley ³ , K. Landfester ³ , C. Weiss ³ , and U. Peschel ¹ ; ¹ Institute of Op- tics, Information and Photonics, University of Erlangen-Nuremberg, Erlangen, Germany; ² Ioffe Physical Technical Institute, St. Peters- burg, Russia; ³ Max Planck Institute for Poly- mer Research, Mainz, Germany Hybrid colloidal plasmonic-photonic crys- tals was gradually turned into plasmonic crystals by etching. Progressively, di- electric waveguiding and Mie modes were substituted by surface plasmon-polariton modes. The unusual extraordinary trans- mission spike emerged due to Fano reso- nance.	Solitonization of the Anderson localization •C. Conti; ISC-CNR and Dipartimento di Fisica, Università Sapienza, Roma, Italy We will report on a theoretical approach for the one dimensional nonlinear Schroedinger equation describing the effect of nonlinear- ity on disorder induced localization.

CD-12.5 WED

Suppression of temporal cavity soliton interactions by phase modulation of the driving beam

17:15

•J.K. Jang, M. Erkintalo, S.G. Murdoch, and S. Coen; The University of Auckland, Auckland, New Zealand

We experimentally demonstrate a technique to suppress long-range interactions between temporal cavity solitons. Under sinusoidal phase modulation of the driving beam, cavity solitons are locked to the adjacent phase maxima.

All-optical Polariton Transistor

IG-3.6 WED

•D. Ballarini^{1,2}, M. De Giorgi^{1,2}, E. Cancellieri³, R. Houdre⁴, E. Giacobino⁵, R. Cingolani¹, A. Bramati⁵, G. Gigli^{1,2,6}, and D. Sanvitto^{1,2}; ¹Istituto Italiano Tecnologia, Lecce, Italy; ²Istituto Nanoscienze - CNR, Lecce, Italy; ³Universidad Autonoma de Madrid, Madrid, Spain; ⁴EPFL, Lausanne, Switzerland; ⁵LKB, Paris, France; ⁶University of Salento, Lecce, Italy We experimentally demonstrate the working principle of an all-optical transistor in

17:15

semiconductor planar microcavities, based on the nonlinear interactions between two polariton fluids. The operation as AND/OR gate is shown in a three transistors configuration.

CK-6.5 WED

17:15

Broadband visible light absorption and plasmons emission through a self organized plasmonic crystal

H. Frederich¹, C. Lethiec¹, F. Wen², J. Laverdant³, C. Schwob¹, T. Popescu⁴, L. Douillard⁴, L. Coolen¹, and $\bullet A$. Maître¹; ¹Université Pierre et Marie Curie, Paris, France; ²Laboratory for Nanophotonics, Rice University, Main St. Houston, United States; ³LPMCN, Université de Lyon, Université Lyon 1 and CNRS, Villeurbanne, France; ⁴Service de Physique et Chimie des Surfaces et Interfaces, CEA, IRAMIS, Gif sur Yvette, France

A mesoscopic plasmonic crystal (opal with a upper gold film) couples efficiently incident light to plasmons over a large visible spectrum. Plasmons excited by nanocrystals close to crystal surface, are radiating in farfield, increasing luminescence

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ROOM 14a	ROOM 14b	ROOM 21	ROOM EINSTEIN	NOTES
	neering and Space-Time Research (QUEST), Hannover, Germany We present a novel (2+1)D theoretical model including spatial, temporal, and parasitic ef- fects in fs-OPAs. The simulation of a two- color-pumped OPA is compared with exper- imental data and prominent features in in- tensity and phase are explained.	of equilibrium in the framework of the scat- tering theory.	rameter changes the laser-induced plasma curvature, and hence the beam divergence.	
CJ-8.5 WED 17:00	CF/IE-9.5 WED 17:00	H-2.3 WED 17:00	CG-3.5 WED (Invited) 17:00	
Power Noise Sources of Single Frequency Fibre Amplifiers	Fourier Plane Optical Parametric Amplification for simultaneous	Can nanophotonics control the Förster resonance energy transfer efficiency?	Single attosecond pulses from plasma mirrors	
•H. Tünnermann ^{1,2} , T. Theeg ^{1,2} , H. Sayinc ^{1,2} , J. Neumann ^{1,2} , D. Kracht ^{1,2} , and	up-scaling of laser pulse energy and	•C. Blum ¹ , N. Zijlstra ¹ , A. Lagendijk ^{2,3} , M. Wubs ⁴ , A.P. Mosk ² , V. Subramaniam ^{1,5} ,	•A. Borot ¹ , J. Wheeler ¹ , A. Malvache ¹ , S. Monchocé ² , H. Vincenti ² , A. Ricci ^{1,3} ,	
P. Weßels ^{1,2} ; ¹ Laser Zentrum Hannover e.V.,	bandwidth •B. Schmidt, N. Thire, M. Boivin, A. Laramée,	and W.L. Vos ² ; ¹ Nanobiophysics (NBP),	F. Quéré ² , and R. Lopez-Martens ¹ ;	
Hannover, Germany; ² Centre for Quantum Engineering and Space-Time Research -	F. Poitras, G. Lebrun, T. Ozaki, JC. Kief- fer, H. Ibrahim, and F. Légaré; INRS-EMT,	MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Nether-	¹ Laboratoire d'Optique Appliquée, ENSTA- Paristech, Ecole Polytechnique, CNRS	
QUEST, Hannover, Germany We show an analysis of single frequency fi-	<i>Varennes, Canada</i> Employing parametric amplification in	lands; ² Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, Uni-	UMR 7639, Palaiseau, France; ² Service des Photons, Atomes et Molécules, CEA,	
bre amplifier noise in the frequency region	Fourier domain rather than in time domain	versity of Twente, Enschede, The Netherlands;	DSM/IRAMIS, CEN Saclay, Gif-sur-Yvette,	
from 1-100000 Hz based on the fibre ampli- fier dynamics and identify additional critical	circumvents phase mismatch and damage threshold limitations of laser amplifiers and	³ FOM-Institute AMOLF, Science Park, Am- sterdam, The Netherlands; ⁴ Department of	France; ³ Laser Solutions Unit, Thales Optronique SA, Elancourt, France	
noise sources in high power fibre amplifiers.	enabled CEP stable, 1.43mJ, sub-two cycle pulses at 1.8 micrometer.	Photonics Engineering, Technical University of Denmark, Lyngby, Denmark; ⁵ MIRA In-	We demonstrate for the first time the gen- eration of isolated attosecond pulses from	
		stitute for Biomedical Technology and Techni- cal Medicine, University of Twente, Enschede,	plasmas driven by few-cycle lightwaves with near-relativistic intensity. This is also the	
		The Netherlands We address the question whether the lo-	first experimental demonstration of the at- tosecond lighthouse effect.	
		cal density of optical states (LDOS) affects	tosecond lighthouse effect.	
		Förster energy transfer (FRET). We observe that the FRET efficiency is controlled by the		
CJ-8.6 WED 17:15	CF/IE-9.6 WED 17:15	LDOS, while the FRET rate is unaffected. IH-2.4 WED 17:15		
Development of an 813-nm Tm-doped	250 MW Peak Power Ultrafast mid-IR	Temperature dependence of the		
ZBLAN fiber amplifier for the Sr optical lattice clock	OPCPA •A. Thai ¹ , M. Baudisch ¹ , M. Hemmer ¹ , H.	atom-surface interaction in thermal equilibrium		
•Yi. Takeuchi ¹ , M. Uehara ¹ , K. Kohno ² , M. Musha ¹ , K. Nakagawa ¹ , and Ki. Ueda ¹ ;	Ishizuki ² , T. Taira ² , and J. Biegert ^{1,3} ; ¹ ICFO - Institute of Photonic Sciences, Barcelona,	•A. Laliotis ¹ , T. Passerat de Silans ² , I. Maurin ¹ , MP. Gorza ¹ , M. Ducloy ¹ , and		
¹ Institute for Laser Science, University of	Spain; ² Laser Research Center for Molecular	D. Bloch ¹ ; ¹ Laboratoire de Physique des		
<i>Electro-Communications, Tokyo, Japan;</i> ² <i>Institute of Industrial Science, University of</i>	Science, Okazaki, Japan; ³ ICREA - Institu- cio Catalana de Recerca i Estudis Avancats,	Lasers UMR 7538 du CNRS et de l'Universite Paris13, Villetaneuse, France; ² Federal Uni-		
<i>Tokyo, Tokyo, Japan</i> We have developed the narrow linewidth	Barcelona, Spain A mid-IR OPCPA system operating at 3.1	<i>versity of Paraiba, Joao-Pesoa, Brazil</i> We report on spectroscopic measurements		
master oscillator fiber power amplifier sys- tem based on a Tm doped ZBLAN fiber at	um wavelength delivering CEP stable opti- cal pulses with up to 20 uJ output energy at	of the temperature dependence of the van der Waals atom-surface interaction in ther-		
813nm for the Sr optical lattice clock with the maximum output power of 1 W.	160 kHz with pulse duration as short as 65 fs is reported.	mal equilibrium. Our experiments verify QED predictions for temperatures up to		
the maximum output power of 1 w.		1000 K.		

19:05

18:45 - 20:15

PD-A: Postdeadline Session A

Chair: Patrick Georges, Institut d'Optique Graduate School, Palaiseau, France

PD-A.1 WED

Surface RABBITT for determination of absolute ionization phase: a novel route towards absolute photoemission delays

•R. Locher¹, L. Castiglioni², M. Lucchini¹, M. Greif², L. Gallmann¹, J. Osterwalder², M. Hengsberger², and U. Keller¹; ¹ETH Zurich, Zurich, Switzerland; ²University of Zurich, Zurich, Switzerland

Extending the RABBITT technique to noble metal surfaces with simultaneous gas phase RABBITT we extracted absolute surface specific ionization phases for low energy photons (25eV - 35eV). This phase gives access to absolute photoemission delays.

PD-A.2 WED

Pushing the limits of environmentally stable fibre lasers: 120 fs, 4.2 nJ, all-PM all-fibre

•C. Aguergaray, A. Runge, M. Erkintalo, and N. Broderick; Physics Department, University of Auckland, Auckland, New Zealand

We present a multi nano-Joules ultra-short pulse laser combining all key features that fibre technology has to offer. We demonstrate the shortest pulse duration combined with the highest pulse energy out of an all-PMfibre laser.

	.00
High energy, monolithic fiber femtosecond lasers	
•M. Mielke ¹ , X. Peng ¹ , K. Kim ¹ , T. Booth ¹ , W. L.	ee ¹ ,
G. Masor ¹ , X. Gu ¹ , R. Lu ¹ , M. Hamamoto ¹ , R. Clir	1e ¹ ,
I. Nicholson ² , J. Fini ² , X. Liu ² , A. DeSantolo ² ,	
Westbrook ² , R. Windeler ² , E. Monberg ² , F. DiMarcel	lo ² ,
C. Headley ² , and D. DiGiovanni ² ; ¹ Raydiance, Petalu	ma,
United States; ² OFS Laboratories, Somerset, United Sta	ates
We describe monolithic fiber femtosecond lasers with	up
to 300 μ J pulse energy and duration <500 fs. The ene	rgy
is 6x higher than any previous demonstration, and	the
form factor is optimized for industrial manufacturin	g.

Thulium-doped Channel Waveguide Laser with 1.6 W of Output Power and Exceeding 80% Slope Efficiency •K. van Dalfsen¹, S. Aravazhi¹, C. Grivas², S.M. Garcia-Blanco¹, and M. Pollnau¹; ¹University of Twente, Enschede, The Netherlands; ²University of Southampton, Southampton, United Kingdom

A thulium-doped channel waveguide laser in a monoclinic double tungstate delivered 1.6 Watts of output power and a slope efficiency exceeding 80 percent.

PD-A.5 WED

Photonic-crystal based concave mirror for highly coherent stable external-cavity semiconductor laser •M.S. Seghilani¹, M. Sellahi¹, I. Sagnes², G. Beaudoin², X. Lafosse², L. Legratiet², P. Lalanne³, M. Myara¹, and A. Garnach¹; ¹IES-CNRS UMR5214, Université Montpellier 2, Montpellier, France; ²LPN-CNRS, Marcoussis, France; ³Laboratoire Photonique, Numérique et Nanosciences, Institut d'Optique-Bordeaux, Talence, France

Low loss, high reflectivity and aberrations free photonic crystal (PC) based Bragg mirror is demonstrated, the design and the realization are described. Highly coherent SC laser is obtained using the PC based mirror.

19:35

19:45

19:15

PD-A.6 WED

Measuring Bacteria Activity with an Optically Trapped Microparticle

•T. Lohmüller¹, S.R. Kirchner¹, S. Nedev¹, S. Carretero¹, A. Mader², M. Leisner², and J. Feldmann¹; ¹Photonics and Optoelectronics Group, Physics Department and CeNS, LMU Munich, Munich, Germany; ²Chair for Experimental Physics: Soft Matter Physics and Biophysics, Physics Department and CeNS, LMU Munich, Munich, Germany

We report how the fluidic noise generated by a single bacteria cell can be measured and quantified by using an optically trapped silica microparticle as a highly sensitive detector.

PD-A.7 WED

On-Chip Random Spectrometer

B. Redding, S.-F. Liew, R. Sarma, and •H. Cao; Yale University, New Haven, United States

We develop a compact, high-resolution on-chip spectrometer based on multiple scattering of light through a disordered medium. We achieve wavelength resolution of 0.75 nm and 25 nm bandwidth using a $25 \mu m$ - $50 \mu m$ scattering structure.

PD-A.8 WED 19:55

FDML Raman: New High Resolution SRS with ultra broadband spectral coverage

•S. Karpf, M. Eibl, W. Wieser, T. Klein, and R. Huber; Ludwig-Maximilians-Universität, Munich, Germany An all fiber based system for high speed, high resolution Raman sensing is presented. The system is based on a wavelength swept Fourier Domain Mode Locked (FDML) laser for the detection of the Raman signal.

PD-A.9 WED

An Ultra-Compact CO₂ Isotope Analyzer Exclusively Based on Quantum Cascade Technology

•M. Mangold¹, B. Tuzson¹, H. Looser², D. Hofstetter³, Y. Bonetti^{4,5}, J. Faist⁴, and L. Emmenegger¹; ¹Empa -Swiss Federal Laboratories for Materials Testing and Research, Dübendorf, Switzerland; ²FHNW, University of Applied Sciences, Institute for Aerosol and Sensor Technology, Windisch, Switzerland; ³Université de Neuchâtel, Institut de physique, Neuchatel, Switzerland; ⁴ETHZ, Institut für Quantenelektronik, Zürich, Switzerland; ⁵FIRST-Lab, HCI E 121, Wolfgang-Pauli-Str. 10, Zürich, Switzerland

We report on an ultra-compact gas spectrometer exclusively employing III-V semiconductor technology. It relies on a quantum cascade laser and a quantum cascade detector. We demonstrate its suitability for high precision $\rm CO_2$ isotope composition measurements.

Room 13b

19:25

18:55

19:05

18:45 - 20:15

PD-B: Postdeadline Session B

Chair: Jürgen Eschner, Universität des Saarlandes, Saarbrücken, Germany

PD-B.1 WED

Pulse-Picked Octave-Spanning Microresonator-Based Frequency Comb for Optical Self-Referencing

•P. Del'Haye, D. Cole, S. Papp, and S. Diddams; National Institute of Standards and Technology, Boulder, United States

We demonstrate an octave-spanning and coherent microresonator-based optical frequency comb with an electronically accessible mode spacing of 25.6 GHz. This is accomplished with pulse picking and external broadening in highly nonlinear fiber.

PD-B.2 WED

Coherent scattering from aligned single quantum emitters in a dielectric nanoguide

•S. Faez, P. Türschmann, S. Götzinger, and V. Sandoghdar; Max Planck Institute for the Science of Light, Erlangen, Germany

We have developed a new solid-state platform for waveguide-QED, where both high optical densities and single emitter addressability are achieved. Our work paves the way for study of quantum transport in 1dimensional photonic wires.

PD-B.3 WED

Teleportation using a Quantum Dot Entangled-Light-Emitting Diode

•J. Nilsson¹, R.M. Stevenson¹, K.H.A. Chan^{1,2}, J. Skiba-Szymanska¹, M. Lucamarini¹, M.B. Ward¹, A.J. Bennett¹, C.L. Salter^{1,2}, I. Farrer¹, D.A. Ritchie², and A.J. Shields¹; ¹Cambridge Research Laboratory, Toshiba Research Europe Limited, Cambridge, United Kingdom;

²Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom

We demonstrate quantum teleportation using entangled photons produced by a quantum dot integrated in a light-emitting diode. The single-photon nature of our device and its electrical operation could help reduce complexity in quantum information applications.

PD-B.4 WED

Self-synchronization of a NV spin qu-bit on a radio-frequency field enabled by microwave dressing

•S. Rohr¹, E. Dupont-Ferrier¹, A. Gloppe¹, P. Verlot¹, B. Pigeau¹, V. Jacques², and O. Arcizet¹; ¹Institut Néel, Grenoble, France; ²Laboratoire de Photonique Quantique et Moléculaire, Cachan, France

We experimentally emulate the dynamics of a single NV electronic spin coupled to a nanomechanical resonator and explain a self-synchronization effect of the spin dynamics on the simulated mechanical motion.

PD-B.5 WED

19:25

20:05

Single-Photon and Photon-Number-Resolving Detectors Integrated with Waveguide Circuits

•D. Sahin¹, A. Gaggero², P. Jiang³, Z. Zhou¹, S. Jahanmirinejad¹, F. Mattioli², R. Leoni², J. Beetz⁴, M. Lermer⁴, M. Kamp⁴, S. Höfling⁴, M. Thompson³, and A. Fiore¹: ¹COBRA Research Institute, Eindhoven University of Technology, Eindhoven, The Netherlands; ²Istituto di Fotonica e Nanotecnologie, CNR, Rome, Italy; ³Centre for Quantum Photonics, H. H. Wills Physics Laboratory & Department of Electrical and Electronic Engineering, University of Bristol, United Kingdom; ⁴Technische Physik and Wilhelm Conrad Röntgen Research Center for Complex Material Systems, Universität Würzburg, Germany We report the integration of two key quantum measurement functionalities with waveguide circuits: A multimode interference coupler integrated with two superconducting single-photon detectors, and a waveguide photon-number-resolving detector able to measure up to four photons.

We des

18:45

18:55

18:45

PD-A.3 WED

Room 13b

19:45

PD-B.6 WED

All-Optical Control of Photon Drag Current in Graphene

•P. Obraztsov^{1,2}, T. Kaplas², S. Garnov¹, M. Kuwata-Gonokami³, A. Obraztsov^{2,4}, and Y. Svirko²; ¹A.M. Prokhorov General Physics Institute, Moscow, Russia; ²Department of Physics and Mathematics, University of Eastern Finland, Joensuu, Finland; ³Department of Physics, Graduate School of Science and Photon Science Center, The University of Tokyo, Tokyo, Japan; ⁴Department of Physics, M.V. Lomonosov Moscow State University, Moscow, Russia

By irradiating unbiased graphene with linearly polarized

light we observe ultrafast in-plane current due to the photon drag effect. We demonstrate all-optical control of the photocurrent in space and time domain using twobeam excitation setup.

PD-B.7 WED

19:35

Observation of dispersive-wave emission by temporal cavity solitons

•J.K. Jang, S.G. Murdoch, S. Coen, and M. Erkintalo; Physics Department, The University of Auckland, Auckland, New Zealand

We report the first experimental observation of dispersive-wave emission by temporal cavity solitons.

This could lead to broader microresonator Kerr frequency combs and supports the idea that Kerr combs are constituted of cavity solitons.

PD-B.8 WED

All-optical polarization-based temporal cloaking

P.-Y. Bony, P. Morin, •M. Guasoni, S. Pitois, and J. Fatome; Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France

We present an experimental demonstration of temporal cloaking of a 10-Gbit/s incident signal based on the concept of nonlinear self-organization of light state of polarization in optical fiber-based systems.

PD-B.9 WED

19:55

20:05

Nanoparticle Measurement in the Optical Far-Field •D. Little¹, R. Kuruwita¹, A. Joyce¹, Q. Gao², T. Burgess², C. Jagadish², and D. Kane¹; ¹Macquarie University, Sydney, Australia; ²Australian National University, Canberra, Australia

Radii of single nanowires are measured in the optical farfield using interferometric microscopy. Radius measurements are demonstrated to be accurate to within 2% of the nominal value, highlighting the nanometrology potential of this technique.

NOTES

13:00 - 14:00

CF/IE-P: CF/IE Poster Session

CF/IE-P.1 WED

4-f prism-based pulse shaper supporting single-cycle pulses in the visible

 A. Harth^{1,2}, T. Nagy¹, J. Andrade¹, S. Rausch^{1,2},
 C. Hoffmann¹, T. Lang^{1,2}, T. Binhammer³, and U. Morgner^{1,2,4}; ¹Leibniz Universität Hannover, Hannover, Germany; ²Centre for Quantum Engineering and Space-Time Research (Quest), Hannover, Germany; ³Venteon Laser Technologies GmbH, Hannover, Germany; ⁴Laser Zentrum Hannover e.V., Hannover, Germany

We discuss the limitations of a 4f-prism based pulse shaper for the phase control over 400THz in the visible and expose the potential of pulse compression to nearly one optical cycle.

CF/IE-P.2 WED

Versatile dual stage tunable NOPA with pulse duration down to 17 fs and energy up to 3 microJ at 500 kHz repetition rate

•J. Nillon^{1,2}, O. Crégut¹, C. Bressler², and S. Haacke¹; ¹IPCMS, Strasbourg, France; ²European XFEL, Hamburg, Germany

We report on a new ultrashort NOPA tunable between 500 and 1000 nm. It delivers pulse energies up to 3,1 microJ and pulse duration down to 17 fs at 500 kHz.

CF/IE-P.3 WED

Investigation of temporal compression of few-cycle pulses from an ultrabroadband, multi-mJ optical parametric amplifier

•D. Franz¹, H. Fattahi^{1,2}, V. Pervak¹, M. Trubetskov¹, E. Fedulova¹, N. Karpowicz², Z. Major^{1,2}, and F. Krausz^{1,2}; ¹Ludwig-Maximilians-Universität München, Munich, Germany; ²Max-Planck-Institut für Quantenoptik, Munich, Germany

We numerically investigate the compression of an ultrabroad spectrum (670 - 1400 nm) using double- angle chirped mirrors. Despite large residual group-delaydispersion oscillations, the good match between design and target promises a compression close to the transform limit.

CF/IE-P.4 WED

Carrier-envelope phase control of Yb:KGW laser and parametric amplifiers

•T. Stanislauskas^{1,2}, R. Antipenkov¹, V. Martinenaite^{1,2}, L. Karpavicius¹, A. Varanavicius¹, V. Sinkevicius², P. Miseikis², D. Grigaitis², and T. Balciunas³; ¹Vilnius University, Faculty of Physics, Department of Quantum electronics, Vilnius, Lithuania; ²Light Conversion Ltd., Vilnius, Lithuania; ³Vienna University of Technology, Pho-

tonics Institute, Vienna, Austria

An optimized CEP stabilization of the all-solid-state Yb:KGW laser system and different OPA setups pumped by this laser are presented with CEP noise value as low as 130 mrad after the laser amplifier.

CF/IE-P.5 WED

Frequency Dependent Dynamics of Semiconductor Microcavities under Ultrafast Carrier Switching

•G. Ctistis¹, E. Yüce¹, J. Claudon², A.P. Mosk¹, J.-M. Gérard², and W.L. Vos¹; ¹Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ²CEA/INAC/SP2M, Nanophysics and Semiconductor Laboratory, Grenoble, France

We present ultrafast reflectivity measurements on the dynamics of optically excited free carriers in semiconductor microcavities. We observe that the relaxation dynamics of the switched cavity is strongly frequency dependent, which points towards multiple carrier populations.

CF/IE-P.6 WED

Mode Locking At and Below the CW Threshold

S. Yefet and •A. Pe'er; Bar Ilan University, Ramat Gan, Israel

We explore experimentally a new regime of operation for mode locking in a Ti:Sapphire laser with enhanced Kerr nonlinearity, where the threshold for pulsed operation is lowered below the threshold for continuous-wave operation.

CF/IE-P.7 WED

Efficient broadband 400 nm noncollinear second harmonic generation of chirped femtosecond laser pulses in BBO and LBO

•O. Gobert¹, G. Mennerat¹, R. Maksimenka^{1,2}, N. Fedorou¹, M. Perdrix¹, D. Guillaumet¹, C. Ramon^{3,4}, J. Habib^{3,4}, C. Prigent^{3,4}, D. Vernhet^{3,4}, T. Oksenhendler², and M. Comte¹; ¹CEA-Saclay, IRAMIS, Gif sur Yvette, France; ²FASTLITE, Orsay, France; ³CNRS, INSP, UMR7588, Paris, France; ⁴Université Pierre et Marie Curie, INSP, UMR7588, 4 Place Jussieu, Paris, France We report on 400 nm broadband noncollinear type I SHG in BBO and LBO with tilted pulse-fronts chirped fs pulses. Conversion up to 65% is obtained and 45 fs duration measured (UV WIZZLER) after compression.

CF/IE-P.8 WED

Simulation of Dissipative Solitons in a Fiber Laser
 Oscillator at Presence of Strong Raman Scattering
 •A. Bednyakova^{1,2}, M. Fedoruk^{1,2}, E. Podivilov^{2,3}, D. Kharenko^{2,3}, S. Babin^{2,3}, V. Kalashnikov⁴, and A. Apolonski^{3,5}; ¹Institute of Computational Technologies

SB RAS, Novosibirsk, Russia; ²Novosibirsk State University, Novosibirsk, Russia; ³Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia; ⁴Institut fuer Photonik, Vienna, Austria; ⁵Ludwig-Maximilians-Universitaet, Garching, Germany

We report on comparison of numerical simulation with experimental results for the Yb fiber laser oscillator with 30-m cavity demonstrating stable generation of chirped dissipative solitons at presence of strong Raman scattering.

CF/IE-P.9 WED

High repetition rate PetaWatt Titanium Sapphire laser system for laser plasma acceleration

•F. Lureau, S. Laux, O. Casagrande, O. Chalus, C. Radier, F. Caradec, C. Derycke, P. Jougla, G. Brousse, and C. Simon-Boisson; Thales Optronique SAS, Elancourt, France

We describe the design and performance of a PetaWatt laser based on Titanium Sapphire that operates at an unprecedented repetition rate of 1 Hz. Results of the operation above 1 PetaWatt peak power are presented

CF/IE-P.10 WED

Realization of multi-dimensional laser mode combs by an actively mode-locked fiber-laser

•G. Oren, A. Schwartz, A. Bekker, and B. Fischer; Technion-Israel Institute of Technology, Haifa, Israel We present a first realization of an effective multidimensional mode-comb with nearest-neighbor mode interaction, constructed by multifrequency active modelocking. It is also a rare physical realization of the multi-dimensional spherical-model (of magnetic spins in statistical-mechanics).

CF/IE-P.11 WED

Ultrafast and Broadband Optical Nonlinearities from Strongly Phase-Mismatched Second Harmonic Generation

•B. Zhou¹, A. Chong², F. Wise², and M. Bache¹; ¹DTU Fotonik, Technical University of Denmark, Kgs. Lyngby, Denmark; ²Department of Applied and Engineering Physics, Cornell University, Ithaca, United States

A novel protocol for generating strong, ultrafast and octave-spanning cascaded nonlinearity for a wide range of wavelengths is proposed. A near-IR experiment in lithium niobate shows soliton compression and octavespanning supercontinuum generation, verifying the hypothesis.

CF/IE-P.12 WED

Chirped pulse four-wave Raman mixing

O. Shitamichi¹ and •T. Imasaka^{1,2}; ¹Department of Applied Chemistry, Graduate School of Engineering, Kyushu

University, Fukuoka, Japan; ²Division of Optoelectronics and Photonics, Kyushu University, Fukuoka, Japan The degree of chirp in the anti-Stokes Raman emission generated by a two-color pump beam consisting of two chirped pulses based on four-wave Raman mixing of hydrogen was investigated using a frequency-resolved optical gating system

CF/IE-P.13 WED

Few-cycle Nonlinear Mid-IR Pulse Generated with Cascaded Quadratic Nonlinearities

•M. Bache, X. Liu, and B. Zhou; DTU Fotonik, Department of Photonic Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark

We study nonlinear mid-IR crystals and assess their potential for ultrafast cascaded nonlinearities in the type 0 phase-matching interaction. Few-cycle, broadband energetic mid-IR pulses can be generated from compressing multi-cycle mid-IR pulses with self-defocusing solitons.

CF/IE-P.14 WED

Modulation instability in the sub-cycle regime

•F. Tani¹, J. Travers¹, and P. Russell^{1,2}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Department of Physics, University of Erlangen-Nuremberg, Erlangen, Germany

Full-field numerical calculations are used to study modulational instability in Xe-filled PCF in parameter ranges where the pump pulse breaks up into high intensity subcycle structures. The resulting broad MI-induced spectrum compares well with experiment.

CF/IE-P.15 WED

Long-Lived Electronic Polarization and Nonlinear Optical Effects of Fluorescent Molecules in Solution. •A. Konar, V. Lozovoy, and M. Dantus; Michigan State University, East Lansing, United States

The long-lived electronic polarization from IR144 in methanol is investigated by a pair of pulses delayed interferometrically using a pulse shaper while monitoring the stimulated emission. A phenomenological model is used to simulate the data.

CF/IE-P.16 WED

Monochromatic extreme-ultraviolet ultrafast beamline

•L. Poletto¹, M. Coreno², F. Frassetto¹, D. Gauthier⁵, C. Grazioli³, R. Ivanov^{3,5}, P. Miotti¹, B. Ressel^{3,5}, C. Spezzani³, S. Stagira⁴, and G. De Ninno^{3,5}; ¹CNR-Institute of Photonics and Nanotechnologies, Padova, Italy; ²CNR-Institute of Inorganic Methodologies and Plasmas, Trieste, Italy; ³Sincrotrone Trieste S.C.p.A., Trieste, Italy; ⁴Politecnico di Milano-Department of Physics,

Milano, Italy; ⁵University of Nova Gorica, Ajdovscina, Slovenia

The characterization of a monochromatic beamline for high-order harmonics is presented. The monochromator adopts a design that joins two geometries in a single instrument to give high/low temporal resolution and low/high spectral resolution.

CF/IE-P.17 WED

Measuring few-cycle laser pulses: a comparative study between dispersion-scan and FROG

•F. Silva¹, M. Miranda^{1,2}, and H. Crespo¹; ¹IFIMUP-IN and Departamento de Física e Astronomia, Universidade do Porto, Porto, Portugal; ²Department of Physics, Lund University, Lund, Sweden

Dispersion scan is a recent, straightforward pulse measurement technique especially suitable for few-cycle pulses. In this work we compare measurements of a fewcycle oscillator using SHG-d-scan and SHG-FROG, exploring differences and advantages of each technique.

CF/IE-P.18 WED

Single diffractive optical element pulse shaper

•O. Mendoza-Yero¹, V. Loriot^{2,3}, J. Pérez-Vizcaíno¹, G. Mínguez-Vega¹, J. Lancis¹, R. de Nalda², and L. Bañares³; ¹GROC-UJI, Institut de Noves Tecnologies de la Imatge, Castellón de la Plana, Spain; ²Instituto de Química Física Rocasolano, Madrid, Spain; ³Facultad de Ciencias Químicas, Universidad Complutense de Madrid, Madrid, Spain

We experimentally demonstrate an extremely compact, programmable and user-friendly pulse sharper composed of a single diffractive optical element encoded into a spatial light modulator. This allows compensating for efficiency losses and correct wavefront aberrations simultaneously.

CF/IE-P.19 WED

Femtosecond Fiber CPA System Seeded by Bandwidth-Limited Picosecond Pulses

•J. Želudevičius, R. Danilevičius, K. Viskontas, N. Rusteika, and K. Regelskis; Center for Physical Sciences & Technology, Vilnius, Lithuania

We present femtosecond fiber laser system with 400 fs duration 58 uJ energy pulses based on the CPA design and seeded by bandwidth-limited picosecond pulses.

CF/IE-P.20 WED

Selctive detection of phonon-plasmon coupled oscillation in indium phosphide using a coherent control technique

•K. Nakamura^{1,2}, S.-i. Harada^{1,2}, and J. Hu¹; ¹ Tokyo Institute of Technology, Yokohama, Japan; ²Japan Science and Technology Agency, Kawaguchi, Japan Coherent oscillations of the LO phonon-plasmon coupled mode, which have very short lifetime and usually been hidden in strong LO-phonon oscillations, have been selectively observed using femtosecond transient reflecticity measurement with a coherent control technique.

CF/IE-P.21 WED

XPW based Self-Referenced Spectral Interferometry for few-cycle pulse characterization in the short wavelength IR

•A. Trisorio¹, S. Grabielle², M. Divall¹, N. Forget², and C. Hauri^{1,3}; ¹Paul Scherrer Institut, Villigen, Switzerland; ²Fastlite, Nice, France; ³Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

Ultra-short infrared pulses are fully characterized using Self-Referenced Spectral Interferometry. The device is capable of accurate measurement of few-cycle pulses (down to 13 fs at 1.6 μ m) over the 1.2-2 μ m spectral range.

CF/IE-P.22 WED

Kerr-lens Mode Locking Without Nonlinear Astigmatism

S. Yefet and •A. Pe'er; Bar Ilan University, Ramat Gan, Israel

We demonstrate complete cancellation of the nonlinear astigmatism in a mode locked Ti:Sapphire laser. We use a novel cavity folding where no special, power specific compensation is needed and the Kerr nonlinearity is efficiently exploited.

CF/IE-P.23 WED

Modeling the Nonlinear Refractive Index in Atomic Gases

•C. Köhler¹, R. Guichard², E. Lorin³, S. Chelkowski⁴, A.D. Bandrauk⁴, L. Berge¹, and S. Skupin^{5,6}; ¹CEA-DAM, DIF, Arpajon, France; ²CNRS, UMR 7614, LCPMR, Paris, France; ³Carleton University, Ottawa, Canada; ⁴Université de Sherbrooke, Sherbrooke, Canada; ⁵MPIPKS, Dresden, Germany; ⁶Friedrich Schiller University, Jena, Germany

We show that saturation of the nonlinear polarization of gases irradiated by intense laser pulses results from ionized electrons, by comparing numerical solutions of the time dependent Schrödinger equation to various models of laser filamentation.

CF/IE-P.24 WED

What are we observing by the detection frequency resolved measurement of coherent phonons?

•Y. Kayanuma¹, Y. Mizumoto¹, Y. Mori², G. Oohata², and K. Mizoguchi²; ¹Research Organization for the 21st Century, Osaka Prefecture University, Sakai, Japan; ² Graduate School of Sciences, Osaka Prefecture University, Sakai, Japan

The detection frequency resolved reflection by the coherent phonon are analyzed by a simple model of semiconductors. The experimental features are well reproduced as a result of band-gap modulation by the LO phonon.

CF/IE-P.25 WED

Femtosecond laser-induced pulsed ultrasound source in water

Y. Brelet¹, •A. Jarnac¹, A. Houard¹, R. Guillermin², J.-P. Sessarego², J. Carbonnel¹, Y.-B. André¹, D. Fattaccioli³, and A. Mysyrowicz¹; ¹Laboratoire Optique Appliquée, ENSTA Paris Tech-Ecole Polytechnique-CNRS,, Palaiseau, France; ²Laboratoire de Mécanique et Acoustique, Marseille, France; ³DGA TN, Toulon, France

We experimentally investigate the acoustic wave generated by an incident ultra short laser pulse in water. The subsequent acoustic wave presents a broadband signal in the ultrasound range.

CF/IE-P.26 WED

Dynamics of third harmonic yield from a femtosecond laser filament in air

•Y. Liu¹, Y. Brelet¹, S. Mitryukovskiy¹, A. Houard¹, A. Couairon², and A. Mysyrowicz¹; ¹Laboratoire d'Optique Appliquee, Palaiseau, France; ²Centre de Physique Théorique, Ecole Polytechnique, Palaiseau, France Third harmonic generation from a focused femtosecond laser pulse in air is studied in the parameter space. An optimal focusing condition is observed and the crucial role of plasma is identified.

CF/IE-P.27 WED

Dynamics of Fourier Domain Mode Locked Lasers S. Slepneva^{1,2}, B. O'Shuaghnessy^{1,2}, •B. Kelleher^{1,2}, S.P. Hegarty¹, A.G. Vladimirov^{1,2,3}, and G. Huyet^{1,2}; ¹Tyndall National Institute, Cork, Republic of Ireland; ²Cork Institute of Technology, Cork, Republic of Ireland; ³Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany

We analyse the dynamics of Fourier Domain Mode Locked lasers and show that the sweeping asymmetry in the output originates from the nonlinearities of the amplifier resulting in two regions: chaos and mode group stepping.

CF/IE-P.28 WED

THz generation by filamentation of two-color femtosecond laser pulses

L. Bergé¹, S. Skupin², C. Koehler¹, I. Babushkin³, and •J. Herrmann⁴; ¹CEA, DAM, DIF, Arpajon, France; ²Max Planck Institute PKS, Dresden, Germany; ³WeierstrassInstitut, Berlin, Germany; ⁴Max Born Institut, Berlin, Germany

Terahertz (THz) radiation produced by two-color laser filaments is numerically investigated. The dominant mechanism for THz generation is shown to be plasma currents. Calculated THz spectra for various pump pulses agree with previous experimental observations.

CF/IE-P.29 WED

Asynchronous ultrafast pump-probe experiments: Towards high speed ultrafast imaging with ultrahigh spectral resolution

 A. Abbas^{1,2,3}, Y. Guillet¹, J.-M. Rampnoux², J. Carlier³, P. Rigail³, E. Mottay³, B. Audoin¹, and S. Dilhaire²;
 ¹Université de Bordeaux, CNRS, UMR 5295, Talence, France; ²Université de Bordeaux, CNRS, UMR 5798, Talence, France; ³Amplitude Systèmes, Pessac, France
 We report on a system able to record movies of ultrafast processes over 20 ns with a sub-picosecond time resolution. A movie of GHz surface acoustic waves propagating over 10000 micron-squared is presented.

CF/IE-P.30 WED

Characterization of a liquid-crystal pulse shaper over 0.36-PHz bandwidth

•R. McCracken and D. Reid; Heriot Watt University, Edinburgh, United Kingdom

Using in-line interferometry and an iterative-fitting algorithm we have characterized the phase response of a liquid-crystal spatial light modulator over a 0.36-PHz bandwidth. The calibration also retrieves the wavelength-dependent refractive index of the liquidcrystal.

CF/IE-P.31 WED

(110)-Oriented GaAs/AlGaAs Multiple Quantum Well Microposts for High-Speed Polarization Switching of Spin-Controlled VCSELs

•N. Yokota, K. Ikeda, and H. Kawaguchi; Nara Institute of Science and Technology, Ikoma, Japan

We measured the electron spin relaxation time τ_s in (110)-oriented GaAs/AlGaAs MQW microposts. A long τ_s of 0.74 ns was obtained for 0.5- μ m posts suitable for high-speed switching of lasing circular polarizations in spin-controlled VCSELs.

CF/IE-P.32 WED

GHz dynamics of a single nanoparticle-substrate contact probed by femtosecond intrinsic common-path interferometry

•Y. Guillet¹, S. Minissale¹, S. Ravaine², and B. Audoin¹; ¹Université de Bordeaux, CNRS, UMR 5295, Talence, France; ²Amplitude Systèmes, Pessac, France We report on an all-optical and femtosecond timeresolved technique to investigate the adhesion between a single gold nanoparticle and a substrate in the GHz range. The detection scheme relies on an intrinsic common-path interferometer.

CF/IE-P.33 WED

Dynamics of coherent optical phonons in chalcogenide compounds

K. Norimatsu^{1,2}, S.-i. Uozumi^{1,2}, K. Igarashi¹, S. Yamamoto¹, T. Sasagawa¹, and K.G. Nakamura^{1,2};
 ¹Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan;
 ²CREST, Japan Science and Technology Agency, Kawaguchi, Japan
 Coherent oscillations of anisotropic Eg phonons have been observed in chalcogenide compounds (Bi2Se3, Bi2Te3, Sb2Te3) in addition to two isotropic Alg phonons using electro-optic sampling. The higher frequency phonons have the shorter lifetime.

CF/IE-P.34 WED

Measurement of orbital angular momentum spectrum of optical vortices based on electric-field reconstruction in spatial domain

•K. Yamane, Z. Yang, K. Shigematsu, Y. Toda, and R. Morita; Department of Applied Physics, Hokkaido University, and JST CREST, Sapporo, Japan A new measurement method for orbital angular momentum spectra of optical vortices, based on electric-field reconstruction in spatial domain, is demonstrated. The method is applicable to ultrabroadband optical vortices, and enables quasi-real-time measurement.

CF/IE-P.35 WED

Cross-correlation frequency-resolved optical gating by molecular vibration for ultrashort pulse

•X. Liu^{1,2}, H. Niu², W. Liu², D. Chen², B. Zhou¹, and M. Bache¹; ¹Technical University of Denmark, DTU Fotonik, Department Dept. of Photonics Engineering, DK-2800 Kgs. Lyngby, Denmark; ²Key Laboratory of Optoelectronic Devices and Systems of Ministry of Education and Guangdong Province, Institute of Optoelectronics, Shenzhen University, shenzhen, China, People's Re-

public of (PRC)

Abstract: We experimentally demonstrate a molecularvibration-based cross-correlation frequency-resolved optical gating (XFROG) technique for ultrashort pulse measurements, which use laser-induced impulsive Raman free induction decay of molecules vibrations as the gate function.

CF/IE-P.36 WED

Electron impact excitation of helium and neon atoms in filamentary plasma gratings

•L. Shi, W. Li, H. Zhou, D. Wang, L. Ding, and H. Zeng, East China Normal University, Shanghai, China, People's Republic of (PRC)

We demonstrated a femtosecond pulse driven electronimpact method to efficiently enhance the fluorescence emission from filament-induced neon and helium ionization. Such an all-optical method holds the potential to improve the sensitivity of laser-induced breakdown spectroscopy.

CF/IE-P.37 WED

Ultrafast carrier dynamics of surfactant-mediated-grown InAs/GaAs quantum-dot

structures designed for THz applications

•N.S. Daghestani¹, M. Alduraibi^{2,3}, T. Piwnoski⁴, T. Ochalski⁴, G. Huyet⁴, M. Missous², T. Ackemann⁵, and M.A. Cataluna¹; ¹University of Dundee, Dundee, United Kingdom; ²University of Manchester, Manchester, United Kingdom; ³King Saud University, Riyadh, Saudi Arabia; ⁴Tyndall National Institute, Cork, Republic of Ireland; ⁵University of Strathclyde, Glasgow, United Kingdom Pump-probe investigations show that carrier lifetime in InAs/GaAs quantum-dot structures is dramatically faster when excited at 800nm than at 1245nm. Annealed samples exhibit shorter carrier lifetime than as-grown, increasing with pump power in both structures.

CF/IE-P.38 WED

Carrier-envelope phase of ultrashort pulses

generated by optical rectification process

•T. Fuji¹, Y. Nomura¹, Y.-T. Wang², A. Yabushita², and C.-W. Luo²; ¹Institute for Molecular Science, Okazaki,

Japan; ²National Chiao Tung University, Hsinchu, China, Republic of (ROC)

The carrier-envelope phase of the pulse generated through the optical rectification was investigated. A clear difference of the carrier-envelope phase determination between the difference frequency generation and the optical rectification has been found.

CF/IE-P.39 WED

Attosecond Larmor Clock

•J. Kaushal and O. Smirnova; Max Born Institute, Berlin, Germany

We present a new method to time strong field ionisation in circularly polarised fields using spin-orbit interaction between the ionising electron and core as a clock.

CF/IE-P.40 WED

Generation of spectrally shaped UV-vis supercontinuum femtosecond pulses by means of diffractive lenses

•R. Borrego-Varillas^{1,3}, C. Romero², B. Alonso¹, I. Gallardo-Gonzalez², O. Mendoza-Yero³, G. Minguez-Vega³, I. Sola¹, J. San Roman¹, and J. Rodriguez Vazquez de Aldana¹; ¹Universidad de Salamanca, Salamanca, Spain; ²Centro de Láseres Pulsados, Salamanca, Spain; ³GROC-INIT, Universitat Jaume I, Castelló, Spain

We demonstrate the use of diffractive lenses to generate tunable supercontinuum pulses in the visible. An isolated anti-Stokes wing is described. The filament formation is studied and a complete characterization of the pulses is provided.

CF/IE-P.41 WED

Higher-order Kerr effect and harmonic cascading in gases

•M. Bache¹, F. Eilenberger², and S. Minardi²; ¹Technical University of Denmark, DTU Fotonik, Department of Photonics Engineering, Lyngby, Denmark; ²Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universitaet Jena, Jena, Germany

We show that cascading from the Kerr effect and the higher-order Kerr effect can modify the observed nonlinear index in gases: for near-IR wavelengths the observed saturation intensity increases, while it decreases for longer wavelengths.

CF/IE-P.42 WED

Improved performance characteristics for the integrated photonic pupil remapping interferometer Dragonfly

•N. Jovanovic¹, S. Gross², A. Arriola², N. Charles³, P. Tuthill³, B. Norris³, P. Stewart³, J. Lawrence⁴, and M. Withford³; ¹Subaru Telescope, Hilo, United States; ²Macquarie University, Sydney, Australia; ³University of Sydney, Sydney, Australia; ⁴Australian Astronomical Observatory, Sydney, Australia

We present the considerable performance improvements of the ultrafast laser inscribed 3D pupil remapping photonic chips utilised in the Dragonfly astronomical interferometer and the associated gains to the instrument as a whole.

CF/IE-P.43 WED

Generation of tuneable and ultrahigh repetition rate by fractional Talbot effect in frequency-shifted feedback lasers

•H. Guillet de Chatellus, O. Jacquin, O. Hugon, W. Glastre, and e. Lacot; CNRS/UJF Laboratoire Interdisciplinaire de Physique, Saint Martin d'Hères, France

We demonstrate in a seeded frequency shifted feedback laser, the generation of Fourier-limited pulses at tuneable and ultrahigh repetition rates, limited only by the laser spectral bandwidth. This property is interpreted as fractional Talbot effect.

CF/IE-P.44 WED

Supercontinuum generation in bulk diamond experiment and the model

•T. Kardas¹, A. Lapini², B. Gadomska¹, and R. Righini²; ¹Department of Chemistry, University of Warsaw, Warsaw, Poland; ²European Laboratory for Non-linear Spectroscopy (LENS), Universitá di Firenze, Florence, Italy Supercontinuum was generated in a bulk diamond crystal. The blue edge of supercontinuum was found to be 615 nm. Nonlinear envelope equation with strong Raman response was used for modeling.

13:00 - 14:00

CJ-P: CJ Poster Session

CJ-P.1 WED

H2-blocking in Yb-doped Fiber through Pump Excitation to Enhance Photodarkening Resistivity

•A. Pal, M. Saha, A. Dhar, and R. Sen; Fiber optics & Photonics Division, CSIR-Central glass & Ceramic Research Institute, Kolkata, India The enhancement of photodarkening resistivity as high as 95% is achieved through H2-treatment of Yb-doped fiber, irrespective of Yb-concentration. H2-blocking employing the pump excitation in the fiber indicates negligible photodarkening even after post-diffusion of interstitial-H2.

CJ-P.2 WED

Enhanced thermal-effect resilience in distributed modal filtering large mode area photonic crystal fibers

•E. Coscelli¹, F. Poli¹, T. Alkeskjold², M. Jørgensen³, A. Cucinotta¹, and S. Selleri¹; ¹Information Engineering Department, University of Parma, Parma, Italy; ²NKT Photonics A/S, Birkerød, Denmark; ³DTU Fotonikm Techni-

cal University of Denmark, Lyngby, Denmark

Thermal effects on the single-mode regime of large mode area fibers have been investigated through numerical simulations. Results have shown that distributed modal filtering photonic crystal fibers provide enhanced resilience towards thermally-induced multi-mode behavior.

CJ-P.3 WED

Er:LiLuF4 upconversion waveguide laser with femtosecond-laser written circular cladding structures

•F. Moglia¹, S. Müller¹, T. Calmano¹, C. Kränkel^{1,2}, and G. Huber^{1,2}; ¹Institut für Laser-Physik - Uni Hamburg, Hamburg, Germany; ²The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

Upconversion waveguide lasers are realized by inscribing circular claddings in an Er:LiLuF4 crystal via a femtosecond-laser. By Ti:Sapphire pumping at 974 nm, laser oscillation at 552.6 nm was achieved with Pout = 10 mW.

CJ-P.4 WED

Mirrorless optical parametric oscillator in a stitched GaN waveguide

•C. Montes, P. Aschieri, and M. de Micheli; LPMC-CNRS, Universite de Nice-Sophia Antipolis, F-06108 Nice, France A sequence of submicronic periodically poled GaN waveguide elements, jointed by uniformly polarized domains representing stitching errors, achieve a mirrorless optical parametric oscillator unsensitive to them due to the coherence of the generated backscattered wave.

CJ-P.5 WED

Monolithic thulium-doped fiber laser with UV femtosecond-laser-induced fiber-Bragg-grating pair

•P. Peterka¹, P. Honzátko¹, M. Becker², F. Todorov¹, M. Písařík³, O. Podrazký¹, and I. Kašík¹, ¹Institute of Photonics and Electronics ASCR, v.v.i, Prague, Czech Republic; ²Institute of Photonic Technology, Jena, Germany; ³SQS Vláknová optika a.s., Nová Paka, Czech Republic Highly integrated thulium-doped fiber laser emitting at 1951 nm and its characteristics are presented. To our knowledge, this is the first rare-earth-doped fiber laser with a FBG pair written with deep UV femtosecond laser radiation.

CJ-P.6 WED

Refining the Modelling of Mode-Locked Fiber Lasers

•M. Erkintalo, C. Aguergaray, A. Runge, and N. Broderick; Department of Physics, The University of Auckland, Auckland, New Zealand

We present a refined model for the simulation of modelocked fiber lasers. Using full generalized envelope equations and rigorously modelled gain dynamics we obtain remarkable agreement with experiments.

CJ-P.7 WED

Experimental Investigation of Delivery and Spectral Broadening of Nanosecond Laser Pulses in Bragg fiber with Silica Core

•M. Jelinek¹, V. Kubecek¹, H. Jelinkova¹, V. Matejec², I. Kasik², and O. Podrazky²; ¹Czech Technical University

Hall B0

in Prague, FNSPE, Prague, Czech Republic; ²Institute of

Photonics and Electronics AS CR, v.v.i., Prague, Czech Re-

Delivery of 1.06um nanosecond millijoule-level laser

pulses through the laboratory-fabricated silica-core

Bragg fiber was investigated. Fiber transmittance up to

55% in fundamental transversal-mode was achieved to-

gether with significant spectral broadening ranging from

S. Kobtsev, •S. Smirnov, A. Ivanenko, and S. Kukarin;

Applicability of novel partially coherent lasing regimes

for second harmonic generation is considered for the

first time. It's shown that such regimes are very promis-

ing having comparable transformation efficiency and

All-fiber Ho-doped laser tunable from 2.1 to 2.045

•S. Antipov¹, V. Kamynin², S. Kablukov^{3,4}, K. Raspopin⁵,

and A. Kurkov²; ¹Lomonosov Moscow State University,

Moscow, Russia; ²General Physics Istitute of the Rus-

sian Academy of Sciences, Moscow, Russia; ³Insitute

of Automation and Electrometry, Siberian Branch of

the Russian Academy of Sciences, Novosibirsk, Rus-

sia; ⁴Novosibirsk State University, Novosibirsk, Russia;

All-fiber continuous-wave Ho-doped laser utilizing the

compressed Bragg grating reflector was realized with

emission wavelength tuned from 2.1 to 2.045 μ m and the

maximum output power of 3.4 W with variation <7.5%

Temporal and Statistical Properties of the Ytterbium

•A. Bednyakova^{1,3}, O. Gorbunov², M. Politko^{2,3}, S.

Kablukov², S. Smirnov³, D. Churkin^{4,3}, M. Fedoruk^{1,3}, S.

Turitsyn⁴, and S. Babin^{2,3}; ¹Institute of Computational

Technologies SB RAS, Novosibirsk, Russia; ²Institute of

Automation and Electrometry SB RAS, Novosibirsk, Rus-

sia; ³Novosibirsk State University, Novosibirsk, Russia;

⁴Aston Institute of Photonic Technologies, Birmingham,,

We present experimental measurement and full numer-

ical modelling of temporal and statistical properties

of narrow-bandwidth quasi-CW Ytterbium doped fiber

laser. Modelling demonstrates the same stochastic na-

ture of the YDFL radiation as observed in experiment.

⁵Inversion Fiber Co. Ltd., Novosibirsk, Russia

Nonlinear Spectral Transformation of Partially

Coherent Pulses of Mode-locked Fiber Laser

Novosibirsk State University, Novosibirsk, Russia

higher peak power and energy.

public

850 to 1650nm.

CJ-P.8 WED

CJ-P.9 WED

over tuning range.

CJ-P.10 WED

United Kingdom

Doped Fiber Laser

CJ-P.11 WED

Engineering Wavelength Conversion Span in Cascaded Broadband Cherenkov Radiation

•S. Wang¹, J. Hu¹, H. Guo², and X. Zeng^{1,2}; ¹Shanghai University, Shanghai, China, People's Republic of (PRC); ²Technical University of Denmark, Kgs. Lyngby, Denmark We propose an efficient approach of engineering the wavelength conversion over 500 nm through optical Cherenkov radiation. Cascaded soliton spectral tunneling is numerically demonstrated in two-segment photonic crystal fibers with three zero dispersion wavelengths.

CJ-P.12 WED

NLSE-based modelling of a random distributed feedback fiber laser

•D. Churkin^{1,2} and S. Smirnov³; ¹Aston University, Birmingham, United Kingdom; ²Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia; ³Novosibirsk State University, Novosibirsk, Russia

For the first time we report full NLSE-based numerical modelling of a random distributed feedback fiber laser based on Rayleigh scattering, including calculation of spectral and statistical properties of radiation.

CJ-P.13 WED

Wavelength and Pulse Width Tunable 1 μm Yb-doped Programmable Fiber Laser

Y. Kim, A. Archambault, A. Dupuis, B. Burgoyne, G. Pena, and •A. Villeneuve; Genia Photonics Inc., Laval, Canada We present an Yb programmable laser where the wavelength and the pulse width can be tuned independently. Wavelengths are tuned from 1020 to 1080 nm and the shortest pulse after compression is 4 ps.

CJ-P.14 WED

Gain-switched, Yb-doped, all-fiber laser with narrow bandwidth

•C. Larsen¹, M. Giesberts², S. Nyga², O. Fitzau², H.D. Hoffmann², and O. Bang^{1,3}; ¹DTU Fotonik - Department of Photonics Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark; ²Fraunhofer-Institute for Lasertechnology, Aachen, Germany; ³NKT Photonics A/S, Birkerød, Denmark

We demonstrate that an all-fiber, narrow bandwidth, high pulse energy pulsed laser can be constructed from commercially available components by applying gainswitching. After single-stage amplification the pulses are frequency doubled in ppSLT with high efficiency.

CJ-P.15 WED

Annealing of pre-darkened ytterbium doped silica-Kinetic model

•K.E. Mattsson; DTU Fotonik, Lyngby, Denmark

A common description by =Si<O2-Yb color center three-electron bond energies is through a Markov state statistical model in this presentation shown to match annealing data from pre-darkened ytterbium co-doped silica material of several sources.

CJ-P.16 WED

Development of a cascaded Raman fiber laser with 6.5 W output power at 1480nm supported by detailed numerical simulations

•M. Steinke^{1,2}, E. Schreiber^{1,2}, D. Kracht^{1,2}, J. Neumann^{1,2}, and P. Weßels^{1,2}; ¹Laser Zentrum Hannover e.V., Hannover, Germany; ²Centre for Quantum-Engineering and Space-Time Research - QUEST, Hannover, Germany

A cascaded Raman fiber laser delivering 6.5W output power at 1480nm was developed and optimized with a detailed numerical analysis. Comparison of experimental and simulated results shows good agreement with respect to all significant parameters.

CJ-P.17 WED

Precision-dicing of Nd:YAG ridge waveguides: A new platform for efficient integrated lasers

•D. Kip¹, C.E. Rüter¹, Y. Jia⁵, F. Chen², S. Akhmadaliev³, and S. Zhou³; ¹Helmut Schmidt University, Hamburg, Germany; ²Shandong University, Jinan, China, People's Republic of (PRC); ³Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

Ridge channel waveguides in a neodymium-doped YAG crystals are fabricated using a combination of carbon ion implantation and diamond blade dicing, yielding high slope efficiency of 43% and output powers up to 84mW.

CJ-P.18 WED

30 W, CW Yb-doped fiber laser tunable over 144 nm •*R. Royon*¹, *J. Lhermite*¹, *L. Sarger*², and *E. Cormier*¹; ¹CELIA BORDEAUX 1, TALENCE, France; ²LOMA BORDEAUX 1, TALENCE, France

An ytterbium-doped fiber laser continuously tunable from 976nm to 1120nm and delivering up to 30W of average power linearly-polarized is demonstrated. Moreover the bandwidth of our system can be tuned from 100pm to more than 1nm.

CJ-P.19 WED

Spectral width optimization in random DFB fiber laser

•I. Vatnik¹, D. Churkin^{1,2}, and S. Babin^{1,3}; ¹Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia; ²Aston Institute of Photonic Technologies, Birmingham, United Kingdom; ³Novosibirsk State University, Novosibirsk, Russia

We experimentally study power and spectral properties

of random distributed feedback laser depending on the cavity length. Increase of the random DFB fiber laser length results in narrower generation spectrum.

CJ-P.20 WED

High-power Widely Tunable Raman Fiber Laser

•A. El-Taher¹, P. Harper¹, S. Babin², and S. Turitsyn¹; ¹Aston University, Birmingham, United Kingdom; ²Institute of Automation and Electrometry, Novosibirsk, Russia

A possibility to greatly increase a tuning range and output power of the Raman fiber laser by combining effects of highly-nonlinear fiber and Rayleigh-scattering based feedback in the cavity has been demonstrated.

CJ-P.21 WED

Efficient Spectral Broadening and Recompression of 200 fs Pulses from a Monolithic Yb-FCPA to 66 fs

•T. Flöry¹, K. Regelskis², A.J. Verhoef¹, I. Bugar¹, L. Zhu¹, A. Zheltikov^{3,4}, A. Fernández¹, and A. Baltuska¹; ¹Institut für Photonik, Technische Universität Wien, Wien, Austria; ²Center for Physical Sciences and Technology, Vilnius, Lithuania; ³Institute for Quantum Studies, Department of Physics, College Station, United States; ⁴International Laser Center, M.V. Lomonosov Moscow State University, Moscow, Russia

We present pulse post-compression down to 66-fs of a 200-fs microjoule-level ytterbium-doped fiber chirpedpulse amplifier. Post-compression is achieved in a 20cm long piece of large mode area fiber and subsequent compression in a prism compressor.

CJ-P.22 WED

All-fiber passively Q-switched Erbium/Samarium laser

•C.E. Preda, G. Ravet, and P. Mégret; University of Mons, Mons, Belgium

We present the experimental demonstration of a novel and simple all-fiber configuration, where an Er-doped fiber laser, using Sm-doped fiber as a saturable absorber, oscillates in self-Q-switch operation by using a cw pumping.

CJ-P.23 WED

Optical Parametric Amplification in Capillary-Assisted Chalcogenide Optical Fibers

•S. Singh, S. Varshney, and P. Datta; Indian Institute of Technology, Kharagpur, India

We present detailed theoretical investigation of tunable optical parametric amplification in a 20cm long capillary-assisted chalcogenide optical fiber pumped at 2.94 μ m wavelength with 20W CW laser for generation of wide bandwidth radiations in mid-infrared range.

CJ-P.24 WED

Square Pulse Generation from All-Normal-Dispersion Graphene Oxide Mode-Locked Yb-Doped Fiber Laser

•Z. Cheng¹, S. Wu², Q.-H. Yang², and P. Wang¹; ¹Institute of Laser Engineering, Beijing University of Technology, Beijing, China, People's Republic of (PRC); ²School of Chemical Engineering and Technology, Tianjin University, Tianjin, China, People's Republic of (PRC) We demonstrated a mode-locked Yb-doped fiber laser

with graphene oxide as saturable absorber, delivering square-shaped nanosecond pulse with highest pulse energy of 137nJ. The laser spectrum was Lorentz-shaped at 1064.9nm with bandwidth of 0.19nm.

CJ-P.25 WED

Vapor-Phase Doping of Ytterbium in High Power Laser Fiber

•R. Sen, M. Saha, A. Pal, and M. Pal; Fiber optics & Photonics Division, CSIR-Central glass & Ceramic Research Institute, Kolkata, India

A state-of-the-art facility for vapor-phase deposition of rare-earth compounds has been established and process technology optimized for fabricating large core preforms/fibers doped with Yb- and Al- oxides with excellent longitudinal and radial uniformity.

CJ-P.26 WED

Single-pulse operation in actively Q-switched erbium-doped fiber lasers

•Y. Barmenkov¹, L. Escalante-Zarate¹, S. Kolpakov², A. Kir'yanov¹, and M. Andres²; ¹Centro de Investigaciones en Optica, Leon, Mexico; ²Universidad de Valencia, Valencia, Spain

The features of an actively Q-switched erbium-doped fibre laser arranged in symmetric and quasi-symmetric configurations are reported. It is shown that single per modulation period Q-switch pulses without any multipulse structuration are attainable using both schemes.

CJ-P.27 WED

Suppression of photo-darkening by Ca additive in Yb-doped silica fiber

•Y. Fujimoto¹, S.-i. Sugiyama², M. Murakami¹, H. Nakano², T. Sato³, and H. Shiraga¹; ¹Institute of Laser Engineering, Osaka University, Suita, Japan; ²Kinki University, Faculty of science and Engineering, Higashiosaka City, Japan; ³Shin-Etsu Quartz Products Co., Ltd., Koriyama, Japan

We found that Ca additive effectively suppresses the photo-darkening effect in Yb-doped silica fiber even at 6.0 wt% of high Yb2O3 concentration. Ca ion works as a stabilizer to maintain the Yb3+ valence state.

CJ-P.28 WED

3.3 MHz repetition rate all-fiber laser oscillator mode-locked by polarization rotation in PM fiber

•S. Boivinet^{1,2}, J.-B. Lecourt¹, A. Cserteg¹, D. Giannone¹, Y. Hernandez¹, and P. Mégret²; ¹Multitel, Mons, Belgium; ²University of Mons, Mons, Belgium

We present an all-fiber passively mode-locked laser at 1031 nm based on non-linear polarization evolution in fully polarization maintaining cavity. The pulses duration is 2.83 picoseconds at a repetition rate of 3.3 MHz.

CJ-P.29 WED

Fundamental Mode Amplification in 140 um Core Diameter Fiber

M. Vanhotsker, •B. Shulga, and A. A. Ishaaya; Ben-Gurion University of the Negev, Beer-Sheva, Israel We experimentally demonstrate the preservation and amplification of the fundamental mode in highly multimode passive and active fibers. We investigate the performance as function of fiber length, coiling radius and amplification conditions.

CJ-P.30 WED

Infrared supercontinuum generation in soft-glass photonic crystal fiber pumped with a femtosecond Er-doped fiber laser mode-locked by graphene saturable absorber

•R. Buczynski^{1,2}, G. Sobon³, J. Sotor³, G. Stepniewski¹, D. Pysz¹, T. Martynkien⁴, M. Klimczak¹, R. Stepien¹, and K. Abramski³; ¹Department of Glass, Institute of Electronic Materials Technology, Warsaw, Poland; ²Faculty of Physics, University of Warsaw, Warsaw, Poland; ³Laser & Fiber Electronics Group, Wroclaw University of Technology, Wroclaw, Poland; ⁴Instutute of Physics, Wroclaw University of Technology, Wroclaw, Poland

A generation of flat, broadband infrared supercontinuum is reported in the single mode photonic crystal fiber made of lead-bismuth-galate glass. The fiber is pumped with a femtosecond Er-doped fiber laser mode-locked by graphene saturable absorber.

CJ-P.31 WED

Efficient single-frequency pulsed all-fibre amplifier for coherent lidar

•C. Bollig, P.-G. Hofmeister, M. Kunze, J. Schmidt, S. Fayed, and R. Reuter; Physics Department, University of Oldenburg, Oldenburg, Germany

An efficient Erbium-amplifier is demonstrated which delivers up to 20 uJ single-frequency pulses with 100 mW average power for only 800 mW of pump power. No signs of SBS were present at this power.

CJ-P.32 WED

Highly Efficient fs-Laser Inscribed Yb:YAG Waveguide Lasers Fabricated with a Novel Writing Scheme

T. Calmano¹, S. Müller¹, •C. Kränkel^{1,2}, and G. Huber^{1,2}; ¹Institute of Laser-Physics, University of Hamburg, Hamburg, Germany; ²The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

Femtosecond-laser written Yb(7%):YAG waveguidelasers with a record high optical-to-optical efficiency of 67% and an output power of more than 1W are presented. For the waveguide fabrication a novel writingscheme with an oscillating translation was applied.

CJ-P.33 WED

160 W single-frequency laser based on active tapered double-clad fiber amplifier

•A. Trikshev¹, A. Kurkov¹, V. Tsvetkov¹, S. Filatova², J. Kertulla³, V. Filippov³, O. Okhotnikov³, and Y. Chamorovskiy⁴; ¹Prokhorov General Physics Institute, Russian Academy of Sciences, Moscow, Russia; ²Moscow State University of Instrument Engineering and Computer Science, Moscow, Russia; ³Optoelectronics Research Centre, Tampere University of Technology, Tampere, Finland; ⁴Institute of Radio Engineering and Electronics of the Russian Academy of Sciences, Moscow, Russia

160 W single-frequency laser based on two stage fiber amplifiers is presented. A GTWave fiber is used for the first stage and tapered double-clad fiber is used for the second stage of amplifier.

CJ-P.34 WED

High-average-power nanosecond pulsed Yb-doped PCF fiber laser systems

•T. Yamamura^{1,3}, H. Yoshida², K. Tsukamoto², H. Fujita², N. Miyanaga², M. Ishikawa^{1,3}, T. Sakagawa^{1,3}, and M. Tsukamoto⁴; ¹Kataoka Corp., Kyoto, Japan; ²Institute of Laser Engineering, Osaka University, Osaka, Japan; ³Advanced Laser and Process Technology Research Association, Tokyo, Japan; ⁴Joining and Weiding Research Institute, Osaka University, Osaka, Japan

We have developed a high-peak and high-average power Yb-doped rod PCF fiber laser system. The output power has been achieved to about 393 W by a 100-um PCF-rod type fiber.

CJ-P.35 WED

Pump Power Reduction by Photodarkening in Yb-doped Fibres

•S. Yoo¹, N. Li², X. Yu², and J. Sahu³; ¹Nanyang Technological University, Singapore, Singapore; ²Singapore Institute of Manufacturing Technology, Singapore, Singapore; ³University of Southampton, Southampton, United Kingdom

Hall B0

We present direct quantitative measurement of pump power reduction by photodarkening in Yb-doped fibres. Together with shortened fluorescence lifetime, the results experimentally reveal the photodarkening influences pump efficiency in addition to the excess background loss.

CJ-P.36 WED

Design curves based optimization and fabrication of a high gain Yb-Er co-doped optical amplifier based on phosphate glasses

•G.C. Scarpignato^{1,3}, J. Lousteau², E. Mura¹, N.G. Boetti¹, S. Abrate², D. Milanese¹, L. Bastard³, and J.-E. Broquin³; ¹DISAT, Politecnico di Torino, Torino, Italy; ²Istituto Superiore Mario Boella, Torino, Italy; ³IMEP-LAHC UMR 5130, Grenoble, France

The current report discusses the fabrication and characterization of a short core pumped fiber amplifier based on Yb3+/Er3+ co-doped phosphate glasses. An original representation using design curves was specially developed for the optimization process.

CJ-P.37 WED

sub-50 fs all fiber yb-doped laser with anomalous-dispersion photonic crystal fiber

¹Department of Physics, Bilkent University, Ankara, Turkey; ²TUBITAK National Metrology Institute (UME), Kocaeli, Turkey

We demonstrate an all-fiber-integrated, dispersionmanaged Yb-doped oscillator incorporating a segment of anomalous-dispersion PCF Residual birefringence of the PCF is used as a fiber-integrated Lyot filter, which enables self-starting operation. Pulses are compressed to 42 fs.

CJ-P.38 WED

First demonstration of a laser emission in hybrid nanostructured optical fibres based on SiO2 / SnO2 system doped by ytterbium ions

G. Granger¹, C. Restoin¹, P. Roy¹, R. Jamier¹, S. Rougier¹, A. Lecomte², J.-M. Blondy¹, and •D. Gaponov¹; ¹Xlim Research Institute, Limoges, France; ²SPCTS, Limoges, France

In this contribution we demonstrate the first fabrication of SiO2 - SnO2 nanostructured optical fibre. The incorporation of ytterbium ions leads to an original laser emission.

CJ-P.39 WED

all-fiber dispersion-managed mode-locked Yb-doped fiber faser based on carbon nanotubes

•Z. Zhang¹, D. Popa², Z. Sun², T. Hasan², A. Ferrari², and F.Ö. Ilday¹; ¹Department of Physics, Bilkent University, Ankara, Turkey; ²Department of Engineering, University of Cambridge, Cambridge, United Kingdom We have presented an all-fiber dispersion-managed Ybdoped fiber laser with SWNT SA. Using PCF for dispersion compensation, in the net normal dispersion regime mode-locked pulses with large linear chirp have been obtained, which can be compressed to 118 fs.

CJ-P.40 WED

Generation of ultrashort pulse with high peak power using Mach-Zehnder-modulator-based flat comb generator and chirped pulse amplification •I. Morohashi¹, T. Sakamoto¹, K. Hara², M. Oikawa², T. Kawanishi¹, and I. Hosako¹; ¹National Institute of Information and Communications Technology, Tokyo, Japan; ²Optohub Co., Ltd, Saitama, Japan

By combining a Mach-Zehnder-modulator-based flat comb generator and a chirped pulse amplifier, high peak power ultrashort pulse generation was demonstrated. 200 fs-order pulse with the peak power of 3.5 kW were demonstrated.

CJ-P.41 WED

A novel seven-core multicore tellurite fiber

•T. Cheng, Z. Duan, M. Liao, W. Gao, D. Deng, T. Suzuki, and Y. Ohishi; Toyota Technological Institute, Nagoya, Japan

A novel seven-core multicore tellurite fiber is proposed and fabricated . Each core with high index is made of TLWMN glass. The background with low index is made of TZNL glass.

CJ-P.42 WED

Narrowband fibre laser using a cylindrical optical microresonator as feedback element

E. Rivera-Perez^{1,2}, •A. Diez¹, M.V. Andres¹, J.L. Cruz¹, and A. Rodriguez-Cobos²; ¹Departamento de Fisica Aplicada-ICMUV, Universidad de Valencia, Burjassot, Spain; ²Instituto de Investigacion en Comunicacion Optica, San Luis Potosi, Mexico

A narrowband erbium doped fibre laser is presented. The feedback is provided by a WGM of a cylindrical microresonator. A single laser line with 50 dB signal-to-noise ratio and 35 kHz linewidth was achieved.

CJ-P.43 WED

Time- and Position-Dependant Modelling of High-Power Low-Repetition-Rate Er-Yb-Fiber Amplifier

I. Pavlov¹, E. Dulgergil², P. Elahi¹, and •F.O. Ilday¹; ¹Bilkent University, Ankara, Turkey; ²Meteksan Savunma Inc., Ankara, Turkey

We report numerical and experimental study of nanosecond-pulse propagation in Er-Yb-fiber laseramplifier. Pulse shaping due to time-dependent gain saturation along the gain fiber is analyzed. We demonstrate 100-microjoule, 5-ns, 100-kHz pulses from an all-fiber system.

CJ-P.44 WED

Experimental Investigation of Bending Properties of Large Mode Area Photonic Crystal Fibre with Double Lattice Constant Structure

•M. Napierała^{1,2}, E. Bereś-Pawlik³, P. Mergo⁴, F. Berghmans⁵, H. Thienpont⁵, L. Jaroszewicz², and T. Nasilowski^{1,2}; ¹InPhoTech Ltd., Warsaw, Poland; ²Military University of Technology, Warsaw, Poland; ³Wrocław University of Technology, Wrocław, Poland; ⁴Maria Curie-Skłodowska University, Lublin, Poland; ⁵Vrije Universiteit Brussel, Brussels, Belgium

We demonstrate LMA PCF with double lattice constant structure. Our fibre allows extracting the excellent quality beam from the very large core while bent around 10 cm radius, which is confirmed experimentally.

13:00 - 14:00

JSII-P: JSII Poster Session

JSII-P.1 WED

EMCCD imaging of strongly ionizing radioactive materials for safety and security

•J. Sand¹, S. Ihantola², K. Peräjärvi², H. Toivonen², A. Nicholl³, E. Hrnecek³, and J. Toivonen¹; ¹Tampere University of Technology, Tampere, Finland; ²STUK - Radiation and Nuclear Safety Authority Finland, Helsinki, Fin-

land; ³*European Commission, Joint Research Centre, Institute for Transuranium Elements, Karlsruhe, Germany* An electron-multiplying camera is used in the imaging of alpha radiation-induced radioluminescence in air. The method enables rapid detection of strong alpha emitters in security and safety applications.

JSII-P.2 WED

Detection of Hazardous Substances Using Broadband-Tuneable Quantum Cascade Laser Based Mid-Infrared Spectroscopy

•F. Fuchs, S. Hugger, J. Jarvis, Q. Yang, R. Ostendorf, C. Schilling, R. Driad, R. Aidam, A. Bächle, W. Bronner, and J. Wagner; Fraunhofer Institute for Applied Solid State

Physics IAF, Freiburg, Germany The use of external cavity quantum cascade lasers for the detection of hazardous substances is reported. Stand-off detection of explosives employing imaging backscattering spectroscopy and detection of contaminants in water has been demonstrated.

JSII-P.3 WED

μ -Stripes high power quantum cascade lasers arrays

•M. Carras, B. Gerard, G.M. De Naurois, G. Maisons, B. Simozrag, and V. Trinité; III-V Lab, Palaiseau, France We will introduce a new way to improve the power of the quantum cascade lasers while keeping a good beam quality: micro-stripes array technology.

13:00 - 14:00

II-P: II Poster Session

II-P.1 WED

High Q-factor plasmonic filters in nanoscale metal-insulator-metal waveguides

•P. Neutens^{1,2}, L. Lagae^{1,2}, and P. Van Dorpe^{1,2}; ¹Imec, Leuven, Belgium; ²KU Leuven department of Physics, Leuven, Belgium

We demonstrate by FDTD simulations that 1-D nanoscale photonic plasmonic crystals can be made with a top-down approach starting from a planar layer stack, improving the ease of fabrication and still obtaining Q-factors over 100.

II-P.2 WED

Phase evolution along integrated localized surface plasmon chain

Phase evolution of localized surface plasmon (LSP) modes is measured along a periodic gold nanorod chain integrated on silicon waveguide. Numerical analysis of this phase at different wavelengths clarifies LSP mode excitation mechanisms.

II-P.3 WED

Harmonic generation in plasmonic nanowires

•A. de Hoogh, M. Wulf, N. Rotenberg, and K. Kuipers; FOM Institute AMOLF, Amsterdam, The Netherlands Near-field measurements reveal efficient second and third harmonic generation from a surface plasmon polariton propagating along a plamonic nanowire. The influence of nanowire dimensions on the amplitude of the nonlinear signals is investigated.

II-P.4 WED

Passive plasmonic filters in metallic slot waveguides

•P. Neutens^{1,2}, L. Lagae^{1,2}, and P. Van Dorpe^{1,2}, ¹Imec, Leuven, Belgium; ²KU Leuven department of Physics, Leuven, Belgium

We present the numerical and experimental demonstration of plasmonic Bragg filters and resonators metallic slot waveguides. Tuning of the optical bandgap, the resonance center wavelength and the Q-factor will be shown.

II-P.5 WED

Tailoring channel plasmon polaritons in metallic V-grooves

•C. Smith, A. Thilsted, R. Marie, C. Vannahme, and A. Kristensen; Technical University of Denmark, Kgs. Lyngby, Denmark

The intensity distributions of channel plasmon polaritons in metallic V-groove waveguides are tailored via controlled variation of the V-shaped cross section profile. Experiments measuring propagation length and coupling efficiency agree with numerical simulations.

II-P.6 WED

Towards a microscopic description of the optical nonlinearities of gold-based plasmonic devices

•F. Biancalana² and A. Marini¹; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Heriot-Watt University, Edinburgh, United Kingdom

We describe the so-called thermo-modulational nonlinear effects on surface plasmon polaritons guided along gold nanowires, by introducing a NLS to model pulse propagation and predicting the appearance of a previously unknown intense spectral redshift.

II-P.7 WED

Reflection, Transmission, Absorption, Diffraction and Gain in Plasmonic-Photonic Ag-Capped Monolayers of Dye-Doped Nanospheres

•N. Arnold, B. Ding, C. Hrelescu, and T.A. Klar; Institute of Applied Physics, Johannes Kepler University, Linz, Austria

General framework for oblique irradiation modeling, which accounts for reflection, transmission absorption and diffraction, is presented. In our hybrid plasmonicphotonic structure, we find gain-enhanced extraordinary transmission, reflection, diffraction and various types of polarization conversion.

II-P.8 WED

Enhancing the fluorescence of thick-shell single CdSe-CdS nanocrystals through their coupling with plasmon resonances of gold films

•D. Canneson¹, I. Mallek-Zouari¹, S. Buil¹, X. Quélin¹, C. Javaux², B. Mahler², B. Dubertret², and J.-P. Hermier^{1,3}; ¹Groupe d'Etude de la Matière Condensée, Université de Versailles-Saint-Quentin-en-Yvelines, CNRS UMR8635, Versailles, France; ²Laboratoire de Physique et d'Etude des Matériaux, CNRS UMR8213, Paris, France; ³Institut Universitaire de France, Paris, France

We investigate the classical and quantum properties of the emission of single CdSe-CdS nanocrystals with a thick shell coupled to plasmon modes of gold films. Strong enhancement of the nanocrystal fluorescence is reported.

II-P.9 WED

Second Harmonic Circular Dichroism from Au Covered Polystyrene Nanospheres

•A. Belardini¹, G. Leahu¹, A. Benedetti¹, M. Centini¹, F. Mura¹, S. Sennato¹, C. Sibilia¹, F. Buatier de Mongeot², C. Martella², M. Giordano², and D. Chiappe²; ¹Univ.Roma 1 Dip SBAI, Roma, Italy; ²Univ.Genova Dip Fisica, Genova, Italy

Measurements of the second harmonic circular dichroism arising from polystyrene nanospheres partially capped by thin Au layer show the presence of a geometrical induced chiral response due to mutual coupling of the nanopatterned metal caps

II-P.10 WED

Optical magnetic response of laser fabricated Si nanoparticles

•U. Zywietz¹, A. Evlyukhin¹, W. Cheng¹, S. Novikov², C. Reinhardt¹, S. Bozhevolnyi², and B. Chichkov¹; ¹Laser

Zentrum Hannover e. V., Hannover, Germany; ²Institute of Technology and Innovation, Odense M, Denmark Femtosecond laser-induced transfer is used to fabricate spherical Si nanoparticles with unique characteristics. Measured light scattering spectra of individual Si nanoparticles with radii of 50-300 nm demonstrate strong resonant responses in the visible spectral range.

II-P.11 WED

Direct mapping of plasmonic near-fields using infrared far-field vibrational spectroscopy

•D. Dregely¹, F. Neubrech¹, H. Duan², and H. Giessen¹; ¹4th Physics Institute and Research Center SCoPE, University of Stuttgart, Stuttgart, Germany; ²Department of Physics and Microelectronics, Hunan University, Changsha, China, People's Republic of (PRC)

We mapped plasmonic near-field intensities by resonantly enhanced infrared far-field spectroscopy. We positioned a molecular probe at different locations of plasmonic antennas and measured the local vibrational signal with FTIR spectroscopy.

II-P.12 WED

Nonlinear gyrotropy in isotropic metamaterials

•I. Shadrivov; Australian National University, Canberra, Australia

We propose and demonstrate experimentally a metamaterial which chirality can be dynamically induced in a non-chiral medium. This becomes possible in a racemic mixture of metallic spirals, where one type of spirals is nonlinear.

II-P.13 WED

3D Metallic Photonic Crystals with Optical Bandgaps •M. Farsari, I. Sakellari, N. Vasilantonakis, K. Terzaki, D. Gray, C. Soukoulis, M. Vamvakaki, and M. Kafesaki; IESL-FORTH, Heraklion, Greece

We present the fabrication and characterization of high resolution, three-dimensional metallic woodpile structures, with bandgaps at optical wavelengths. These are made using Direct fs Laser Writing and selective metallization with electroless plating.

II-P.14 WED

Non-Radiating Excitations, Vector Potential Waves and Toroidal Metamaterials

•V. Savinov¹, V.A. Fedotov¹, A.V. Rogacheva¹, D.P. Tsai^{2,3}, and N.I. Zheludev^{1,4}; ¹Optoelectronics Research Centre & Centre for Photonic Metamaterials, University of Southampton, Southampton, United Kingdom; ²Department of Physics, National Taiwan University, Taipei, Taiwan, China, Republic of (ROC); ³Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan, China, Republic of (ROC); ⁴Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore, Singapore

We report on electromagnetic metamaterials that exploit interference between electrical and toroidal dipolar modes of excitation to generate non-trivial gaugeirreducible vector potential in the absence of scattered electromagnetic fields.

II-P.15 WED

Plasmonic Crystals for solid-state lighting

•G. Lozano¹, S.R. Rodriguez¹, M.A. Vercshuuren², and J. Gomez Rivas^{1,3}; ¹FOM Institute AMOLF, Eindhoven, The Netherlands; ²Philips Research, Eindhoven, The Netherlands; ³COBRA Institute, Eindhoven University of Technology, Eindhoven, The Netherlands

It is generally believed that plasmonic structures only provide benefits for light emission when used with low quantum efficiency emitters. Herein we demonstrate a very large emission increase using emitters developed for solid-state lighting applications.

II-P.16 WED

A study in geometry: interferometric control of resonant coupling

•N. Rotenberg¹, D.M. Beggs¹, J.E. Sipe², and K. Kuipers¹; ¹FOM Institute AMOLF, Amsterdam, The Netherlands; ²University of Toronto, Toronto, Canada

Control over resonant coupling is demonstrated using two-component gratings that provide two coupling pathways. By tuning the relative phase between the two components, coupling to surface plasmons can be turned on/off, or made directional.

II-P.17 WED

Effective medium theory for Kapitza stratified media •A. Ciattoni¹ and C. Rizza²; ¹Consiglio Nazionale delle Ricerche, CNR-SPIN, Coppito, L'Aquila, Italy; ²Dipartimento di Scienza e Alta Tecnologia, Università dell'Insubria, Como, Italy

We show that a medium with rapidly and deeply modulated permittivity hosts a novel regime of diffractionless propagation. Results are checked through the exact transmissivity analysis of a large modulation depth metal-dielectric layered slab.

13:00 - 14:00

JSIII-P: JSIII Poster Session

JSIII-P.1 WED

Stabilizing optical rogue waves with fiber topography •A. Bendahmane¹, A. Mussot¹, A. Kudlinski¹, G. Genty², and J. Dudley³; ¹Laboratoire PhLAM UMR CNRS 8523, IRCICA, Université Lille 1, Villeneuve d'Ascq, France; ²Tampere University of Technology, Optics Laboratory, Tampere, Finland; ³Institut FEMTO-ST, UMR CNRS 6174, Université de Franche-Comté, Besançon, France We demonstrate for the first time that a particular fiber topography can lead to sustained optical rogue waves. Experimental feasibility of implementing such a varying-topography along a photonic crystal fiber is also discussed.

JSIII-P.2 WED

Shallow water rogue waves in nonlinear optical fibers •S. Wabnitz¹, C. Finot², J. Fatome², and G. Millot²; ¹Dipartimento di Ingegneria dell Informazione, Università degli Studi di Brescia, Brescia, Italy; ²Laboratoire Interdisciplinaire Carnot de Bourgogne, Dijon, France Propagation of a phase modulated continuous wave in

Hall B0

normally dispersive optical fibers leads to self-similar

and flat-top pulses called flaticons. Upon collision, flati-

cons merge into a single, high-intensity rogue pulse anal-

•I. Pitsios^{1,2}, M. Mattheakis³, M. Thevenet¹, D. Gray¹, G.P. Tsironis^{1,3}, and S. Tzotzakis^{1,2}; ¹Institute of Elec-

tronic Structure and Laser, Foundation for Research and

Technology Hellas, Heraklion, Greece; ²Materials Science

and Technology Department, University of Crete, Herak-

lion, Greece; ³Physics Department, University of Crete,

We study extreme waves in disordered Luneburg-type

photonic networks demonstrating both experimentally

and numerically the existence of rogue waves. We dis-

cuss the conditions the phenomenon appears and com-

Experimental demonstration of Rogue waves in

disordered Luneburg-type photonic networks

ogous to sneaker waves.

JSIII-P.3 WED

Heraklion, Greece

pare to other systems in optics.

JSIII-P.4 WED

Observation of a Photonic

Berezinski-Kosterlitz-Thouless Transition

G. Situ¹ and •J. Fleischer²; ¹Shanghai Institute of Optics and Fine Mechanics, Shanghai, China, People's Republic of (PRC); ²Princeton University, Princeton, United States The contribution has been withdrawn by the authors.

JSIII-P.5 WED

Long-range Correlations and the Random Mass Dirac Model on an Integrated Optical Platform

•R. Keil¹, J. Zeuner¹, F. Dreisow¹, M. Heinrich^{1,2}, A. Tünnermann¹, S. Nolte¹, and A. Szameit¹; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany; ²CREOL, The College of Optics & Photonics, University of Central Florida, Orlando, United States

The Dirac equation with spatial mass disorder is emulated by an ensemble of waveguide lattices, including the regime of power-law decaying correlation functions. The results apply to Dirac fermions and a variety of magnetic solids.

JSIII-P.6 WED

Coherent and Incoherent Rogue Waves in Seeded Supercontinuum Generation

•S.T. Sørensen¹, C. Larsen¹, U. Møller¹, P.M. Moselund², C.L. Thomsen², and O. Bang^{1,2}; ¹DTU Fotonik, Technical University of Denmark, Kgs. Lyngby, Denmark; ²NKT Photonics A/S, Birkerød, Denmark

Deterministic supercontinuum can be generated by seeding the modulation instability-induced pulse breakup. We investigate the influence of the modulation instability gain on seeding and demonstrate the generation of coherent and incoherent rogue waves.

JSIII-P.7 WED

Transition from diffraction in regular to Anderson localization in randomized nondiffracting photonic structures

•M. Boguslawski, S. Brake, P. Rose, F. Diebel, and C. Denz; Institue of Applied Physics and Center for Nonlinear Science (CeNoS), Muenster, Germany

We report on the experimental realizations of Anderson localization in optically induced randomized potentials. Implementing nondiffracting beams of randomized intensities offers a powerful method to bring disorder into regular structures.

NOTES

CLEO[®]/Europe-IQEC 2013 · Thursday 16 May 2013

ROOM 1

8:30 - 10:00

CI-9: Raman Effects in Fibre Sources

Chair: Ryszard Buczynski, University of Warsaw, Warsaw, Poland

CJ-9.1 THU

Radial and azimuthal polarized all-fiber Raman oscillator

•C. Jocher¹, C. Jauregui¹, M. Becker², M. Rothhardt², J. Limpert^{1,3}, and A. Tünnermann1^{1,3,4}; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany; ²Institute of Photonic Technology, Jena, Germany; ³Helmholtz-Institute Jena, Jena, Germany; ⁴Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germanv

We demonstrate an all-fiber Raman fiber oscillator for the generation of radially and azimuthally polarized beams. The influence and compensation of elliptical fiber cores is theoretically and experimentally investigated.

CJ-9.2 THU

Fibre Raman laser directly pumped by multimode laser diode at 975 nm

•T. Yao and J. Nilsson; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

We present the first-ever continuous-wave fiber Raman laser pumped directly by multimode diodes. The output power reaches 4 W at 1019 nm and the slope efficiency 55% with 3 km of multimode graded-index fiber.

CJ-9.3 THU

Raman Gain and Random Distributed Feedback Generation in Nitrogen Doped Silica Core Fiber

•A. Lanin¹, D. Churkin^{1,2}, K. Golant³, and S. Turitsyn¹; ¹Aston University, Birmingham, United Kingdom; ²Institute of Automation

9:00

II-3.2 THU Tunable light emission in Reconfigurable **Plasmonic Metamaterials**

•G. Adamo^{3,1}, W.T. Chen², E. Plum¹, J.-Y. Ou¹, J. So¹, D.P. Tsai², and N. Zheludev^{1,3}; ¹Optoelectronics Research Centre & Centre for Photonics Metamaterials, Univer-

ROOM 4a

II-3: Controlling and Harvesting

Plasmon Induced Light Harvesting

Chair: Thomas Klar, Johannes-Kepler-

•P. Nordlander: Rice University. Houston.

Plasmons are can focus light into to nanome-

ter sized hotspots and also be efficient

sources of hot energetic electrons. These

processes can be exploited in light harvest-

8:30 - 10:00

United States

ing applications.

8:30

8:45

Light with Plasmons

Universität, Linz, Austria

II-3.1 THU (Invited)

ROOM 4b

CH-4: Metrology of Materials and Structures

Chair: Stefano Selleri, University of Parma, Italy

CH-4.1 THU

8:30

8:30 - 10:00

Spectral-Domain Low-Coherence Dynamic Light Scattering and Its Application to Measurement of the Air-Liquid Interface Effect

•T. Watarai and T. Iwai; Tokyo University of Agriculture and Technology, Koganei, Japan The proposed method realizes seamless measurements of the diffusion phenomenon of particles depending on the scattering position without any scanning operation.

The experimental results showed the decrease of the diffusion coefficient close to the interface.

CH-4.2 THU

Assessment of used Turbine Blades on and beneath the Surface for Product **Regeneration: Generation of a Damage** Model based on Reflection, Geometry Measurement and Thermography

•M. Krauß¹, W. Frackowiak², A. Pösch¹, M. Kästner¹, W. Reimche², E. Reithmeier¹, and H.J. Maier²; ¹Leibniz Universität Hannover : Institute of Measurement and Automatic Control, Hannover, Germany; ²Leibniz Universität Hannover : Institute of Materials Science, Hannover, Germany

For the inspection of used parts from aero engines a hierarchical inspection is developed. This multiscale approach uses hints from the macro scale to determine areas for a higher resolution measurement with different sensor principles.

CH-4.3 THU

9:00

Optical Spectroscopy in the time-domain beyond 1.1 μ m: a tool for the characterization of diffusive media

•A. Farina¹, I. Bargigia², A. Bahgat Shehata³, A. Dalla Mora², A. Tosi³, F. Zappa³, P. Taroni², R. Cubeddu^{1,2}, and A. Pifferi^{1,2};

ROOM 13a

CK-7: Advanced Structures for Light Sources

Chair: Markus Pollnau, University of Twente, The Netherlands

CK-7.1 THU

8:30

8:30 - 10:00

Single Photon Nanophotonics Using NV Centers in Three-Dimensional Laser-Written Microstructures

•A.W. Schell¹, J. Kaschke², J. Fischer², R. Henze¹, J. Wolters¹, M. Wegener², and O. Benson¹; ¹Humboldt-Universität zu Berlin -AG Nanooptik, Berlin, Germany; ²Institute of Applied Physics, DFG-Center for Functional Nanostructures, Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany Combination of NV-center-containing nanodiamonds with a photoresist for 3D two-photon laser-lithography allows for easy integration and combination of single-photon emitters and microstructures. Single-photon emission from different

3D quantum-photonic elements like

8:45

9:00

CK-7.2 THU

On-Chip Quantum Optics with Electrically Driven Quantum Dot Micropillar Cavities

waveguides and resonators is shown.

C. Hopfmann¹, F. Albert², E. Stock¹, M. Lermer², C. Schneider², S. Höfling², A. Forchel², M. Kamp², and \bullet S. Reitzenstein¹; ¹Technische Universität Berlin, Berlin, Germany; ²Universität Würzburg, Würzburg, Germanv

A novel concept for on-chip quantum optics using an internal electrically pumped microlaser is presented. The microlaser resonantly excites a quantum dot - microcavity system operating in the weak coupling regime of cavity quantum electrodynamics.

CK-7.3 THU

A laser diode for integrated photon pair generation at telecom wavelength

G. Boucher¹, A. Orieux¹, F. Boitier¹, $\bullet A$. Eckstein¹, E. Galopin², A. Lemaître², C. Manquest¹, I. Favero¹, G. Leo¹, and S. Ducci¹; ¹Université Paris Diderot, Sor-

ROOM 13b

8:30 - 10:00

CB-7: Semiconductor Lasers for Optical Communications

Chair: Erwin Bente, Technische Universiteit, Eindhoven, Netherlands

8:30

8:45

CB-7.1 THU

8:30

8:45

9:00

High-Speed Oxide Confined 850-nm VCSELs Operating Error-Free at 47 Gbit/s at room temperature and 40 Gbit/s at 85°C P. Westbergh¹, R. Safaisini¹, E. Haglund¹, J.S. Gustavsson¹, •A. Larsson¹, and A. Joel²; ¹Chalmers University of Technology, Göteborg, Sweden; ²IQE Europe Ltd., Cardiff,

United Kingdom We demonstrate high-speed VCSELs capable of reaching small signal modulation bandwidths up to 28 GHz and error-free data transmission up to 47 Gbit/s at room temperature and 40 Gbit/s at 85°C.

CB-7.2 THU

Transmission over 50 km using a directly modulated integrated two-section discrete mode laser at 1550 nm

•J. O'Carroll^{1,2}, P.M. Anandarajah¹, R. Zhou¹, R. Phelan², B. Kelly², J. O'Gorman³, and L.P. Barry¹; ¹The Rince Institute, Dublin City University, Dublin, Republic of Ireland; ²Eblana Photonics Ltd., Dublin, Republic of Ireland; ³Xylophone Optics Ltd., Dublin, Republic of Ireland

A two-section device is presented, where optical injection from an integrated master to a slave laser is used to improve the device parameters, including its transmission performance. Transmission over 50 km is demonstrated at 1550nm.

CB-7.3 THU (Invited) 9:00

Multi-wavelength Hybrid Silicon Lasers for Optical Interconnects

•M. Heck, M. Davenport, G. Kurczveil, S. Jain, and J. Bowers; University of California Santa Barbara, Santa Barbara, United States Integrated multi-wavelength sources are

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ROOM 14a

8:30 - 10:00

IB-5: Quantum Communication

Chair: Allessandro Fedrizzi, University of Queensland, Brisbane St Lucia, Australia

IB-5.1 THU

Free space quantum key distribution over 500 meters using electrically driven quantum dot single photon sources

M. Rau¹, T. Heindel², S. Unsleber², C. Schneider³, S. Frick¹, G. Vest¹, S. Nauerth¹, M. Lermer³, M. Kamp³, S. Reitzenstein², A. Forchel³, S. Höfling³, and H. Weinfurter^{1,4}; ¹Fakultät für Physik, Ludwig-Maximilians-Universität München, Germany; ²Institut für Festkörperphysik, Technische Universität Berlin, Germany; ³Technische Physik and Wilhelm Conrad Röntgen Research Center for Complex Material Systems, Universität Würzburg, Germany; ⁴Max-Planck-Institut für Guantenoptik, Garching, Germany

We successfully demonstrated freespace QKD using electrically driven InAs quantum dot single photon sources embedded in micropillar cavities. The electrical excitation scheme allows a much tighter integration of the source compared to optically pumped schemes.

Quantum information in the presence of loss

•J. Rarity, A.B. Young, B. Bell, and C. Hu; Merchant Venturers School of Engineering, Bristol, United Kingdom

We will examine the limitations losses pose to quantum information tasks, and summarise novel ways in which to circumvent losses to perform quantum metrology and loophole free violations of bell inequalities.

IB-5.3 THU

Experimental demonstration of continuous-variable quantum key distribution over 80 km of standard telecom fiber • P. Jouguet^{1,2}, S. Kunz-Jacques², A. Leverrier³, P. Grangier⁴, and E. Diamanti¹;

ROOM 14b 8:30 – 10:00

8:30

CF/IE-10: Ultrafast Spectroscopy Chair: Hristo Iglev, Technishe Universität München, Munich, Germany

CF/IE-10.1 THU

Time-resolved Measurement of Vibrational Wave-Packet Dynamics of

H2+ Using Multicolor Probe Pulses •Y. Furukawa¹, T. Okino^{2,1}, Y. Nabekawa¹, A. Eilanlou¹, E. Takahashi¹, K. Yamanouchi², and K. Midorikawa¹; ¹RIKEN Advanced Science Institute, Wako, Japan; ²The University of Tokyo, Bunkyo, Japan

We report on a real-time imaging of the ultrafast vibrational wave-packet dynamics of molecular hydrogen ions performed with an extreme ultraviolet pump and multicolor probe pulses generated through high harmonic generation scheme.

CF/IE-10.2 THU

Dynamical coupling of molecular rotation and Coulomb explosion

•S. Weber^{1,2}, M. Oppermann¹, L. Frasinski¹, and J. Marangos¹; ¹Imperial College London, London, United Kingdom; ²CEA Saclay, IRAMIS, Service des Photons, Atomes et Molécules, Gif-sur-Yvette, France The first observation of 1/8th rotational revival in impulsively aligned CO2 molecules probed by Coulomb explosion is reported. Such a dynamic gives insight in the coupling arising between rotation wavepacket and strong field dynamic.

9:00 CF/IE-10.3 THU

8:45

Time-resolved cluster dynamics driven by 1.5-micrometer laser pulses

H. Ruf¹, M. Negro², B. Fabre¹, D. Staedter³, F. Dorchies¹, M. Devetta², C. Vozzi², Y. Mairesse¹, and •S. Stagira²; ¹Centre Lasers Intenses et Applications, Université de Bor-

ROOM 21

8:30 - 10:00

IA-7: Cavity-Opto Mechanics Chair: Stephan Ritter, Max-Planck-Institut für Quantenoptik, Garching, Germany

IA-7.1 THU

8:30

8:45

9:00

Optomechanical Dark Mode

•H. Wang, C. Dong, V. Fiore, and M. Kuzyk; University of Oregon, Eugene, Oregon, United States

We demonstrate an optomechanical dark mode that decouples from the mechanical oscillator, but enables state transfer between optical modes, providing a mechanism for pursuing quantum optomechanics without cooling the mechanical system to its ground state.

IA-7.2 THU

Optomechanically Induced Transparency in a Membrane-in-The-Middle Setup at Room Temperature

M. Karuza^{1,2}, C. Biancofiore¹, P. Zucconi Galli Fonseca¹, M. Galassi¹, R. Natali¹, P. Tombesi¹, G. Di Giuseppe¹, and •D. Vitali¹; ¹School of Science and Technology, University of Camerino, Camerino, Italy; ²Department of Physics, University of Rijeka, Rijeka, Croatia

We demonstrate electromagnetically induced transparency in a cavity optomechanics setup formed by a thin semitransparent membrane within a cavity. We infer a pulse delay of hundreds of microseconds, tunable by shifting the membrane.

IA-7.3 THU

Cavity Optomechanics With Photonic Crystal Nanomembrane

•M. Kevin¹, A. Thomas¹, K. Aurélien¹, D. Samuel¹, B. Tristan¹, C. Pierre-François¹, H. Antoine¹, R.-P. Isabelle², and B. Remy²; ¹Laboratoire Kastler Brossel, Paris, France;

ROOM 22

8:30 - 10:00

CG-4: Ultrafast High Power Lasers *Chair: Peter Dombi, Wigner Research Centre for Physics, Budapest, Hungary*

CG-4.1 THU

8:30

8:45

9:00

ELI-ALPS, the Attosecond Facility of the Extreme Light Infrastructure

D. Charalambidis^{1,2}, Z. Diveki^{1,3}, P. Dombi^{1,4,5}, J.A. Fulop^{1,6}, M. Kalashnikov^{1,7}, R. Lopez-Martens^{1,8}, •K. Osvay^{1,9}, and E. Racz^{1,10}; ¹ELI-Hu Nkft., Szeged, Hungary; ²FORTH, Crete, Greece; ³Imperial College, London, United Kingdom; ⁴Max-Planck Institut für Quantenoptik, Garching, Germany; ⁵Wigner Research Centre for Physics, Budapest, Hungary; ⁶MTA-PTE High-Field THz Research Group, Pecs, Hungary; ⁷Max-Born-Institut, Berlin, Germany; ⁸Laboratoire d*Optique Appliquee, Palaiseau, France; ⁹University of Szeged, Szeged, Hungary; ¹⁰Obuda University, Budapest, Hungary

The ELI-ALPS facility is a laser-based research infrastructure where cutting-edge very few cycle intense laser pulses and attosecond light sources are to be implemented and used for basic and applied research.

CG-4.2 THU

ELI Extreme Light Infrastructure Science and Technology with ultra intense Lasers •G. Korn, B. LeGarrec, and B. Rus; ELI Beamlines, Prague, Czech Republic

We will be giving an overview on the development of the ELI-beamline facility. The main objective of the ELI-Beamlines Project is delivery of ultra-short high-energy pulses for the generation and applications of highbrightness X-ray sources and accelerated particles.

CG-4.3 THU

Sub-5-fs Multi-TW Optical Parametric Synthesizer

L. Veisz¹, D. Rivas¹, G. Marcus¹, X. Gu¹,
 D. Cardenas¹, J. Mikhailova¹, A. Buck^{1,2}, T.
 Wittmann¹, C. Sears¹, J. Xu¹, D. Herrmann³,
 O. Razskazovskaya², V. Pervak², and F.

ROOM EINSTEIN

8:30 - 10:00

IH-3: Controlling Light Emission at the Nanoscale

Chair: Willem L. Vos, University of Twente, Enschede, The Netherlands

8:30

8:45

9:00

IH-3.1 THU

8:30

8:45

9:00

Quantum efficiency of single NV centers in nanodiamonds

•A. Mohtashami, M. Frimmer, and A.F. Koenderink; FOM Institute AMOLF, Amsterdam, The Netherlands

We report on the first experimental quantification of the quantum efficiency of single NV centers in nanodiamonds. Using a nanomechanically moving mirror to apply calibrated LDOS variations, we find quantum efficiencies between 10% and 90%.

IH-3.2 THU

Magneto-Electric Antennas for Directed Light Emission

•I.M. Hancu¹, A.G. Curto¹, M. Castro-López¹, M. Kuttge¹, and N.F. van Hulst^{1,2}; ¹ICFO - The Institute of Photonic Sciences, Castelldefels, Spain; ²Institució Catalana de Recerca i Estudis Avançats (ICREA), Barcelona, Spain

We demonstrate directional light emission from split-ring resonators by exploiting the interference of their magnetic and electric dipole moments. These subwavelength antennas are broadband and robust with respect to the position of local sources.

IH-3.3 THU (Invited)

Accessing Forbidden Transitions: Magnetic Dipoles and Electric Quadrupoles for Nano-Optics •R. Zia; Brown University, Providence, United States

We demonstrate how naturally occurring

and Electrometry SB RAS, Novosibrisk, Res sin, "Kotchikov nastitute of Radio figures, gand Electrometry AB RAS, Novosibrisk, Russ- gand Electrometry RAS, Novosibrisk, Russ- gand Electrometry RAS, Novosibrisk, Russ- gand Electrometry RAS, Novosibrisk, Russ- gand Electrometry RAS, National gand	 Scia¹/² Koltzikitori hustitute of Radio Engineer- ing and Electronics of RAS, Moscow Russia, Random distributed feedback laser generation is demonstrated for the first line in in- trogen doped fiber. High Raman gain coef- ficient results in ficient radio generation in the ficient radio generation. CL-94 THU 9:15 CL-94 THU 9:16 CL-94 THU	Raman soliton amplification by	Noninvasive optical glucose monitoring at	Phase-space Measurement and Coherence	Multilayer distributed feedback dye	Multi-channel wavelength conversion
 Sia, ¹ Katel¹mkov institute of Radio Engineering and Electronics of RAS. Moscon Russia Random distributed feedback laser genering in set been efficient reals in efficient random generation in fiber of 500 meters only. CL-9.4 THU 9:15 CL-9.4 THU 9:15 Raman-driven destabilization of giant-chirp oscillators: fundamental imitations to energy scalability of Normeders, R. J. Kukikan Chiropsis, Dimension efficience using in the destabilization of giant-chirp oscillators: f. B. Ding¹, N. Arnold⁴, R. Mismon, Tudy, ² Depiction of Milano-Dipartiment of partimento di Elettronic, Informazione, Asystem for the characterization of giant-chirp oscillators: fundamental imations reveal different funces cence uping gene of a requery conversion above; we report on the system for the characterization of giant-chirp oscillators: fundamental imations reveal different funces cence uping gene of a requery conversion above; we report on the system for the characterization of giant-chirp oscillators: fundamental imations reveal different funces cence uping gene of a requery conversion above; we report on the system for the characterization of giant-chirp oscillators: fundamental imations reveal different funces cence uping gene of a requery conversion above; we report on the system for the system for	and Electrometry SB RAS, Novosibirsk, Russia, Kingdom; ¹ Department of Physics, National gen and Electronics of NAS, Moscow, Russia Random distributed feedback laser genera- tion is demonstrated for the first mein in- trogen doped fiber. High Ranna gain coef- ficient results in efficient random generation in fiber of 500 meters only. sity of Southampton, Southampton, United Kingdom; ¹ Department of Physics, Rational Tage ATERCTON (BURNAGE) ¹ Comsiglio Nacionale delle Ricerche, Milan, Italy, ¹ Policenico di Milano-Dipartimento ting, ¹ Comsiglio Nacionale delle Ricerche, Milan, Italy, ¹ Comsiglio Nacionale delle Ricerche, Milan, Italy, ¹ Policenico di Milano-Dipartimento ting, ¹ Southampton, Southampton, Southampton, Southampton, United (ROC), ¹ Centre for Disruptive Photomic tion is demonstrated for the first Tagen, Chinka, Republic (ROC), ¹ Centre for Disruptive Photomic tion is demonstrated for the first Tagen, Chinka, Republic (ROC), ¹ Centre for Disruptive Photomic tion is demonstrated for the first can be antifically created by meta- tical ransortacturing of plasmonic meta- sia accuted with collective plasmonic statics can be artifically created by meta- tical annoscule reconfig- tuations or energy scalability of Disconfigure and Directional Reshugging of Sub-thrip oscillators: fundamental land. New Zealand More clauser, M. Explore the destabilization of giand-chirp oscillators: fundamental land. New Zealand More clauser, B. Ding ¹ , N. Arnold ¹ , G. S ¹ C, ¹ S, Mithori (J. Milkon, Linkers, J. Accuss, C. Sinder, ¹ , A. Russ, ¹ S. Bitting of Photomic Crystal for Spectra and Directional Reshugging of Sub-sci, J. Anatria, ¹ Bitting of Physics, University of Signal Our essuits indicate tha KBS impose signal. Our essuits indicate tha KBS impose an ultimate limbe oreassolution of flucencescene by signal. Our					
sia; ³ Kotel'nikov Institute of Radio Engineer- ing and Electronics of RAS, Moscow, Russia Random distributed feedback laser genera- tion is demonstrated for the first time in ni- trogen doped fiber. High Raman gain coef- ficient results in efficient random generation in fiber of 500 meters only. Kingdom; ² Department of Physics, National Taiwan University, Taipei, China, Republic of (ROC); ³ Centre for Disruptive Photonics Technologies, Nanyang Technological Univer- sity, Singapore We show that new intense luminescence insea associated with collective plasmonic states can be artificially created by metama- terial nanostructuring of plasmonic metals and tuned by electrical nanoscale reconfig-	and Electrometry SB RAS, Novosibirsk, Rus- sia; ³ Kotel'nikov Institute of Radio Engineer- ing and Electronics of RAS, Moscow, Russia Random distributed feedback laser genera- tion is demonstrated for the first time in ni- trogen doped fiber. High Raman gain coef- ficient results in efficient random generation in fiber of 500 meters only.	Raman-driven destabilization of giant-chirp oscillators: fundamental limitations to energy scalability •C. Aguergaray, A. Runge, M. Erkintalo, and N. Broderick; Auckland University, Auck- land, New Zealand We study the destabilization of a GCO mode-locking operation through the emer- gence of a frequency-downshifted Stokes signal. Our results indicate that SRS imposes an ultimate limit on the energy scalability of	 Large Area Self-Assembled Plasmonic-Photonic Crystals for Spectral and Directional Reshaping of Fluorescence •C. Hrelescu¹, B. Ding¹, N. Arnold¹, G. Isic^{1,2}, and T.A. Klar¹; ¹Institute of Applied Physics, Johannes Kepler University, Linz, Austria; ²Institute of Physics, University of Belgrade, Belgrade, Serbia and Montenegro We report on the spectral and directional modification of fluorescence by hybrid plasmonic-photonic structures. Spectroscopic experiments and numerical simulations reveal different fluorescence coupling mechanisms to dispersive photonic crystal 	Nanometer Optical Coherence Tomography using broad-bandwidth XUV and soft x-ray radiation - XCT •S. Fuchs ^{1,2} , A. Blinne ¹ , C. Rödel ^{1,2} , U. Zastrau ¹ , V. Hilbert ¹ , M. Wünsche ¹ , E. Förster ^{1,2} , and G.G. Paulus ^{1,2} ; ¹ Institute of Optics and Quantum Electronics, University of Jena, Jena, Germany; ² Helmholtz Institute Jena, Jena, Germany We report on the extension of Optical Co- herence Tomography using extreme ultra- violet and soft x-ray radiation and demon- strate an axial resolution of nanometers in	Shedding light on periodic orbits in triangular organic micro-billiard lasers •C. Lafargue ¹ , S. Bittner ¹ , C. Ulysse ² , A. Grigis ³ , J. Zyss ¹ , and M. Lebental ¹ ; ¹ Ecole normale supérieure de Cachan, Cachan, France; ² Laboratoire de Photonique et de Nanostructures, Marcoussis, France; ³ Université Paris 13, Villetaneuse, France Organic microlasers of triangular shapes are investigated experimentally and the periodic orbits on which the lasing modes are based are determined. This allows new insights into the unsolved mathematical problem of	
	ROOM 1 ROOM 4a ROOM 4b ROOM 13a ROOM 13b	and Electrometry SB RAS, Novosibirsk, Rus- sia; ³ Kotel'nikov Institute of Radio Engineer- ing and Electronics of RAS, Moscow, Russia Random distributed feedback laser genera- tion is demonstrated for the first time in ni- trogen doped fiber. High Raman gain coef- ficient results in efficient random generation	sity of Southampton, Southampton, United Kingdom; ² Department of Physics, National Taiwan University, Taipei, China, Republic of (ROC); ³ Centre for Disruptive Photonics Technologies, Nanyang Technological Univer- sity, Singapore, Singapore We show that new intense luminescence lines associated with collective plasmonic states can be artificially created by metama- terial nanostructuring of plasmonic metals and tuned by electrical nanoscale reconfig-	¹ Consiglio Nazionale delle Ricerche, Milano, Italy; ² Politecnico di Milano-Dipartimento di Fisica, Milano, Italy; ³ Politecnico di Milano- Dipartimento di Elettronica, Informazione e Bioingegneria, Milano, Italy A system for time-resolved diffuse optical spectroscopy for wavelengths longer than 1.1 μ m is used for the characterization of some media like lipid, collagen, fruit and ex-	bonne Paris Cité, Laboratoire Matériaux et Phénomènes Quantiques, CNRS-UMR 7162,, Paris, France; ² Laboratoire de Photonique et Nanostructures, CNRS-UPR20, Marcoussis, France We report on electrically pumped Bragg mode lasing at 782 nm at room temperature in an AlGaAs structure designed for type-II internal parametric down conversion show- ing a second harmonic generation efficiency	essential components for future high- capacity optical interconnects. We present our work on integrated hybrid silicon arrayed-waveguide grating-based lasers, mode-locked comb lasers and wideband quantum-well-intermixed single-frequency

Tm-Ho:fiber for high-efficiency Watt-level ultrashort pulses in the range 1.8-1.92 um •N. Coluccelli, M. Cassinerio, G. Galzerano, and P. Laporta; Dipartimento di Fisica - Politecnico di Milano and Istituto di Fotonica e Nanotecnologie - CNR, Milan, Italy Tm-Ho:fiber amplifier seeded by low-power raman soliton is reported. 250-MHz pulse trains tunable from 1.84 to 1.92 *m with corresponding powers from 2.5 to 3 W and durations from 70 to 90 fs are demonstrated.

physiological levels using a functionalized plasmonic sensor

•M. Mesch¹, C. Zhang², P.V. Braun², P. Rapp³, C. Tarin³, and H. Giessen¹; ¹4th Physics Institute and Research Center SCoPE, University of Stuttgart, Germany; ²Department of Materials Science and Engineering, University of Illinois, Urbana-Champaign, USA; ³Institute for System Dynamics, University of Stuttgart, Germany We demonstrate noninvasive glucose monitoring using optical measurements of a plasmonic nanostructure that was functionalized using aminophenyboronic acid. This allows detection of the glucose in the vicinity of the gold nanostructure reproducibly at millimolar levels.

Synthesis of Optical Beams

L. Waller¹, G. Situ², and $\bullet J$. Fleischer³; ¹University of California, Berkeley, Berkeley, United States; ²Shanghai Institute of Optics and Fine Mechanics, Shanghai, China, People's Republic of (PRC); ³ Princeton University, Princeton, United States

We present new methods of creating and recording the four-dimensional $\{x,y,k_x,k_y\}$ phase space of optical beams. We give examples of coherence structures that cannot be discovered using traditional intensity measurements in x-space or k-space only.

lasers: Enhanced emission wavelength and sensing

•C. Vannahme, C.L.C. Smith, M. Leung, F. Richter, M. Brøkner Christiansen, and A. Kristensen; Department of Micro- and Nanotechnology, Technical University of Denmark, DTU Nanotech, Kgs. Lyngby, Denmark Simple yet precise emission wavelength modelling of multilayer hybrid distributed feedback dye lasers is presented. The influence of the thickness of a high index top layer on emission wavelength and sensitivity is examined.

using four-wave mixing in semiconductor ring lasers

•A. Perez-Serrano¹, J. Javaloyes², and S. Balle³; ¹Weierstrass Institute (WIAS), Berlin, Germany; ²Universitat de les Illes Balears (UIB), Palma de Mallorca, Spain; ³IMEDEA (UIB-CSIC), Esporles, Spain

We propose to use a semiconductor ring laser to perform simultaneous multi-channel wavelength conversion by four-wave mixing. Cross-talk effects, arising from the peculiar four-wave mixing cascade of modes and their cross-gain saturation, are discussed.

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ROOM 14a

¹LTCI, CNRS - Telecom ParisTech, 46 rue Barrault, 75013, Paris, France; ²SeQureNet, 23 avenue d'Italie, 75013, Paris, France; ³Institute for Theoretical Physics, ETH Zurich, 8093, Zurich, Switzerland; ⁴Laboratoire Charles Fabry de l'Institut d'Optique - CNRS - Univ. Paris-Sud 11, 2 avenue Augustin Fresnel, Campus Polytechnique, 91127, Palaiseau, France

A continuous-variable quantum key distribution experiment using only standard telecommunication components is presented. We distributed secret keys over 80 km while taking into account finite-size effects and all known device imperfections.

9:15

9:30

IB-5.4 THU

Unconditional security of Gaussian post-selected continuous variable quantum key distribution

N. Walk¹, •T. Symul², P.K. Lam², and T. Ralph¹; ¹University of Queensland, Brisbane, Australia: ²Australian National University, Canberra, Australia

We extend the proof of security for continuous variable quantum key distribution protocols using post-selection to account for arbitrary eavesdropping attacks by employing the concept of an equivalent entanglement based protocol using noiseless linear amplification.

IB-5.5 THU

Quantum teleportation over 143 km using active feed-forward between two Canary Islands

•X. Ma; IQOQI, Vienna, Vienna, Austria; VCQ, Vienna, Univ. of Vienna, Vienna, Austria

The contribution has been withdrawn by the authors.

ROOM 14b

deaux, CEA, CNRS, Bordeaux, France; ²IFN-CNR & Dipartimento di Fisica - Politecnico di Milano, Milan, Italy; ³Université de Toulouse, Toulouse, France

We studied the ultrafast dynamics of atomic clusters exposed to intense femtosecond pulses in the mid-infrared from an OPA. Our results show that MIR sources can be efficiently exploited in the investigation of laser-cluster interaction.

CF/IE-10.4 THU

Manipulating charge separation dynamics of zinc phthalocyanine based TiO2 films through asymmetrical push-pull structures

•D. Sharma¹, G. Steen¹, T. Torres², J. Herek¹, and A. Huijser¹; ¹University of Twente, Enschede, The Netherlands; ²Universidad Autonoma de Madrid, Cantoblanco, Spain Manipulation of the anchoring ligand results in significant changes in the charge separation dynamics of zinc phthalocyanine sensitized TiO2 films, investigated through femtosecond pump-probe spectroscopy.

CF/IE-10.5 THU

Ultrafast spectroscopy of dinaphthylpolyynes

D. Fazzi¹, F. Scotognella^{1,2}, A. Milani³ D. Brida², C. Manzoni⁴, E. Cinquanta⁵ Ravagnan⁵, P. Milani⁵, F. Cataldo⁶ M. Negro², S. Stagira², and •C. Vozzi⁴ ¹Center for Nano Science and Technology CNST@Polimi, Istituto Italiano di Tecnologia, Milano, Italy; ²Dipartimento di Fisica, Politecnico di Milano, Milano, Italy; Dipartimento di Chimica, Materiali e Ing. Chimica "G. Natta", Politecnico di Milano, Milano, Italy; ⁴CNR - Istituto di Fotonica e Nanoteconologie, Milano, Italy; ⁵CIMAINA and Dipartimento di Fisica, Università degli Studi di Milano, Milano, Italy; ⁶Actinium Chemical Research s.r.l., Roma, Italy We investigated experimentally and theoROOM 21

²Laboratoire de Photonique et de Nanostructures, Marcoussis, France

We present a new generation of optomechanical device designed to perform quantum optomechanics experiment. It combines the high reflectivity of a photonic crystal, with the high mechanical Q-factor and low mass of a suspended nanomembrane.

IA-7.4 THU

9:15

9:30

Fabry-Perot Cavity Optomechanics with Ultrahigh Mechanical-O-Factor Quartz Micropillars at Cryogenic Temperature

•L. Neuhaus, A. Kuhn, S. Zerkani, S. Deléglise, D. García-Sánchez, T. Briant, P.-F. Cohadon, and A. Heidmann; Laboratoire Kastler Brossel, ENS, UPMC, CNRS, Paris, France

We present recent progress towards optical detection of the zero-point-motion of a $25 \,\mu \text{g}$ -mechanical quartz resonator. We discuss the optimization of our system to achieve ground state cooling by classical and laser refrigeration techniques.

IA-7.5 THU

Squeezing-enhanced Optomechanical Transduction Sensitivity

•U.B. Hoff¹, G.I. Harris², L.S. Madsen¹, H. Kerdoncuff¹, M. Lassen¹, B.M. Nielsen¹, W.P. Bowen², and U.L. Andersen¹; ¹Department of Physics, Technical University of Denmark, *Kgs. Lyngby, Denmark;* ²*Centre of Excellence* in Engineered Quantum Systems, University of Queensland, St. Lucia, Australia

We experimentally demonstrate a squeezing-enhanced transduction sensitivity in microcavity optomechanics. Probing the mechanical vibrations of a toroidal microcavity with seeded phasesqueezed vacuum we achieve a transduction sensitivity $-0.72(\pm 0.01)$ dB below the shot noise level.

ROOM 22

Krausz^{1,2}; ¹Max-Planck-Institut für Garching, Germany; Ouantenoptik. ²Ludwig-Maximilians-Universität München, Garching, Germany; ³Ludwig-Maximilians-Universität München, München, Germanv We report on the design and setup of an optical parametric synthesizer delivering <5 fs pulses at 16 TW power. The extended spectrum is amplified in two separate parts using two-color pumped OPCPA.

CG-4.4 THU

9:15

9:30

Contrast improvement at petawatt-class lasers using ultrafast optical parametric amplification

•F. Wagner¹, C.P. Joao², J. Fils³, T. Gottschall⁴, J. Hein⁵, J. Körner⁵, J. Limpert⁴, M. Roth¹, T. Stöhlker³, and V. Bagnoud³; ¹Institut für Kernphysik, Technische Universität Darmstadt, Darmstadt, Germany; ²Instituto de Plasmas e Fusao Nuclear-Laboratorio Associado, Instituto Superior Technica, Lisbon, Portugal; ³GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany; ⁴Institute of Applied Physics, Friedrich Schiller University, Jena, Germany; ⁵Institute for Optics and Quantum Electronics, Friedrich Schiller University, Jena, Germany We report on the development of a new compact temporal contrast boosting module for petawatt-class lasers. Using this module we were able to achieve an ASE contrast better than 10 orders of magnitude.

CG-4.5 THU

High Repetition Rate Carrier-envelope Phase Stable Few-cycle OPCPA for Strong **Field Physics**

•S. Hädrich^{1,2}, J. Rothhardt^{2,1}, S. Demmler¹, M. Krebs¹, J. Limpert^{1,2}, and A. Tünnermann^{1,2,3}; ¹Friedrich Schiller University Jena, Jena, Germany; ²Helmholtz-Institute Jena, Jena, Germany; ³Fraunhofer Institute for Applied Optics and Precision Engineering, Jena, Germany

A sub-two cycle optical parametric chirped pulse amplifier is presented at up to 1 MHz. Carrier envelope phase drifts are minimized by finding a new source of instabilities. Experiments on high harmonic generation are shown.

ROOM EINSTEIN

magnetic dipole and electric quadrupole transitions in a range of solid-state emitters can help to address electronic systems, redesign active photonic devices, and probe magnetic light-matter interactions at the nanoscale.

IH-3.4 THU

9:30

High Purcell effect and directional emission for semi-conductor nanocrystals deterministically positionned in a plasmonic patch antenna

C. Belacel^{1,2,4}, B. Habert³, F. Bigourdan³, F. Marquier³, S. Michaelis de Vasconcellos⁴, X. Lafosse⁴, L. Coolen^{1,2}, C. Schwob^{1,2}, B. Dubertret⁵, J.J. Greffet³, P. Senellart⁴, •A. Maître^{1,2}, and C. Javeaux⁵; ¹Université Pierre et Marie Curie-Paris 6, Paris, France; ²Institut des NanoSciences de Paris, Paris, France; ³Laboratoire Charles Fabry, Institut d'Optique Graduate School, CNRS, Palaiseau, France; ⁴Laboratoire de Photonique et de Nanostructures, Marcoussis, France; ⁵Laboratoire de Physique et d'Etude des Matériaux, Paris, France We realize a plasmonic patch antenna, by

9:15

9:30

ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b

CJ-9.6 THU

Wavelength correlation maps in Raman supercontinuum generation

•A. Aalto¹, E. Nyström¹, P. Ryczkowski¹, J.M. Dudley², and G. Genty¹; ¹Tampere University of Technology, Tampere, Finland; ²Université de Franche-Comté, Besançon, France

We report on the experimental characterization of spectral correlation maps in supercontinuum generation arising from cascaded stimulated Raman scattering. Our analysis provides insight into the dynamics of the broadening process and noise amplification.

9:45 II-3.5 THU

Twists and shifts make nonlinear metamaterials

M. Liu¹, Y. Sun¹, D. Powell¹, •I. Shadrivov¹, M. Lapine², R. McPhedran², and Y. Kivshar¹; ¹Australian National University, Canberra, Australia; ²University of Sydney, Sydney, Australia

We propose a new concept of torsional metamaterials, by exploiting internal rotation within meta-atoms. We demonstrate that it is a more efficient approach for creating strong nonlinear response enhanced by near-field interactions.

10:30 - 12:00

CI-10: Two Micron Fibre Cases

Chair: Thomas Andersen, NKT Photonics, Birkerod, Danemark

CJ-10.1 THU

High power, high energy Tm-doped Q-switched large-pitch fiber laser

•F. Stutzki¹, F. Jansen¹, C. Jauregui¹, J. Limpert^{1,2,3}, and A. Tünnermann^{1,2,3}; ¹Institute of Applied Physics, Friedrich-Schiller-University Jena, Jena, Germany; ²Helmholtz-Institute Jena, Jena, Germany; ³*Fraunhofer Institute for Applied Optics and* Precision Engineering IOF, Jena, Germany We present a new record for the pulse energy of Tm-doped fiber oscillators. A pulse energy of 2.4mJ with 33W average power, 15ns pulse duration and beam quality factor of M2<1.3 is reported.

10:30

9:45

II-4: Transformation Optics and Metamaterials

Chair: Peter Nordlander, Rice University, Houston, United States

10:30 II-4.1 THU (Tutorial) Geometry and Light: the Science of

10:30 - 12:00

Invisibility

•U. Leonhardt; Weizmann Institute of Science, Rehovot, Israel

Science Magazine listed transformation optics among the top 10 science insights of the decade 2000-2010. The tutorial gives an introduction into this subject that may, literally, transform optics.

10:30 - 11:45

CH-5: Advances in Spectroscopy II Chair: Jose Pozo, TNO, Delft, Netherlands

CH-5.1 THU (Invited)

Precision Metrology with Coherent Dual Frequency Combs

•N. Newbury; NIST, Boulder, CO, United States

Coherent dual-frequency comb techniques allow one to read out the relative phase and amplitude on a tooth by tooth basis across a broadband frequency comb. Applications include precision spectroscopy, ranging and frequency transfer.

CK-7.6 THU

Novel physics in photonic crystal nanolasers : Dynamics and Coherence

•A. Lebreton, I. Abram, R. Braive, I. Sagnes, I. Robert-Philip, and A. Beveratos; CNRS - Laboratoire de Photonique et de Nanostructures, Marcoussis, France

Lasers of diffraction-limited volumes involve the interaction of small numbers of particles (photons and dipoles). We demonstrate that these small populations of discrete particles induce large intensity noise in the output of the laser.

CB-7.5 THU

9:45

10:30

Bidirectional Secure Key-Exchange Using Chaotic Semiconductor Lasers

9:45

•X. Porte, M.C. Soriano, D. Brunner, and I. Fischer; IFISC (UIB-CSIC), Palma de Mallorca, Spain

We demonstrate the experimental implementation of a secure key-exchange protocol based on delay-coupled semiconductor lasers. We discuss its robustness against desynchronization events and the influence of different parameters on the bit rate and security.

10:30 - 12:00

CK-8: Light Management in Structures

Chair: Hatice Altug, EPFL, Lausanne, Switzerland

CK-8.1 THU

Tracking the spectral evolution of slow

•*M.* Wulf¹, D.M. Beggs¹, N. Rotenberg¹, I.H. Rey², T.F. Krauss², and K. Kuipers¹; ¹FOM Institute for Atomic and Molecular Physics, Amsterdam, The Netherlands; ²University of St. Andrews, St. Andrews, United Kingdom We measure the in situ spectral evolution of an ultrashort pulse propagating inside a slow-light photonic crystal waveguide. This allows us to characterize nonlinear effects inside an integrated nanophotonic circuit.

10:30 - 12:00

CB-8: Semiconductor Vertical Cavity Surface Emitting Lasers Chair: Mariangela Gioannini, Politecnico di Torino, Turin, Italy

CB-8.1 THU 10:30

Square-wave emission in Vertical-Cavity Surface-Emitting Lasers

•M. Marconi¹, J. Javaloyes², S. Barland¹, M. Giudici¹, and S. Balle³; ¹Insitut Non-linéaire de Nice, Valbonne, France; ²Universitat de les Illes Baleares, Palma de Mallorca, Spain; ³Institut Mediterrani d'Estudis Avancats, Esporles, Spain

We induce stationary biased VCSELs to emit regular square-wave optical signal. This operation is obtained by applying crossedpolarization reinjection to VCSEL and, for weak dichroism devices, by adding also polarization-selective optical feedback.

10:30 light en route

CLEO[®]/Europe-IQEC 2013 · Thursday 16 May 2013

ROOM 14a ROOM 14b ROOM 21 **ROOM 22** ROOM EINSTEIN retically the photo-physical properties of deterministically positioning a cluster of a class of linear sp-carbon chains (α, ω) nanocrystals inside antenna. Its emission is dinaphthylpolyyne). The role of molecular highly directive and the Purcell effect reach conformers is fundamental for understand-80 for dipoles parallel to the antenna axis. ing the steady state properties, and the ultrafast transient absorption features. CF/IE-10.6 THU **IB-5.6 THU** 9:45 9:45 IA-7.6 THU 9:45 CG-4.6 THU 9:45 IH-3.5 THU 9:45 Multi-Delay, Phase-Coherent Pulse Pair Quantum Interface Between Optics and High-energy pulse synthesis of optical Plasmonic nanoantennas for enhanced **Timing Synchronization with Photon** Pairs for Quantum Communications Generation for Precision Ramsey-Comb Microwaves with Optomechanics parametric amplifiers single molecule analysis at micromolar •G. Cirmi^{1,3}, S. Fang^{1,3}, S.-H. Chia^{1,3}, O.D. $M\"ucke^{1,3}$, F.X. Kärtner^{1,2,3,4}, C. Manzoni⁵, S. Barzanjeh¹, M. Åbdi^{1,2}, G. Milburn³, P. T. Lorünser, A. Happe, and •A. Poppe; AIT Spectroscopy conentrations Tombesi¹, and •D. Vitali¹; ¹School of Sci-Austrian Institute of Technology, Vienna, •J. Morgenweg and K. Eikema; VU University, D. Punj¹, M. Mivelle², T. Van Zanten², ence and Technology, University of Camerino, Camerino, Italy; ²Department of Physics, Amsterdam, The Netherlands P. Farinello⁵, and G. Cerullo⁵; 1 Center •H. Rigneault¹, N. Van Hulst², M. Garcia-Austria Parajo², and J. Wenger¹; ¹Institut Fresnel, We present a fully autonomous coincidence We present a parametric amplifier system cafor Free-Electron Laser Science, Deutsches window tracking software for our quantum pable of producing coherent pulse-pairs at Sharif University of Technology, Tehran, Elektronen-Synchrotron DESY, Hamburg, CNRS, Aix-Marseille University, Ecole Centhe mJ-level with adjustable delays well into communication system. It is capable of Tehran, Iran; ³Centre for Engineered Quan-Germany; ²Physics Department, University trale Marseille, Marseille, France; ²ICFO Inreal-time processing and remarkably, neithe microsecond range. The phase for differtum Systems, School of Physical Sciences, of Hamburg, Hamburg, Germany; ³The stitut de Ciences Fotoniques, Castelldefels, ther prior knowledge of the peer clock offent delays remains constant within 10 mrad The University of Queensland, Brisbane, Aus-Hamburg Center of Ultrafast Imaging, Ham-Spain burg, Germany; ⁴Department of Electrical sets, nor are their drifts required. We introduce a novel type of plasmonic tralia Engineering and Computer Science and Re-We describe a quantum interface between nanoantenna especially designed for enan optical and a microwave field based search Laboratory of Electronics, Cambridge, hanced (up to 1100-fold) single molecule United States; ⁵IFN-CNR, Dipartimento di analysis in solutions at high concentrations on their common interaction with a nanomechanical resonator, resulting in a source Fisica, Politecnico di Milano, Milan, Italv (10 micromolar). We demonstrate pulse synthesis of three opof optical-microwave two-mode squeezing. tical parametric amplifiers, with 40-45 µJ energies each, resulting in a 1.9-fs transformlimited pulse duration. Scalability to the mJ level should easily be achieved, allowing for strong-field physics experiments. 10:30 - 12:0010:30 - 11:4510:30 - 12:15 10:30 - 12:00 10:30 - 12:00IB-6: Photonic Quantum CF/IE-11: Ultrafast Microphotonics CM-6: Transparent Material CG-5: Waveform Synthesis and **IH-4: Quantum Nanophotonics** and Plasmonics Processing Control Chair: Agnès Maître, Université Pierre et Computing Marie Curie, Paris, France Chair: Shigeki Takeuchi, Hokkaido Univer-Chair: Petra Gross, Universität Oldenburg, Chair: Marta Castillejo, Spanish National Chair: Lukas Gallmann, ETH Zurich, Zurich, Research Council (CSIC), Madrid, Spain sity, Sapporo, Japan Oldenburg, Germany Switzerland IB-6.1 THU 10:30 CF/IE-11.1 THU 10:30 CM-6.1 THU 10:30 CG-5.1 THU 10:30 IH-4.1 THU (Invited) 10:30 All-optical Switching of a Microcavity Ultrashort pulse-induced nanogratings: Acoustic frequency combs for versatile BosonSampling with realistic Controlling stationary and flying qubits single-photon sources temperature stable optically active phase carrier-envelope phase control Repeated at Terahertz Clock Rates for solid-state quantum networks •E. Yüce¹, G. Ctistis¹, J. Claudon², E. Dupuy², R.D. Buijs¹, B. de Ronde¹, A.P. Mosk¹, J.-M. Gérard², and W.L. Vos¹; ¹Complex Photonic M. Broome^{1,2}, •A. Fedrizzi^{1,2}, S. Rahimielements •B. Borchers, M. Mero, and G. Steinmeyer; •M. Atature; University of Cambridge, Cam-•F. Zimmermann¹, S. Richter¹, C. Vetter¹, S. Keshari², A. Brańczyk³, J. Dove⁴, S. Max-Born-Institut, Berlin, Germany bridge, United Kingdom $D\ddot{o}ring^1$, A. Tünnermann^{1,2}, and S. Nolte^{1,2}; Aaronson⁴, T. Ralph², and A. White^{1,2}; A novel approach for carrier-envelope phase I will discuss how resonance fluorescence al-¹Centre for Engineered Quantum Sys-Systems (COPS), MESA+ Institute for Nan-¹Institute of Applied Physics, Abbe Center stabilization is revealed, offering unconlows control of quantum dot spins as well as tems, School of Mathematics and Physics, otechnology, University of Twente, P.O. Box of Photonics, Friedrich-Schiller-Universität ditional long-term stabilization with nearcoherent generation of tailored single pho-217, 7500 AE, Enschede, The Netherlands; Jena, Jena, Germany; ²Fraunhofer Institute University of Queensland, Brisbane, Ausmegahertz servo bandwidth and versatile tons suitable for distributed quantum nettralia; ²Centre for Quantum Computer for Applied Optics and Precision Engineering, ²CEA-CNRS-UJF Nanophysics and Semiconslow drift compensation using only a single works. and Communication Technology, School ductors Joint Laboratory, CEA/INAC/SP2M Jena, Germany acousto-optic device. of Mathematics and Physics, Univer-17 rue des Martyrs, 38054, Grenoble, France We present femtosecond direct written optisity of Queensland, Brisbane, Australia; We have repeatedly and reproducibly cal components exhibiting circular birefrinswitched a GaAs-AlAs planar microcavity ³Department of Chemistry and Centre gence. In order to use these nanogratingfor Quantum Information and Quantum based phase elements under harsh conoperating in the "original" telecom band by Control, University of Toronto, Toronto, ditions we demonstrate their resistibility exploiting the virtually instantaneous Kerr Canada; ⁴Computer Science and Artificial effect. We achieve repetition times as fast as against temperatures up to 850°C. Intelligence Laboratory, Massachusetts 300 fs.

Institute of Technology, Cambridge, USA

CJ-10.2 THU

10:45

11:00

11:15

Bandwidth-Controllable Tunable Q-Switched Thulium Fibre Laser

•J.M.O. Daniel and W.A. Clarkson; Optoelectronics Research Centre University of Southampton, Southampton, United Kingdom

ROOM 1

A tunable Q-switched thulium fibre laser source with continuously-adjustable linewidth is described. The laser yielded peak power above 1kW at 1960nm and the spectral width could be varied from 0.6nm to 15nm.

CJ-10.3 THU

Tuneable Operation of Core and Cladding Pumped Holmium Fibre Lasers

•N. Simakov^{1,2}, A. Hemming¹, W.A. Clarkson², A. Carter³, and J. Haub¹; ¹Defence Science and Technology Organisation, Edinburgh, Australia; ²ORC, University of Southampton, Southampton, United Kingdom; ³Nufern Inc., East Granby, United States

We report the tuning range of a resonantly, cladding pumped holmium doped fibre (HDF) and compare this to the tuning range of a core pumped HDF. Further optimisation of double clad holmium fibres is discussed.

CJ-10.4 THU

LMA effectively single-mode thulium doped fibre with normal dispersion at wavelengths around 2um

•C. Baskiotis, A. Heidt, S. Alam, and D. Richardson; Optoelectronics Research Centre, Southampton, United Kingdom

CK-8.2 THU

Combining slow-light and carrier induced nonlinearities in photonic crystal nanocavities

•K. Bencheikh¹, A. Yacomotti¹, P. Grinberg¹, I. Sagnes¹, F. Raineri¹, Y. Dumeige², and A. Levenson¹; ¹Laboratoire de Photonique et de Nanostructures, Marcoussis, France; ²Université Européenne de Bretagne, CNRS Foton, Lannion, France

We implement coherent population oscillation and carrier-induced nonlinear refractive index in a semiconductor active nanocavity to strongly increase the photonic lifetime and manipulate its optical response.

CH-5.2 THU

Ultra-rapid coherent anti-Stokes Raman

dual-comb spectroscopy and microscopy

•T. Ideguchi¹, S. Holzner¹, B. Bernhardt^{1,3},

G. Guelachvili², N. Picqué^{1,2,3}, and T.

Hänsch^{1,3}; ¹Max Planck Institut für Quan-

tenoptik, Garching, Germany; ²Institut des

Sciences Moléculaires d'Orsav, CNRS, Orsav,

France; ³Ludwig-Maximilians-Universität

Ultra-broadband nonlinear Raman spec-

troscopy with two laser frequency combs is

demonstrated. A Raman spectrum spanning

1200 cm-1 is measured within less than 300

microseconds at 4 cm-1 resolution with a

München, München, Germany

signal-to-noise ratio of 1250.

Two-Photon Excitation

CH-5.3 THU

11:00

Superballistic transport in hybrid photonic lattices

CK-8.3 THU

•S. Stützer¹, T. Kottos², A. Tünnermann¹, S. Nolte¹, D.N. Christodoulides³, and A. Szameit¹; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität, Jena, Germany; ²Department of Physics, Wesleyan University, Middletown (Connecticut), United States; ³College of Optics and Photonics, University of Central Florida, Orlando, United States

We present experimental evidence for a new transport regime that is faster than ballistic. Our results reveal that disordered regions in a lattice can speed up wave transport for finite times in a time-independent Hamiltonian.

11:15 CK-8.4 THU

Random amplification of coherent light in diffusive random lasers

•R. Uppu and S. Mujumdar; Nano-optics and Mesoscopic Optics Laboratory, Tata Institute of Fundamental Research,, Mumbai, India We demonstrate the amplification by an or-

CB-8.2 THU

10:45

11:00

11:15

10:45

11:00

11:15

Impact of Photon Lifetime on the High-Speed performance of 1.3-um Wavelength Wafer-Fused VCSELs

•D. Ellafi¹, V. Iakovlev¹, A. Sirbu¹, G. Suruceanu², A. Mereuta², A. Caliman², and E. Kapon^{1,2}; ¹Laboratory of Physics of Nanostructures, École Polytechnique Fédérale de Lausanne (EPFL), CH-1015, Lausanne, Switzerland; ²BeamExpress S.A., 1015, Lausanne, Switzerland

Investigation of the impact of photon lifetime on 1.3-um wafer-fused VCSELs is reported. A significant improvement in both static and dynamic VCSEL performance is demonstrated.

Keywords: VCSEL, high speed, modulation, photon lifetime, damping,

CB-8.3 THU

Comparing the Performance of 980 nm VCSELs with Different

High-Contrast-Grating designs

•P. Debernardi¹, R. Orta¹, and W. Hofmann²; ¹IEIIT-CNR, Torino, Italy; ²TUB, Berlin, Germany

Our vectorial and 3D VCSEL code can now handle High-Contrast-Grating in an efficient and rigorous way. It is applied to a 980 nm HCG-VCSEL and two different HCG schemes are designed and discussed in detail.

CB-8.4 THU

Dynamic Characteristics of Inverted Grating Relief VCSELs for Cs-Based Microscale Atomic Clocks

M.J. Miah, A. Al-Samaneh, D. Wahl, and •*R. Michalzik; Institute of Optoelectronics, Ulm University, Ulm, Germany*

Nonlinear Dual-Comb Spectroscopy with

•S.A. Meek¹, A. Hipke^{1,2}, T.W. Hänsch^{1,2},

and N. Picqué^{1,2,3}; ¹Max-Planck-Institut

für Quantenoptik, Garching, Germany;

$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Thursday 16 May 2013

ROOM 14a BosonSampling is a novel task promising to answer whether quantum computers can truly outperform their classical counter- parts. We experimentally tested the key as- sumption of BosonSampling with three sin- gle photonons interfering in a tunable photonic circuit	ROOM 14b	ROOM 21	ROOM 22	ROOM EINSTEIN
circuit. IB-6.2 THU 10:45 Experimental Demonstration of Quantum Data Compression • L.A. Rozema ¹ , D. Mahler ¹ , A. Hayat ¹ , P.S. Turner ² , and A.M. Steinberg ¹ ; ¹ Centre for Quantum Information & Quantum Con- trol and Institute for Optical Sciences, De- partment of Physics, University of Toronto, Toronto, Canada; ² Department of Physics, Graduate School of Science, The University of Tokyo, Tokyo, Japan Redundant copies of classical information can be discarded, allowing compression. However, additional copies of quantum data yield more information, making classical ideas inapplicable. We present experimental results for 3 qubits; compressing N=3 qubits into log(N+1)=2	CF/IE-11.2 THU10:45Superfluorescent 1.1 psPulse-On-Demand Generation in InGaNLaser•D.L. Boiko ¹ , X. Zeng ¹ , T. Weig ² , U.T.Schwarz ² , L. Sulmoni ³ , JM. Lamy ³ ,and N. Grandjean ³ ; ¹ CSEM Centre Su-isse d'Electronique et de Microtechnique,Neuchatel, Switzerland; ² Fraunhofer In-stitute for Applied Solid State Physics IAF,Freiburg, Germany; ³ EPFL Ecole Polytech-nique Fédérale de Lausanne, Lausanne,SwitzerlandWe report generation of solitary pulses ofthe width below 1.1 ps from a tandem-cavityInGaN/InGaN laser diodes in 415-425 nmwavelength range and we show that observedpulses are caused by cooperative superfluo-	CM-6.2 THU 10:45 Laser Ablation inside Transparent Thin Films K. Kumar ¹ , K.K. Lee ² , J. Li ² , J. Nogami ¹ , •P.R. Herman ² , and N. Kherani ² ; ¹ Department of Materials Science and Engineering, Toronto, Canada; ² Department of Electrical and Com- puter Engineering, Toronto, Canada Femtosecond laser interactions were op- timized in thin-transparent films on sili- con substrates to enable interface blister- ing, catapulting, digital surface machining and internal void structures; applications in- clude anti-reflective inverted-pyramid pho- tovoltaics, film coloring, microfluidic pat- terning and lab-in-a-film.	CG-5.2 THU 10:45 Direct Carrier-Envelope Phase Control of an Amplified Laser System • T. Balciunas ¹ , T. Flöry ¹ , T. Stanislauskas ² , R. Antipenkov ² , A. Varanavicius ² , A. Baltuska ¹ , and G. Steinmeyer ³ ; ¹ Photonics Institute, Vienna University of Technology, Vienna, Austria; ² Faculty of Physics, Vilnius University, Vilnius, Lithuania; ³ Max Born Institute, Berlin, Germany Direct carrier-envelope phase stabilization of an Yb:KGW MOPA laser system is demonstrated with a record-breaking resid- ual phase jitter below 100 mrad, opening a new avenue towards high-energy CEP- stabilized parametric sources.	IH-4.2 THU 11:00
into log(N+1)=2. IB-6.3 THU 11:00 Experimental Realisation of Shor's Quantum Factoring Algorithm using Qubit Recycling • E. Martín-López, A. Laing, T. Lawson, R. Al- varez, XQ. Zhou, and J.L. O'Brien; Centre for Quantum Photonics. University of Bristol, Bristol, United Kingdom We address the huge resource requirement of Shor's quantum algorithm using qubit recycling. Together with novel higher- dimensional encoding techniques, we fac- tored N=21 for the first time, using an op- tical circuit with two consecutive C-NOT gates.	pulses are caused by cooperative superfluorescence. CF/IE-11.3 THU 11:00 Adaptive spiral phase elements for the generation of few-cycle vortex pulses M. Bock ¹ , J. Brunne ² , A. Treffer ¹ , S. König ¹ , U. Wallrabe ² , and •R. Grunwald ¹ ; ¹ Max Born Institute, Berlin, Germany; ² IMTEK University Freiburg, Freiburg, Germany The flexible generation of few-cycle vortex pulses with optical orbital momentum is enabled by novel types of low-dispersion, damage-resistant, thermally tunable spiral phase MEMS of large phase deviation. Specific ultrashort-pulse laser applications are proposed.	2014 2015 2015 2015 2015 2015 2015 2015 2015	CG-5.3 THU11:00Synthesis of isolated optical attosecond pulses•M. Hassan ¹ , T. Luu ¹ , A. Moulet ¹ , O. Razskazovskaya ² , N. Karpowicz ¹ , V. Pervak ² , F. Krausz ^{1,2} , and E. Goulielmakis ¹ ; ¹ Max-Planck-Institut für Quantenoptik, Munich, Germany; ² Department für Physik, Ludwig-Maximilians-Universität (LMU), Am Coulombwall 1, D-85748 Garching, Munich, GermanyWe report on the synthesis and precise con- trol of isolated, intense attosecond pulses in optical frequencies. We use them to explore new control strategies of electrons in atoms and materials.	Real-time observation of ultrafast Rabi oscillations between excitons and plasmons in J-aggregate/metal hybrid nanostructures P. Vasa ^{1,2} , W. Wang ¹ , R. Pomraenke ¹ , M. Lammers ¹ , M. Maiuri ³ , C. Manzoni ³ , G. Cerullo ³ , and •C. Lienau ¹ ; ¹ Institut für Physik, Carl von Ossietzky Universität Olden- burg, Oldenburg, Germany; ² Department of Physics, Indian Institute of Technology Bom- bay, Mumbai, India; ³ IFN-CNR, Diparti- mento di Fisica, Politecnico di Milano, Mi- lano, Italy We report the first real-time observa- tion of ultrafast Rabi oscillations in J-aggregate/metal nanostructures, evi- dencing coherent energy transfer between excitonic quantum emitters and SPP fields. This presents a new approach towards coherent, all-optical ultrafast plasmonic devices.
IB-6.4 THU11:15On demand single photon-driven controlled-NOT gate•D.J.P. Ellis ¹ , M.A. Pooley ^{1,2} , A.J. Bennett ¹ , R.B. Patel ^{1,2} , A.K.H. Chan ^{1,2} , I. Farrer ² , D.A. Ritchie ² , and A.J. Shields ¹ ; ¹ Toshiba Research Europe Ltd, Cambridge, United Kingdom;	CF/IE-11.4 THU11:15Optical Excitation of Unipolar Tesla Magnetic Pulses in Plasmonic Nanostructures•E.Atmatzakis ¹ , Papasimakis ¹ , V. Fedotov ¹ , B. Luk'yanchuk ² , F.J. Garcia de Abajo ³ , and N. Zheludev ^{1,4} ;	CM-6.4 THU11:15Picosecond pulsed laser-assisted reshaping of metallic nanoparticles embedded in a glass matrix•M.A. Tyrk, W.A. Gillespie, and A. Ab- dolvand; University of Dundee, Dundee, United Kingdom	CG-5.4 THU11:15Attosecond Sampling of Arbitrary Optical Waveforms•A. Wyatt ¹ , T. Witting ² , A. Schiavi ¹ , D. Fabris ² , J. Marangos ² , J. Tisch ² , and I. Walmsley ¹ ; ¹ Clarendon Laboratory, University of Oxford, Oxford, United Kingdom;	IH-4.3 THU11:15Coupling of a single N-V center in diamond to a fiber-based microcavity•R. Albrecht ¹ , A. Bommer ¹ , C. Deutsch ^{2,3} , J. Reichel ² , and C. Becher ¹ ; ¹ Universität des Saarlandes, Fachrichtung 7.2 (Experi- mentalphysik), Campus E2.6, 66123 Saar

ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
We present a thulium doped large mode area fibre ensuring low-loss single-mode opera- tion and normal dispersion for the funda- mental core mode around a wavelength of 1930nm as well as an effective area larger than 600um2.		für Physik, Munich, Germany; ³ Institut des Sciences Moléculaires d'Orsay, CNRS, Orsay, France We present the latest results in extending dual comb spectroscopy to two-photon tran- sitions. By measuring two-photon excitation of gas-phase rubidium and liquid-phase dye samples, we demonstrate both the high res- olution and speed of the technique.	der of magnitude of an external seed signal by a disordered amplifying medium. An op- timal disorder strength is seen to offer the most efficient amplification.	We present the dynamic behavior of inverted grating relief VCSELs for Cs-based microscale atomic clocks. The required 5GHz modulation bandwidth is reached close above threshold. An intrinsic 3dB bandwidth exceeding 25GHz is obtained at 80°C.
CJ-10.5 THU 11:30	II-4.2 THU 11:30	CH-5.4 THU 11:30	CK-8.5 THU 11:30	CB-8.5 THU 11:30
All-Fiber Broadband Frequency Comb Source at 2050 nm Center Wavelength A. Thai ^{1,2} , •H. Hoogland ¹ , M. Engelbrecht ¹ , J. Biegert ^{2,3} , and R. Holzwarth ¹ ; ¹ Menlo Sys- tems, Munich, Germany; ² ICFO - Institut de Ciences Fotoniques, Castelldefels (Barcelona), Spain; ³ ICREA - Institucio Catalana de Re- cercai Estudis Avançats, Barcelona, Spain We report on an all PM fiber system with a broadband amplifier based on co-doped Tm/Ho fiber, operating at 2050 nm center wavelength with 126 nm bandwidth and 670 mW ouput power at 100 MHz.	A Hybrid Fabrication Approach for Near-Infrared Double-Helix Metamaterials •M. Decker ¹ , I. Staude ¹ , M. Renner ² , E. Waller ² , D.N. Neshev ¹ , G. von Freymann ² , and Y.S. Kivshar ¹ ; ¹ Nonlinear Physics Cen- tre, Research School of Physics and Engi- neering, The Australian National University, Canberra, Australia; ² Physics Department and Research Center OPTIMAS, University of Kaiserslautern, Kaiserslautern, Germany We employ a novel approach for fabricat- ing three-dimensional metamaterials, which combines direct laser writing with electron- beam lithography. We experimentally re- alize and investigate a double-helix chiral metamaterial operating in the near-infrared spectral range.	Detection of KCl and KOH using Collinear Photofragmentation and Atomic Absorption Spectroscopy T. Sorvajärvi, J. Rossi, and •J. Toivonen; Tam- pere University of Technology, Tampere, Fin- land Collinear photofragmentation and atomic absorption spectroscopy is used in pump- probe fashion to simultaneously detect KCl and KOH in the flame of single particle com- bustion reactor.	Resonant States in Functionalized Waveguide Arrays - Guidonic Resonant Tunneling Double Barrier •N. Belabas Plougonven ¹ , G. Bouwmans ² , E. Cambril ¹ , A. Talneau ¹ , A. Levenson ¹ , C. Minot ¹ , and JM. Moison ¹ ; ¹ Laboratory of Photonic and Nanostructures, Route de Nozay, , 91460 Marcoussis, France; ² Laboratoire Phlam-IRCICA, Parc Scien- tifique de la Haute Borne, 59658 Villeneuve d'Ascq, France We demonstrate discrete resonant states in functionalized coupled waveguide arrays theoretically and experimentally. Our dou- ble barrier patterning of the coupling creates tunnel resonances in the transmitted inten- sity, which paves the way towards all optical control.	Optical Injection of a 1.3um Wavelength VCSEL with Intracavity Patterning •C. Long ¹ , N. Volet ¹ , B. Dwir ¹ , V. Iakovlev ¹ , A. Sirbu ¹ , A. Mereuta ² , A. Caliman ² , G. Suruceanu ² , and E. Kapon ^{1,2} ; ¹ Ecole Poly- technique de Lausanne, Lausanne, Switzer- land; ² BeamExpress SA, Lausanne, Switzer- land We present the optical injection response of wafer-fused long wavelength VCSELs with and without intracavity patterning. Nonlin- ear responses such as limit cycle oscillations and four wave mixing are seen, and results summarized on dynamics maps.
CJ-10.6 THU 11:45	II-4.3 THU 11:45		CK-8.6 THU 11:45	CB-8.6 THU 11:45
35 kW Peak Power Picosecond Pulsed Thulium-doped Fibre Amplifier System Seeded by a Gain-Switched Laser Diode at $2 \mu m$ •A.M. Heidt ¹ , Z. Li ¹ , J. Sahu ¹ , P.C. Shardlow ¹ , M. Becker ² , M. Rothhardt ² , M. Ibsen ¹ , R. Phelan ³ , B. Kelly ³ , Su. Alam ¹ , and D.J. Richardson ¹ ; ¹ Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ² Institute of Photonic Technology, Jena, Germany; ³ Eblana Photonics Ltd., Dublin, Republic of Ireland We present the generation of picosecond pulses at 2 μm wavelength with a gain- switched laser diode and their amplification up to 3.5 μ J energy and 35 kW peak power in a Thulium-doped fiber amplifier system.	 Design and characterization of metamaterial building blocks using electric current multipoles <i>P. Grahn, A. Shevchenko, and M. Kaivola;</i> <i>Aalto University, Espoo, Finland</i> We present a general theoretical model for the design and characterization of metama- terials in terms of the electric current multi- pole moments that light excites in the struc- tural units of the material. 		Optically excited field emitter arrays with plasmonic gate electrodes as ultrafast electron sources •A. Mustonen; Paul Scherrer Institute, Villi- gen, Switzerland We propose using plasmonic structures to enhancement electron emission generated by ultrafast laser pulses applied on metal- lic field emitter arrays. By integration gate electrode that supports surface plasmon po- laritons, the device electron yield can be in- creased by 30 times.	Vertical-Cavity Surface-Emitting Laser Arrays for Miniaturized Integrated Optical Lattice Modules • A. Bergmann, A. Hein, and R. Michalzik; In- stitute of Optoelectronics, Ulm, Germany We present the fabrication of 850nm GaAs- based 2-D VCSEL arrays with small device pitch for optical trapping. The modules are wire-bondable despite a few-micrometer distance between top surface and a com- pactly integrated microfluidic chip.

ROOM 14a

²Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom We present a two-qubit quantum gate using indistinguishable photons from an InAs quantum dot. Here our emitter, optical circuitry and detectors are all semiconductor. This represents a promising avenue towards fully integrated, scalable quantum computing.

IB-6.5 THU

Implementation of a quantum Fredkin gate using an entanglement resource

11:30

11:45

•F. Ferreyrol¹, T.C. Ralph², and G.J. Pryde¹; ¹Centre for Quantum Dynamics and Centre for Quantum Computation and Communication Technology, Griffith University, Brisbane, Australia; ²Department of Physics and Centre for Quantum Computation and Communication Technology, University of Queensland, Brisbane, Australia

We experimentally realise an optical quantum Fredkin gate. We use an entanglement resource and an expanded Hilbert space technique for adding control to an arbitrary quantum operation, leading to a quite simple experimental setup.

IB-6.6 THU

Operational Significance of Discord Consumption

•T. Symul¹, H. Chrzanowski¹, A. Syed¹, P.K. Lam¹, T. Ralph², M. Gu³, K. Modi³, and V. Vedral³; ¹Australian National University, Canberra, Australia; ²University of Queensland, Brisbane, Australia; ³National University of Singapore, Singapore, Singapore We demonstrate that discord can be consumed to encode information that can only be accessed by coherent quantum interactions. We experimentally verify that the amount of information recovered is quantified by the discord consumed.

ROOM 14b

¹Optoelectronics Research Centre & Centre for Photonic Metamaterials, Southampton, United Kingdom; ²Data Storage Institute, Agency for Science, Thechnology and Research, Singapore, Singapore; ³Instituto de Química Fisica Rocasolano - Consejo Superior de Investigaciones Científicas, Madrid, Spain; ⁴Centre for Disruptive Photonic Technologies, Nanyang Technological University, Singapore, Singapore Ultrafast excitation of bimetallic plasmonic

ring resonator arrays leads to transient intense thermoelectric currents with sub-ps lifetimes and Tesla-scale magnetic fields confined at the nanoscale.

CF/IE-11.5 THU

Tracking the temporal and spectral evolution of femtosecond pulses on plasmonic nanowires

•M. Wulf, A. de Hoogh, N. Rotenberg, and K. Kuipers; FOM Institute for Atomic and Molecular Physics, Amsterdam, The Netherlands

We track the temporal and spectral dynamics of femtosecond pulses propagating along plasmonic nanowires. The group index and the propagation length are extracted and the evolution of the spectral density reveals nonlinear processes.

CLEO[®]/Europe-IQEC 2013 · Thursday 16 May 2013 4b ROOM 21 R

We report on efficient picosecond laserinduced optical dichroism in glasses with embedded spherical silver nanoparticles. The modifications depend on the beam polarization and the number of irradiated pulses per spot.

CM-6.5 THU

In-situ characterization of Fs laser shaping of quasi-percolated Ag nanoparticle layers embedded in amorphous Al2O3

G. Baraldi, •J. Gonzalo, and J. Siegel; Instituto de Optica, CSIC, Madrid, Spain

We demonstrate fs-laser induced reshaping of heterogeneous, non-spherical and randomly oriented Ag nanoparticles embedded in dielectric thin films. Optimum choice of laser fluence and polarization narrows and blueshifts the absorption band and induces polarization anisotropy.

CM-6.6 THU

11:30

Formation of disruptions in molten fused silica induced by heat accumulation of ultrashort laser pulses at high repetition rates

•S. Richter¹, F. Burmeister^{1,2}, F. Zimmermann¹, S. Döring¹, A. Tünnermann^{1,2}, and S. Nolte^{1,2}; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany; ²Fraunhofer Institute of Applied Optics and Precision Engineering, Jena, Germany

We investigate the structure and periodicity of disruptions within the heat affected material in fused silica after irradiation with ultrashort laser pulses at high repetition rates for laser welding. We propose a model, which explains their formation.

CM-6.7 THU

Fabrication of ultra-low bend loss optical waveguides

A. Arriola^{1,2,3}, S. Gross^{1,2}, N. Jovanovic^{1,4,5}, N. Charles⁶, P.G. Tuthill⁶, S.M. Olaizola³, A. Fuerbach^{1,2}, and M.J. Withford^{1,2,4}; ¹Centre for Ultrahigh-bandwidth Devices for Optical Systems (CUDOS), Sydney, Australia; ²MQ Photonics Research Centre, Dept. of Physics and Astronomy, Macquarie University, Sydney, Australia; ³CEIT and Tecnun, Donostia-San Sebastian, Spain; ⁴Research Centre in Astronomy, Astrophysics and Astrophotonics,

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ROOM 22

²Blackett Laboratory, Imperial College London, London, United Kingdom

We demonstrate a novel method to measure the complete temporal waveform of arbitrary ultrafast optical pulses, including carrier envelop phase, with attosecond temporal resolution using high harmonic generation with a few cycle pulse.

CG-5.5 THU

11:30

11:45

12:00

Circularly Polarized Attosecond Pulses for Attosecond Magnetics

11:30

11:45

•A.D. Bandrauk; Canada Research Chair,Universite de Sherbrooke, Sherbrooke, Canada

Circularly polarized attosecond pulses are obtained from molecular high order harmonic generation by circularly polarized IR pulses with Thz pulses.Such attosecond pulses create currents which generate attosecond magnetic fields inside molecules.

CG-5.6 THU

Shaping polarization of attosecond pulses via laser control of electron and hole dynamics

•F. Morales¹, I. Barth¹, V. Serbinenko¹, S. Patchkovskii², and O. Smirnova¹; ¹Max-Born-Institut for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany; ²Steaci Institute for Molecular Sciences, Ontario, Canada

We present a mechanism to control the polarization of attosecond pulses generated after HHG. It uses both the fundamental radiation and its second harmonic oriented in perpendicular geometry, both linearly polarized.

ROOM EINSTEIN

brücken, Germany; ²Laboratoire Kastler Brossel, ENS/UPMC-Paris 6/CNRS, 24 rue Lhomond, 75005 Paris, France; ³Menlo Systems GmbH, 82125 Martinsried, Germany We demonstrate room temperature coupling of a single Nitrogen-Vacancy center in a diamond nanocrystal to a fiber-based microcavity in a phonon-assisted coupling regime and hereby realize a narrow bandwidth widely tunable single photon source.

IH-4.4 THU (Invited) 11:30

Optical Nonlinearity With Few-Photon Pulses Using A Quantum Dot-Pillar Cavity Device

V. Loo^{1,2}, C. Arnold¹, O. Gazzano¹, A. Lemaître¹, I. Sagnes¹, O. Krebs¹, P. Voisin¹, P. Senellart¹, and •L. Lanco^{1,2}; ¹Laboratoire de Photonique et de Nanostructures, Marcoussis, France; ²Université Paris Diderot - Paris 7, Paris, France

We demonstrate giant optical nonlinearity in a quantum dot- cavity device, with a record threshold at 8 incident photons per pulse. Furthermore, we discuss how optical nonlinearities can be obtained at the singlephoton limit.

$\mathsf{CLEO}^{\textcircled{R}}/\mathsf{Europe-IQEC}$ 2013 \cdot Thursday 16 May 2013

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ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
14:00 - 15:30	14:00 - 15:30	14:00 - 15:30	14:00 – 15:30	14:00 - 15:30
CJ-11: Special Fibres Chair: Johannes Nold, Fraunhofer IOF, Jena, Germany	IG-4: Solitons and Dynamics in Cavities Chair: Massimo Giudici, Institut Non Linéaire de Nice, Valbonne, France	CH-6: Optical Sensor Applications Chair: Elfed Lewis, University of Limerick, Limerick, Ireland	CK-9: Integrated Photonic Devices Chair: Wolfgang Sohler, Universität Pader- born, Paderborn, Germany	CB-9: High Efficiency/High Brightness Semiconductor Lasers Chair: Gottfried Strasser, Vienna University of Technology, Vienna, Austria
CJ-11.1 THU (Invited) 14:00	IG-4.1 THU 14:00	CH-6.1 THU 14:00	CK-9.1 THU 14:00	CB-9.1 THU 14:00
 Inhibited-coupling guiding hollow core photonic crystal fibers •F. Benabid; GPPMM group, Xlim Research Institute, CNRS, Universite de Limoges, Limoges, France; Physics department, University of Bath, Bath, United Kingdom We review the recent development on inhibited-coupling guiding hollow-core photonic crystal fiber and on the physical principles that led to the unique combination of record loss figures, quasi-single mode operation and very low dispersion 	Ultra-weak acoustic interactions of temporal cavity solitons •J.K. Jang, M. Erkintalo, S.G. Murdoch, and S. Coen; The University of Auckland, Auckland, New Zealand We report on the weakest interactions ever observed between solitons. Cavity solitons recirculating in an optical fiber loop are found to shift their temporal separation by a few nanoseconds over millions of kilome- tres of propagation.	Optically Monitored Catalytic PhotonicCrystal Fibre Microreactor•A.M. Cubillas ^{1,2} , M. Schmidt ^{2,3} , T.G.Euser ¹ , B.J.M. Etzold ^{2,3} , N. Taccardi ^{2,3} ,S. Unterkofler ¹ , P. Wasserscheid ^{2,3} , andP.S.J. Russell ^{1,2,4} ; ¹ Max Planck Institute forthe Science of Light, Erlangen, Germany; ² Excellence Cluster "Engineering of Advanced Materials", Erlangen, Germany; ³ Lehrstuhl für Chemische Reaktionstechnik,University of Erlangen-Nuremberg, Erlangen,Germany; ⁴ Department of Physics, University of Erlangen-Nuremberg, Erlangen,GermanyWe demonstrate that a hollow-core photoniccrystal fibre can be turned into a catalyticallyactive microreactor by depositing metalliccatalyst nanoparticles in its core. We investigate the liquid-phase hydrogenation ofazobenzene in such a fibre.CH-6.2 THU14:15	Extremely efficient two-sectionpolarization converter for InGaAsP-InPphotonic integrated circuits•D. Dzibrou, J. van der Tol, and M. Smit;Group of Photonic Integration, EindhovenUniversity of Technology, Eindhoven, TheNetherlandsWe report fabrication and measurementsof two-section polarization converter forInGaAsP-InP photonic integrated circuits.Polarization conversion efficiency is 99.8CK-9.2 THU14:15Silicon-Organic Hybrid (SOH) IQModulator for 16-QAM at 112 Gbit/s•D. Korn ¹ , R. Palmer ¹ , H. Yu ³ , P.C.Schindler ¹ , L. Alloatti ¹ , M. Baier ¹ , R.Schmogrow ¹ , W. Bogaerts ³ , S.K. Selvaraja ³ ,G. Lepage ⁴ , M. Pantouvaki ⁴ , J. Wouters ⁴ , P.Absil ⁴ , R., Baets ³ , R. Dinu ⁵ , C. Koos ^{1,2} ,	High efficiency, 8W narrow-stripe broad-area lasers with in-plane beam-parameter-product below 2 mm mrad •P. Crump, KH. Hasler, H. Wenzel, S. Knigge, F. Bugge, and G. Erbert; Ferdinand- Braun-Institut, Leibniz-Institut für Höchst- frequenztechnik, Berlin, Germany Narrow-stripe broad-area (NBA) lasers are shown to operate simultaneously with lateral beam parameter product < 2mm mrad, con- tinuous wave output power > 7W and power conversion efficiency of 57%, as needed for industrial processing applications. CB-9.2 THU 14:15
	Observation of Vortex Soliton States in Vertical-Cavity Surface-Emitting Lasers with Feedback •J. Jimenez Garcia ¹ , Y. Noblet ¹ , P. Paulau ² , D. Gomila ³ , GL. Oppo ¹ , and T. Ackemann ¹ ; ¹ SUPA and Department of Physics, Univer- sity of Strathclyde, Glasgow, United Kingdom; ² TU Berlin, Institut für Theoretische Physik, Berlin, Germany; ³ IFISC, (CSIC-UIB), Cam- pus Universitat Illes Balears, Palma de Mal- lorca, Spain We investigate experimentally and theoreti- cally vortex soliton states in a VCSEL with frequency, selective feedback. We discuss	 Ultrasensitive Cavity Optomechanical Magnetometry E. Sheridan, S. Forstner, H. Rubinszstein- Dunlop, and W.P. Bowen; The University of Queensland, Brisbane, Australia We demonstrate a microscale room- temperature cavity optomechanical magnetometer with picoTelsa sensitivity. The sensitivity outperforms any previous room temperature magnetometer of its size. Such ultrasensitive magnetometers may have significant applications in areas such as low-field MRI. 	W. Freude ^{1,2} , and J. Leuthold ^{1,2} ; ¹ Institute of Photonics and Quantum Electronics (IPQ), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany; ² Institute of Microstructure Technology (IMT), Karlsruhe Institute of Technology (KIT), Eggenstein- Leopoldshafen, Germany; ³ Photonics Research Group, Ghent University * IMEC, Department of Information Technology, Gent, Belgium; ⁴ Imec, Leuven, Belgium; ⁵ GigOptix Inc., Bothell (WA), United States We demonstrate a non-resonant silicon- organic hybrid modulator based on CMOS technology, using the Pockels effect in an or- gonic material. We achieved a record high	 Tunable and highly brilliant laser sources at 1120 nm •K. Paschke, C. Fiebig, G. Blume, J. Fricke, F. Bugge, H. Wenzel, and G. Erbert; Ferdinand-Braun-Institut, Leibniz-Institut für Höchst-frequenztechnik, Berlin, Germany High-brilliance diode lasers at 1120nm are essential for non-linear frequency conversion to reach 560nm. We present monolithic DBR-ridge-waveguide lasers emitting up to 1W, with a tunability of 8nm using resistive heaters next to the DBR.

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ganic material. We achieved a record-high

frequency-selective feedback. We discuss

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	CLEO⊙/Eu	rope-IQEC 2015 · I nursday 10) IVIAY 2013	
ROOM 14a 14:00 – 15:30 IB-7: Fundamentals of Quantum	ROOM 14b <u>14:00 – 15:30</u> CF/IE-12: Mid Infrared and	ROOM 21Dept. of Physics and Astronomy, Macquarie University, Sydney, Australia; ⁵ Australian Astronomical Observatory (AAO), Sydney, Australia; ⁶ Sydney Institute for Astronomy (SIFA), Sydney, AustraliaWe present a novel way to fabricate low bend loss femtosecond-laser written optical waveguides permitting full-3D devices. We used a thermal annealing process to selec- tively erase zones of the initially generated refractive index modification.14:00 - 15:30CM-7: Femtosecond Laser Writing	ROOM 22 <u>14:00 – 15:30</u> CG-6: FEL and High Photon Energy	ROOM EINSTEIN <u>14:00 – 15:30</u> IH-5: Ultrafast Nanophotonics
Information Chair: Miloslav Dusek, University of Olo- mouc, Olomouc, Czech Republic	Terahertz Phenomena Chair: Giulio Cerullo, Politecnico di Milano, Milan, Italy	Chair: Roberto Osellame, Politecnico di Mi- lano, Milan, Italy	Science Chair: Laszlo Veisz, Max-Planck-Institute of Quantum Optics, Garching, Germany	Chair: Christoph Lienau, University of Old- enburg, Oldenburg, Germany
IB-7.1 THU (Tutorial) 14:00 Quantum Information Tools •K. Molmer; University of Aarhus, Aarhus, Denmark This tutorial will present an introduction to the basic ideas of quantum information processsing and an overview of candidate physical implemetations, tools and ideas pursued in quantum computing research.	CF/IE-12.1 THU14:00Temporal Slicing of Intense Multi-THzTransients Using an UltrafastSemiconductor Switch•C. Schmidt, B. Mayer, J. Bühler, D.V. Seletskiy, D. Brida, A. Pashkin, and A. Leitenstorfer, Department of Physics and Center for Applied Photonics, University of Konstanz, Konstanz, GermanyIntense multi-THz transients are temporally controlled with sub-cycle precision using an ultrafast plasma mirror. Field-resolved detection is used to monitor the results of temporal slicing.	24.00 CM-7.1 THU 14:00 Femtosecond Laser Written Photonic Circuits for Quantum Simulation • A. Crespi ¹ , R. Osellame ¹ , R. Ramponi ^{1,2} , I. Sansoni ³ , F. Sciarrino ³ , and P. Mataloni ³ ; ¹ Istituto di Fotonica e Nanotecnologie - Con- siglio Nazionale delle Ricerche, Milano, Italy; ² Dipartimento di Fisica - Politecnico di Mi- lano, Milano, Italy; ³ Dipartimento di Fisica- sapienza Università di Roma, Roma, Italy We demonstrate complex optical waveg- uide circuits, fabricated by femtosecond laser writing technology, implement- ing discrete-time quantum walks of polarization-entangled photon pairs. Tight phase control and polarization independent behaviour are shown.	CG-6.1 THU (Invited) 14:00 Non-linear FEL Science • <i>R.</i> Santra; Center for Free-Electron Laser Science, DESY, Hamburg, Germany; De- partment of Physics, University of Hamburg, Hamburg, Germany I will discuss the interaction of atoms with radiation pulses from x-ray free-electron lasers. In the studies presented, the peak in- tensity approaches 10 ¹⁸ W/cm ² and the pho- ton energy ranges from 1.5 keV to 5.5 keV.	IH-5.1 THU 14:00 Ultrafast Terahertz Dynamics of a Cold Exciton-Polariton Gas •JM. Ménard ¹ , C. Poellmann ¹ , M. Porer ¹ , E. Galopin ² , A. Lemaître ² , A. Amo ² , J. Bloch ² , and R. Huber ¹ , ¹ University of Regensburg, Regensburg, Germany; ² CNRS-Laboratoire de Photonique et Nanostructures, Marcoussis, France THz absorption of the intra-excitonic 1s-2p resonance traces the matter part of polaritons while they cool into a condensed phase. A macroscopic population of the zeromomentum state is investigated in comparison with simultaneous photoluminescence measurements.
	CF/IE-12.2 THU 14:15 Optical generation of a broadband acoustic frequency comb in the 100 GHz frequency range •M. Grossmann ¹ , O. Ristow ¹ , M. Hettich ¹ , C. He ¹ , R. Waitz ¹ , P. Scheel ¹ , A. Bruchhausen ² , M. Schubert ¹ , V. Gusev ³ , E. Scheer ¹ , and T. Dekorsy ¹ ; ¹ University of Konstanz, 78464 Konstanz, Germany; ² Instituto Balseiro \& Centro Atomico Bariloche (CNEA), and CONICET, Bariloche, Argentina; ³ Institut des Molecules et Matériaux du Mans, UMR CNRS 6283, Universite du Maine, Maine, France We demonstrate the first generation and de-	CM-7.2 THU 14:15 Anti-resonant reflecting optical waveguides (ARROW) inscribed by the femtosecond direct-write technique S. Gross, M. Alberich, A. Arriola, M.J. Withford, and A. Fuerbach; MQ Photon- ics Research Centre, Centre for Ultrahigh- bandwidth Devices for Optical Systems (CU- DOS), Dept. of Physics and Astronomy, Mac- quarie University, North Ryde, Australia We demonstrate the fabrication of anti- resonant reflecting optical waveguides (AR- ROW) using the femtosecond laser direct- wite technique. Their strongly wavelength dependent optical properties represent an		IH-5.2 THU 14:15 Ultrafast Metamaterial Optical Modulator • A. Neira, G. Wurtz, P. Ginzburg, and A. Zay- ats; King's College of London, London, United Kingdom The ultrafast third order nonlinearity of met- als is used for the design of a modulator which further enhances its effect by pattern- ing the metal as a metamaterial.

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la	ROOM 4b			R

RO	OM	13a
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112 Gbit/s using a 16QAM format.

Re-inventing Multimode Interference

Couplers Using Subwavelength Gratings •A. Ortega-Moñux¹, R. Halir¹, A. Maese-

Novo¹, C. Alonso-Ramos¹, L. Zavargo-

Peche¹, D. Pérez-Galacho¹, Í. Molina-

Fernández¹, J.G. Wangüemert-Pérez¹, P.

Cheben², J.H. Schmid², J. Lapointe², D.

 Xu^2 , and S. Janz²; ¹Dpto. de Ingeniería de

Comunicaciones, ETSI Telecomunicación,

Universidad de Málaga, Málaga, Spain;

²National Research Council Canada,

We use the concept of subwavelength grat-

ing (SWG) refractive-index-engineering to

propose and experimentally demonstrate a

reduced size, slotted 2x2 MMI coupler. We also present an ultra-broadband 2x2 MMI

coupler which is based on SWG dispersion-

single-carrier single-polarization data rate of

14:30

14:45

15:00

ROOM 13b

their bistability, properties and phase locking between a vortex and a fundamental soliton and between two vortices.

Polarization dynamics of bound state

solitons in a carbon nanotubes mode

C. Mou, •S. Sergeyev, A. Rozhin, and S. Turit-

syn; Aston Institute of Photonic Technologies,

We have demonstrated various polarization

locked erbium doped fiber laser

IG-4.3 THU

14:30

14:45

15:00

ROOM 4a

14:30

14:45

CJ-11.2 THU

High average power and high energy transport of ultrashort pulses with a low loss Kagome hollow-core photonic crystal fiber for micromachining.

ROOM 1

•G. Machinet¹, B. Debort², R. Kling¹, J. Lopez^{1,3}, F. Gerome², F. Benabid², and P. Dupriez¹; ¹Alphanov, Talence, France; ²GPPMM group XLIM, Limoges, France; ³CELIA, Talence, France

A kagome hollow-core photonic-crystalfiber transports 93μ J sub-picosecond pulses at high repetition rate. The fiber-delivered pulses are used to for micromachining on various materials and the effect of fiber delivery on material processing is investigated.

CJ-11.3 THU

Spatially coherent top-hat beam output from a large mode area microstructured single-mode fibre

•P. Calvet^{1,2}, C. Valentin¹, Y. Quiquempois¹, G. Bouwmans¹, Q. Coulombier¹, L. Bigot¹, M. Douay¹, A. Mussot¹, and E. Hugonnot²; ¹CNRS, Université Lille 1, PhLAM/IRCICA, Lille, France; ²Commissariat à l'Énergie Atomique et aux Énergies Alternatives, Centre d'Études Scientifique d'Aquitaine, Bordeaux, France

We present the first experimental demonstration of a single-mode large-mode-area fibre delivering a top-hat beam. S2measurement confirms the fibre is singlemode which is of crucial importance for many industrial applications.

CJ-11.4 THU

Depressed-Clad Large Mode Area Amplifier Fiber with Selective Doping Yielding Near Diffraction-Limited Beam Quality

•V. Roy, C. Paré, H. Zheng, P. Laperle, L. Desbiens, and Y. Taillon; Institut national d'optique, Québec, Canada

A depressed-clad LMA fiber with selective doping that yields near diffraction-limited beam quality (M2=1.1) is reported. The fiber

IG-4.4 THU

IG-4.5 THU

Dissipative soliton excitability induced by spatial inhomogeneities and drift

P. Parra-Rivas^{1,2}, •D. Gomila¹, M.A. Matías¹, and P. Colet¹; ¹IFISC, Instituto de Física Interdisciplinar y Sistemas Complejos (CSIC-UIB), Palma de Mallorca, Spain; ²Applied Physics Research Group (APHY), Vrije Universiteit Brussel, Brussels, Belgium We show that excitability is generic in systems displaying cavity solitons when spatial inhomogeneities and drift are present. Our scenario provides a general theoretical understanding of oscillatory regimes of cavity solitons reported in semiconductor microresonators.

Dynamics of the Modulational Instability

•T. Hansson, D. Modotto, and S. Wabnitz;

An analysis is made of the nonlinear dynam-

ics of the modulational instability for mi-

croresonator frequency combs described by

the mean-field Lugiato-Lefever model.

in Microresonator Frequency Combs

Università di Brescia, Brescia, Italy

15:00 CH-6.4 THU

Low-Cost Miniature Fiber Optic Extrinsic Fabry-Perot Interferometric Sensor for Cardiovascular Pressure Measurement

S. Poeggel, •D. Tosi, G. Leen, and E. Lewis; University of Limerick, Limerick, Republic of Ireland

We present a fiber optic pressure sensor based on extrinsic Fabry-Perot interferometry. The pressure probe is low-cost, biocompatible, with pressure accuracy 0.1 mmHg, CK-9.5 THU (Invited)

15:00

Integrated Photonic Devices in III-V Semiconductors for Optical Communications

•M.J. Wale; Oclaro Technology Ltd., Towcester, United Kingdom

Photonic integrated circuit (PIC) technology provides an important key to the realization of high performance communications systems. The paper will examine systems needs and show how III-V semiconductor-

CB-9.3 THU (Invited) 14:30

Efficiency droop of GaN lasers and LEDs •J. Hader^{1,2}, J. Moloney^{1,2}, and S. Koch³; ¹Nonlinear Control Strategies Inc., Tucson, United States; ²University of Arizona, Tucson, United States; ³Philipps University Marburg, Marburg, Germany

Fully microscopic many-body models are used to investigate the possible causes of the efficiency droop. It is shown that the most plausible cause is density-activated defect recombination with contributions from transport- and delocalization related processes.

CK-9.4 THU

engineering.

Ottawa, Canada

Locally induced electro-optic activity in silicon nanophotonic devices

•C. Matheisen¹, M. Nagel¹, S. Sawallich¹, M. Waldow¹, B. Chmielak², T. Wahlbrink¹, J. Bolten¹, and H. Kurz^{1,2}; ¹AMO GmbH, Aachen, Germany; ²Institute of Semiconductor Electronics, Aachen, Germany

An integrated electro-optic Mach-Zehnder modulator in silicon-nanophotonic-based technology is demonstrated using a novel CMOS-compatible process for local $\chi^{(2)}$ -induction. Photo-conductive THz near-field probes are applied to monitor the local restriction and quality of the activated areas.

CB-9.4 THU

High-power and Reliable Operation of Window-Structured 915 nm Laser Diodes with 90 μ m Aperture

15:00

•T. Nagakura, T. Morita, K. Torii, M. Takauji, J. Maeda, M. Miyamoto, and H. Yoshida; Hamamatsu Photonics K.K., Hamamatsu, Japan

We report the reliable 915 nm broad-area laser diode with 90 μ m aperture. A stable operation at 15 W over 1000 h was obtained

14:30 CK-9.3 THU

Optical Readout of Coupling Between a Nanomembrane and an LC Circuit at Room Temperature

CH-6.3 THU (Invited)

•T. Bagci¹, A. Simonsen¹, E. Zeuthen¹, J. Taylor², L.G. Villanueva³, S. Schmid³, A. Sørensen¹, A. Schliesser¹, K. Usami¹, and E.S. Polzik¹; ¹QUANTOP, Niels Bohr Institute, Copenhagen, Denmark; ²Joint Quantum Institute/NIST, Maryland, United States; ³Department of Micro-and Nanotechnology, Technical University of Denmark, DTU Nanotech, Lyngby, Denmark We demonstrate optical interferometric

We demonstrate optical interferometric readout of coupling between a mechanical resonator (nanomembrane) and a room temperature LC circuit. Our system serves as a promising candidate for sensitive optical detection of weak electrical signals.

dynamics of bound state solitons in a carbon nanotube mode locked erbium doped fiber laser. Both locked and precessing polarization states have been observed for single and

multiple bound state solitons.

Birmingham, United Kingdom

CLEO[®]/Europe-IQEC 2013 · Thursday 16 May 2013

ROOM 14a ROOM 14b ROOM 21 **ROOM 22** ROOM EINSTEIN tection of a broadband acoustic frequency avenue to dispersion engineered direct-write comb with 120 GHz central frequency and photonics. 200 GHz bandwidth in a Al/Si membrane. CF/IE-12.3 THU 14:30CM-7.3 THU 14:30 CG-6.2 THU 14:30 IH-5.3 THU 14:30 Single-shot detection of mid-infrared **Electro-optical Tuning of Waveguide** Generation of Coherent Soft X-ray Strong-field photoemitted electrons from spectra by chirped-pulse upconversion Embedded Bragg Gratings in Lithium **Radiation at High Repetition Rate** with four-wave difference frequency Niobate Induced by Direct Femtosecond •J. Rothhardt^{1,2}, S. Demmler², S. effects Hädrich², M. Krebs², J. Limpert^{1,2}, B. Piglosiewicz^{1,2}, S. Schmidt^{1,2}, D. Park^{1,2}, generation in gases Laser Writing •T. Fuji¹, Y. Nomura¹, Y.-T. Wang², A •S. Kroesen¹, U. Patel², W. Horn¹, I. and A. Tünnermann^{1,2}; ¹Helmholtz-Institute Yabushita², and C.-W. Luo²; ¹Institute Imbrock¹, and C. Denz¹; ¹University of Jena, Jena, Germany; ²Friedrich-Schillerfor Molecular Science, Okazaki, Japan; Muenster, Muenster, Germany; ²Sardar University, Jena, Germany ²National Chiao Tung University, Hsinchu, Vallbhbhai National Institute of Technology, We report on the generation of coherent China, Republic of (ROC) soft x-rays at high repetition rate. A flux Surat, India Chirped-pulse upconversion of midof 2*10^5 photons/s has been measured at We report direct integration of electroinfrared continuum with four-wave optical tunable Bragg grating waveguides 200 eV. Scaling to shorter wavelengths and difference frequency generation in gases is (BGWs) in lithium niobate by direct femhigher photon flux is discussed. Milano, Italv realized. Single-shot detection of the entire tosecond laser writing. The low loss two-We report on the first observation of mid-infrared spectrum from 250 to 5500 dimension waveguides are modulated pericm-1 is demonstrated. odically to obtain narrowband reflections in the c-band. trons around metallic nanoparticles. CF/IE-12.4 THU 14:45 CM-7.4 THU 14:45 CG-6.3 THU 14:45 IH-5.4 THU A Novel Time-Resolved mid-IR Setup for Coherent Stitching of Light in **Carrier-Envelope Phase-Dependent Ultrafast Strong-Field Photoemission** the Investigation of Vibrational Dynamics Femtosecond Laser Formed High-Harmonic Generation in the Water from Plasmonic Nanoparticles in Aqueous Nanoclusters Multi-Layered Volume Gratings

•J.C. Werhahn¹, M. Bradler², D. Hutzler¹ S. Fuhrmann¹, E. Riedle², H. Iglev¹, and R. Kienberger¹; ¹Physik-Department E11, TU München, Garching, Germany; ²LS für BioMolekulare Optik, LMU München, München, Germany

A novel mid-IR pump probe setup, tunable between 2000 and 4000 cm-1 is presented. It yields one of the shortest IR probe pulses available todav.

Measurements on ice and confined water nanoclusters will be discussed.

IB-7.2 THU

Witnessing Trustworthy Single-Photon **Entanglement with Local Homodyne** Measurements

•O. Morin¹, J.-D. Bancal², M. Ho², P. Sekatski², V. D'Auria¹, N. Gisin², J. Laurat¹, and N. Sangouard²; ¹Laboratoire Kastler Brossel, UPMC, ENS CNRS, Paris, France; ²Group of Applied Physics, University of Geneva, Geneva, Switzerland We demonstrate a novel trustworthy witness

15:00 CF/IE-12.5 THU (Invited)

Imaging ultrafast nanoscale dynamics

with a THz-pulse-coupled STM •T. Cocker¹, V. Jelic¹, M. Gupta², S. Molesky², J. Burgess¹, G. De Los Reyes¹, L. Titova¹, Y. Tsui², M. Freeman¹, and F. Hegmann¹ ¹Department of Physics, University of Al berta, Edmonton, Canada; ²Department of Electrical and Computer Engineering, University of Alberta, Edmonton, Canada We present a novel ultrafast imaging sys-

CM-7.5 THU

15:00

Direct laser writing of metastable modifications in lithium niobate crystal with ultrashort laser pulses

•M.L. Ng, D. Chanda, and P.R. Herman;

Dept. of Electrical & Computer Engineering, University of Toronto, Toronto, Canada

We propose and demonstrate a novel

method for improving diffraction efficiency

through strategic arrangement of multi-

layered weak phase gratings to coincide

with self-imaging Talbot planes. Enhanced

diffraction is demonstrated in femtosecond

laser written volume gratings.

•D. Paipulas¹, A. Čerkauskaite¹, Sirutkaitis¹, V. Mizeikis², and S. Juodkazis³; ¹Vilnius University, Laser Research Center, Vilnius, Lithuania; ²Shizuoka University, Division of Global Research Leaders, Hamamatsu, Japan; ³Swinburne University of Technology, Melbourne, Australia

Window Using a Few-Cycle Infrared Light Source

•N. Ishii¹, K. Kaneshima¹, K. Kitano¹, T. Kanai¹, S. Watanabe², and J. Itatani¹; ¹Institute for Solid State Physics, University of Tokyo, Chiba, Japan; ²Research Institute for Science and Technology, Tokyo University of Science, Chiba, Japan

We report on the generation of carrierenvelope phase-dependent high harmonics in the water window using few-cycle, phasestabilized intense infrared pulses. This observation indicates that a 50-eV-wide attosecond continuum is generated around 300 eV.

CG-6.4 THU

15:00

Beyond Carbon K-edge harmonic emission using spatially and temporally synthesized laser field

•J.A. Pérez-Hernández¹, M. Ciappina^{2,3}, M. Lewenstein^{3,4}, L. Roso¹, and A. Zaïr⁵; ¹Centro de Láseres Pulsados (CLPU), Salamanca, Spain; ²ICFO-Institut de Ciènces Fotòniques, Barcelona, Spain; ³Auburn University, Alabama, United States; ⁴ICREA-Institució Catalana de Recerca i Estudis

metallic tips show carrier-envelope phase

J. Vogelsang^{1,2}, •P. Groß^{1,2}, C. Manzoni³, P. Farinello³, G. Cerullo³, and C. Lienau^{1,2}; ¹Institut für Physik, Carl von Ossietzky Universität, Oldenburg, Germany; ²Center of Interface Science, Carl von Ossietzky Universität, Oldenburg, Germany; ³IFN-CNR, Dipartimento die Fisica, Politecnico di Milano,

pronounced carrier-envelope-phase effects on strong-field photoemission of electrons from nanometric gold tips and present a new way to steer and control the motion of elec-

14:45

15:00

•P. Dombi^{1,2}, A. Hörl³, P. Rácz¹, I. Márton¹, A. Trügler³, J.R. Krenn³, and U. Hohenester³; ¹Wigner Research Centre for Physics, Budapest, Hungary; ²Max-Planck-Institut für Quantenoptik, Garching, Germany; ³Institut für Physik, Karl-Franzens-Universität, Graz, Austria

We demonstrate strong-field electron emission from various plasmonic nanoparticles induced by ultrashort laser pulses. Significant electric field enhancement attributed to surface plasmons enable the generation of up to 25-eV electrons in nano-localized fields around nanoparticles.

IH-5.5 THU

15:00

Ultrafast dynamics of quantum confined carriers in a single CdSe nanowire

•T. Schumacher^{1,2}, H. Giessen², and M. Lippitz^{1,2}; ¹Max Planck Institute for Solid State Research, Heisenbergstrasse1, D-70569 Stuttgart, Germany; ²4th Physics Institute, University of Stuttgart, Pfaffenwaldring 57, D-70550 Stutteart, Germany

Nonlinear spectroscopy allows us to track for the first time the decay and re-emission

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ROOM 1	ROOM 4a	ROOM 4b	ROOM 13a	ROOM 13b
effective mode area could possibly be scaled over 1000micron2 and still allow for reason- ably good beam quality.		with tiny pressure drift. System characteri- zation on simulated cardiovascular system is presented.	based PICs enable these to be addressed.	by optimized window structure.
25.15 25.15	IG-4.6 THU 15:15 Nonlinear dynamics of optoeletronic oscillators based on whispering-gallery mode resonators • A. Coillet, R. Henriet, P. Salzenstein, K. Phan-Huy, L. Larger, and Y. Chembo; FEMTO-ST, Besançon, France We propose a nonlinear dynamics frame- work to study the stability and transient be- havior of an optoelectronic oscillator based on whispering-gallery mode resonators. Ex- perimental results are provided and success- fully compared to numerical simulations.	 CH-6.5 THU 15:15 Stabilized high-power laser for gravitational wave detection C. Bogan¹, K. Danzmann¹, M. Frede², H. Kim¹, P. King³, P. Kwee¹, J. Poeld¹, O. Puncken², R. Savage³, F. Seifert¹, P. Wessels², I. Winkelmann², and B. Willke¹; ¹Albert Finstein-Institut, Hannover, Germany; ²Laser Zentrum Hannover e.V., Hannover, Germany; ³LIGO Laboratory, California Institute of Technology, Pasadena, United States Advanced gravitational wave detectors have stringent requirements concerning the frequency and the power stabilization of their 200 W laser sources. We demonstrate how these were fulfilled using a combination of several active and passive stabilization of schemes. 		CB-9.5 THU 15:15 Aluminium Free Active Region 780nm Tapered Semiconductor Optical Amplifiers for Rubidium Pumping A. Jammot, J. Bebe, M. Lamponi, Y. Robert, E. Vinet, M. Lecomte, M. Garcia, O. Parillaud, an 4. Krakowski; III-V Lab, Palaiseau, <i>France</i> We present a new tapered Semiconductor Optical Amplifier (SOA) structure, based on an Al free active region and entirely gain guided, that exhibits more than 600mW out- put power at a wavelength of 780nm.
16:00 – 17:30 CJ-12: Novel Waveguide Materials Chair: Annamaria Cucinotta, University of Parma, Parma, Italy	16:00 – 17:30 IG-5: Rogue Waves, Extreme Events and Nonlinear Wave Dynamics Chair: Philippe Grelu, Université de Bour- gogne, Dijon, France	16:00 – 17:15 CH-7: Frontiers of Optical Sensing Chair: Hanne Ludvigsen, Aalto University, Aalto, Finland	16:00 – 17:30 CK-10: Micro-optics and Integrated Sensors Chair: Marco Marangoni, Politecnico di Mi- lano, Milan, Italy	16:00 – 17:30 CB-10: Disk and Mid-Infrared Semiconductor Lasers Chair: Michael J. Strain, University of Glas- gow, Glasgow, United Kingdom
CJ-12.1 THU16:00Phosphate Glass Core and Silica Cladding Laser Fiber.B. Denker ¹ , B. Galagan ¹ , V. Kamynin ¹ , A. Kurkov ¹ , Y. Sadovnikova ¹ , •S. Semenov ² , S. Sverchkov ¹ , V. Velmiskin ² , and E. Dianov ² ; ¹ A.M.Prokhorov General Physics Institute, Moscow, Russia; ² Fiber Optics Research Cen- (1)	IG-5.1 THU16:00Rogue incidents in the optical eventhorizon•A. Demircan ¹ , S. Amiranashvili ² , C.Brée ² , C. Mahnke ³ , F. Mitschke ³ , and G.Steinmeyer ⁴ ; ¹ Invalidenstr. 114, Berlin,Germany; ² Weierstrass Institute for AppliedAnalysis and Stochastics (WIAS), Berlin, O_{10} <t< td=""><td> CH-7.1 THU 16:00 High-spatial resolution second-harmonic interferometry: a robust method towards quantitative phase imaging of transparent dispersive materials •F. Brandi¹, F. Conti^{2,3}, M. Tiberi^{2,3}, F. Giammanco^{2,3}, and A. Diaspro¹; ¹Istituto Italiano di Tecnologia, Genova, Italy; </td><td>CK-10.1 THU16:00High-Sensitivity Monitoring of Nanomechanical Motion using Optical Heterodyne Detection•S. Mueller^{1,2}, S. Weis¹, and T. Kippenberg¹; ¹École Polytechnique Fédérale de Lau- sanne, Lausanne, Switzerland; ²Ludwig- Maximilians-UniversitätMin. de Detection</td><td>CB-10.1 THU16:00Narrow Linewidth UltravioletSemiconductor Disk Laser• D. Paboeuf, P.J. Schlosser, and J.E. Hastie; In- stitute of Photonics, University of Strathclyde, Glasgow, United KingdomWe present frequency stabilisation of an AlGaInP-based red-emitting semiconduc- termination of the set of the set</td></t<>	 CH-7.1 THU 16:00 High-spatial resolution second-harmonic interferometry: a robust method towards quantitative phase imaging of transparent dispersive materials •F. Brandi¹, F. Conti^{2,3}, M. Tiberi^{2,3}, F. Giammanco^{2,3}, and A. Diaspro¹; ¹Istituto Italiano di Tecnologia, Genova, Italy; 	CK-10.1 THU16:00High-Sensitivity Monitoring of Nanomechanical Motion using Optical Heterodyne Detection•S. Mueller ^{1,2} , S. Weis ¹ , and T. Kippenberg ¹ ; ¹ École Polytechnique Fédérale de Lau- sanne, Lausanne, Switzerland; ² Ludwig- Maximilians-UniversitätMin. de Detection	CB-10.1 THU16:00Narrow Linewidth UltravioletSemiconductor Disk Laser• D. Paboeuf, P.J. Schlosser, and J.E. Hastie; In- stitute of Photonics, University of Strathclyde, Glasgow, United KingdomWe present frequency stabilisation of an AlGaInP-based red-emitting semiconduc- termination of the set

Germany; ³Institute for Physics, University of Rostock, Rostock, Germany; ⁴Max-Born-Institute (MBI), Berlin, Germany Dispersive radiation captured in the optical

event horizon of a soliton may induce severe reshaping of the latter, significantly increasing its peak power. This effect contributes to

ter, Moscow, Russia

ing into Yb absorption band.

Fabrication and tests of a composite fiber

prepared by melting Yb-Er phosphate glass in a silica cladding are presented. 1.54 μ m

lasing was demonstrated under core pump-

²Università degli Studi di Pisa, Pisa, Italy; ³Plasma Diagnostics & Technologies Ltd., Pisa, Italy

We present a novel method, based on a compact fiber coupled second-harmonic interferometer, for high sensitivity and fast measurements of chromatic dispersion with miMünchen, Germany

We demonstrate the application of heterodyne detection to readout the motion of a nanomechanical mode. The down-mixing of nanomechanical frequencies enables the use of high-sensitivity detectors providing unsurpassed measurement sensitivity for the tor disk laser with intracavity second harmonic generation for highly coherent, tunable ultraviolet emission. Spectral linewidth <25kHz at 339nm is achieved, relative to a reference cavity.

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tem capable of unprecedented simultane-We report on photorefractive modification Avançats, Barcelona, Spain; ⁵Imperial Colfor single-photon entanglement based only ous nanometer spatial resolution (2 nm) and lege London, London, United Kingdom on local homodyne measurements. This opcreation in three-dimensional space of pure We investigate how the combination of temerational test is well suited for quantum netsubpicosecond temporal resolution (500 fs) and iron-doped lithium niobate crystals based on coupling terahertz pulses to a scanwith femtosecond laser pulses. We demonporal and spatial laser field synthesis results works, and highlights the potential of the opning tunnelling microscope. strate how modifications can be locally or in a dramatic cut-off extension far beyond globally modified using the same laser beam. the semi-classical limit. Our scheme allows coherent XUV photons generation beyond the carbon K-edge CG-6.5 THU 15:15 CM-7.6 THU 15:1515:15Observation of Spectral Gouy Shift in Spectral chracterization of fully phase Bell Violation with Entangled Photons, Free of the Fair-Sampling Assumption •M. Giustina^{1,2}, A. Mech^{1,2}, S. Ramelow^{1,2}, B. Wittmann^{1,2}, J. Kofler^{1,3}, J. Beyer⁴, A. Lita⁵, B. Calkins⁵, T. Gerrits⁵, S.W. Nam⁵, femtosecond laser pulse written Volume matched high harmonics generated in a hollow waveguide for free electron laser Bragg Gratings •D. Richter¹, C. Voigtländer¹, R.G. Krämer¹, seeding J.U. Thomas¹, A. Tünnermann^{1,2}, and •F. Ardana-Lamas^{1,2}, A. Trisorio¹, G. S. Nolte^{1,2}; ¹Institute of Apllied Physics, Lambert³, B. Vodungbo³, V. Malka³, P. R. Ursin¹, and A. Zeilinger^{1,2}; ¹Institute Zeitoun³, and C. Hauri^{1,2}; ¹Paul Scherrer for Quantum Optics and Quantum Infor-Friedrich-Schiller-Universität Jena, Jena, mation, Vienna, Austria; ²Quantum Op-Germany; ²Fraunhofer Institute for Applied Institute, Villigen PSI, Switzerland; ²École Polytechnige Fédérale de Lausanne, Lautics, Quantum Nanophysics, Quantum In-Optics and Precision Engineering, Jena, formation, University of Vienna, Faculty of sanne, Switzerland; ³Laboratoire d'Optique Germanv Physics, Vienna, Austria; ³Max Planck In-Appliquée, ENSTA-CNRS-Polytechniqe, We present our observation of the spectral stitute of Quantum Optics (MPQ), Garch-Gouy shift when probing a VBG with a fiber. Palaiseau, France ing, Germany; ⁴Physikalisch-Technische Bun-While varying the distance between fiber Development of high brilliance high-order desanstalt, Berlin, Germany; ⁵National Inand grating the central wavelength of the reharmonic sources is fundamental for FEL stitute of Standards and Technology (NIST), flection signal shifts. seeding. In this paper we present a fully phase-matched high harmonic source that delivers 10¹⁰ photons/second with photon Using superconducting transition-edge sensors and a photon pair source based on sponenergies up to 160 eV. taneous parametric downconversion, we present the first demonstration of a Bell experiment using photons for which the wellknown fair-sampling (or detection) loophole 16:00 - 17:30 16:00 - 17:30 16:00 - 17:30

16:00 - 17:30**IB-8: Quantum State**

was closed.

Characterization

Boulder, CO, United States

Chair: Mohamed Bourennane, Stockholm University, Stockholm, Sweden

ROOM 14a

tical hybrid approach.

IB-7.3 THU

IB-8.1 THU

Experimental Demonstration of Adaptive Ouantum State Estimation

16:00

•S. Takeuchi^{1,2}, R. Okamoto^{1,2}, M. Iefuji^{1,2}, S. Oyama^{1,2}, K. Yamagata³, H. Imai⁴, and A. Fujiwara³; ¹R.I.E.S., Hokkaido University, Sapporo, Japan; ²I. S. I. R., Osaka University, Osaka, Japan; ³Dept. Mathematics, Osaka Univ., Osaka, Japan; ⁴University of Pavia, Pavia, Italy

The first experimental demonstration of adaptive quantum state estimation (AQSE) is reported. The angle of linear polarization of single photons is estimated using AQSE, and the strong consistency and asymptotic

CF/IE-13: Charge Dynamics in

Solids Chair: Christoph Lienau, University of Oldenburg, Oldenburg, Germany

CF/IE-13.1 THU (Invited) 16:00

Ultrafast Electronic Charge Dynamics in Solids Mapped by Femtosecond X-ray Diffraction

•T. Elsaesser¹, F. Zamponi¹, P. Rothhardt¹, J. Stingl¹, B. Freyer¹, M. Woerner¹, and A. Borgschulte²; ¹Max-Born-Institute, Berlin, Germany; ²EMPA, Duebendorf, Switzerland Transient electron density maps and the interplay of electron and lattice motions in ionic materials are studied by x-ray powder diffraction with laser-driven hard x-ray sources providing a 100-fs time resolution.

CM-8: Laser Processing from

Polymers to Fibres Chair: Maria Farsari, IESL-FORTH, Herak-

lion, Crete, Greece

CM-8.1 THU

High Resolution Single-Pulse Multiphoton Polymerisation using a Digital Multimirror Device

•B. Mills, J. Grant-Jacob, M. Feinaeugle, and R. Eason; Optoelectronics Research Centre, Southampton, United Kingdom

We present a rapid and high resolution approach to multiphoton polymerisation, achieved through spatial intensity patterning by a digital multimirror device. Regions of ~30um have been polymerised by a single 150fs pulse, with sub-micron resolution.

CG-7.1 THU

Germany

16:00

Electron rescattering in photoemission from metal tips as a nanoscale probe of near-field enhancement

CG-7: Field Driven Interactions

Chair: Robin Santra, CFEL, DESY, Hamburg,

•S. Thomas¹, M. Krüger¹, M. Förster¹, and P. Hommelhoff^{1,2}; ¹Max Planck Institute of Quantum Optics, Garching, Germany; ²University of Erlangen-Nuremberg, Erlangen, Germany

We measure the strength of optical near-field enhancement at metal nanotips by studying electron rescattering, a phenomenon wellknown from attosecond science. The experimental results agree well with Maxwell simulations.

ROOM EINSTEIN

of excitations in a single CdSe nanowire. We further discuss an optical nanoantenna to improve the signal.

IH-5.6 THU

Switching spontaneous emission in microcavities in the time domain

15:15

16:00

•H. Thyrrestrup¹, A. Hartsuiker¹, J.-M. Gérard², and W.L. Vos¹; ¹Complex Photonics Systems (COPS), MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ²CEA/INAC/SP2M, Nanophysics and Semiconductor Laboratory, 17 rue des Martyrs, Grenoble Cedex, France We have theoretically studied the excited state population and emitted intensity dynamics for an emitter whose decay rate is manipulated in time, faster than its it stationary decay time, and observe intriguing strongly non-exponential decays.

16:00 - 17:30

IH-6.1 THU

IH-6: Quantum Dots. Optical Forces

Chair: Mete Atature, University of Cambridge, Cambridge, United Kingdom

16:00

Magneto-optical spectroscopy of charged CdSe nanocrystals

•P. Tamarat^{1,2}, M.J. Fernée^{1,2}, C. Sinito^{1,2}, Y. Louyer³, and B. Lounis^{1,2}; ¹University of Bordeaux, LP2N, Talence, France; ²Institut d'Optique & CNRS, LP2N, Talence, France; ³University of Bordeaux, LOMA, Talence, France

A CdSe core-shell nanocrystal is engineered to efficiently ionize at cryogenic temperatures resulting in trion emission. The finite nanometre size of the nanocrystals introduces an acoustic phonon bottleneck, inhibiting spin relaxation.

ROOM 22

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ROOM 1

CJ-12.2 THU

An ion-exchanged Thulium-doped germanate glass channel waveguide laser operating near 1.9 micron

P. Kannan, •A. Choudhary, J. Mackenzie, X. Feng, and D. Shepherd; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

We demonstrate for the first time to our knowledge, an ion-exchanged Tm:germanate glass channel waveguide laser. Lasing was observed near 1.9 micron with an incident threshold power of 83mW and a propagation loss of 0.3dB/cm.

CJ-12.3 THU

Thulium-doped Yttria Planar Waveguide Laser Grown by Pulsed Laser Deposition •J. Szela, K.A. Sloyan, T.L. Parsonage, J.I.

Mackenzie, and R.W. Eason; Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom

We demonstrate the first crystalline Tm:Y2O3 planar waveguide laser fabricated by pulsed laser deposition. Lasing at 1951nm, 35mW was obtained for 600mW of incident 797nm Ti:sapphire pump, with a 9% slope efficiency.

CJ-12.4 THU

High Gain, Short Length Optical Amplifier in Heavily Doped Phosphate Glass for Miniature Optics.

•T.T. Fernandez¹, J. del Hoyo¹, V. Berdejo², A. Ruiz de la Cruz¹, A. Ferrer³, I. Ortega-Feliu⁴, J.A. Vallés², M.A. Rebolledo², and J. Solís¹; ¹Laser Processing Group, Instituto de Óptica (CSIC), Madrid, Spain; ²Departamento de Física Aplicada 13A, Facultad de Ciencias, Universidad de Zaragoza,

IG-5.3 THU 16:30

filamentation.

Experimental and numerical study of the predictability of rogue waves in semiconductor lasers

ROOM 4a

16:15

ing.

CH-7.2 THU

nanotubes

the formation of optical rogue waves.

Rogue Waves in the Beam Profiles of

•S. Birkholz¹, C. Brée^{1,2}, A. Demircan³, E.T.J. Nibbering¹, S. Skupin^{4,5}, G. Genty⁶,

and G. Steinmeyer^{1,6}; ¹Max-Born-Institut

für Nichtlineare Optik und Kurzzeit-

spektroskopie (MBI), Berlin, Germany;

²Weierstraß-Institut für Angewandte

Analysis und Stochastik, Berlin, Germany;

³Invalidenstraße 114, Berlin, Germany;

⁴Max Planck Institute for the Physics of

Complex Systems, Dresden, Germany;

⁵Friedrich Schiller University, Institute

of Condensed Matter Theory and Optics,

Jena, Germany; ⁶Tampere University of

A novel scenario of optical rogue-wave for-

mation is reported. In contrast to fiber-

optical rogue waves, mechanical turbulence

is identified as the driver for the emergence of waves with extreme amplitudes in optical

Technology, Tampere, Finland

IG-5.2 THU

Multifilaments

16:15

•J. Zamora-Munt¹, B. Garbin², S. Barland², M. Giudici², J.R. Rios Leite³, C. Masoller⁴, and J.R. Tredicce^{3,5}; ¹IFISC (CSIC-UIB), Campus Universitat Illes Balears, Palma de Mallorca, Spain; ²Universite de Nice Sophia Antipolis, Institut Non-Lineaire de Nice, Valbonne, France; ³Departamento de Fisica, Universidade Federal de Pernambuco, Recife, Brazil; ⁴Departament de Fisica i Enginyeria Nuclear, Universitat Politecnica de Catalunya, Terrassa, Spain; ⁵Universite de la Nouvelle Caledonie - Pole Pluridisciplinaire de la Matiere et del Énvironnement. Nouvelle Caledonie, New Caledonia

Rogue waves in a semiconductor laser with optical injection are demonstrated experimentally and numerically. We show that the extreme pulses are predictable and that noise plays an important role in controlling their appearance

IG-5.4 THU

16:45

Competing Wave-Breaking Mechanisms in Second Harmonic Generation •M. Conforti¹, F. Baronio¹, and S. Trillo²;

ROOM 4b crometer resolutions. An outlook is given

towards quantitative phase dispersion imag-

nano-optomechanical vectorial coupling

•A. Gloppe¹, P. Verlot¹, E. Dupont-Ferrier¹,

A. Kuhn¹, B. Pigeau¹, S. Rohr¹, A. Siria²,

P. Poncharal², P. Vincent², G. Bachelier¹,

and O. Arcizet¹; ¹Institut Néel, CNRS, Uni-

versité Joseph Fourier, Grenoble, France;

²Laboratoire de Physique de la Matière Con-

We investigate the nano-optomechanical

properties between a nanowire and a fo-

cused beam of light. Based on such a system,

we report unprecedently sensitive vectorial

detection of nanomechanical motion using

SiC nanowires and Carbon nanotubes.

densée et Nanostrctures, Lyon, France

Quantum-limited, cavity-free

with SiC nanowires and Carbon

ROOM 13a

GHz frequency domain.

CK-10.2 THU

16:15

Broad-spectral-range synchronized flat-top arrayed-waveguide grating applied in a 225-channel cascaded spectrometer

•B.I. Akca¹, C.R. Doerr², G. Sengo¹, K. Wörhoff¹, M. Pollnau¹, and R.M. de Ridder¹; ¹Integrated Optical MicroSystems Group, MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ²Acacia Communications, Inc.,, Maynard, United States

We demonstrate a new pass-band flattening method by introducing 3-dB balanced couplers to a Mach Zehnder-synchronized arrayed waveguide grating (AWG) configuration over a broad spectral range.

CB-10.2 THU

High-efficiency yellow VECSEL with an output power of about 12 W

16:15

ROOM 13b

•E. Kantola, T. Leinonen, S. Ranta, M. Tavast, and M. Guina; Optoelectronics Research Centre, Tampere University of Technology, Tampere, Finland

We report a high power (11.7 W) yelloworange VECSEL emitting around 589 nm. The conversion efficiency from pump to yellow radiation was about 19 %. The output power was limited by the pump available.

CK-10.3 THU

Flat-focal-field Integrated Spectrometer Using a Field-flattening Lens

•B.I. Akca, G. Sengo, M. Pollnau, A. Driessen, K. Wörhoff, and R.M. de Ridder; Integrated Optical MicroSystems Group, MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands In this work, an alternative way of designing a flat-focal-field arrayed-waveguide grating using an integrated field-flattening lens is presented

CB-10.3 THU

Modeless highly coherent Frequency-shifted-feedback Vertical External Cavity Surface Emitting Laser

•M. Sellahi¹, I. Sagnes², G. Beaudoin², M. Myara¹, and A. Garnache¹; ¹IES-CNRS UMR5214, Université de Montpellier 2, Montpellier, France; ²LPN-CNRS, Marcoussis, France

We demonstrate the 1rst broadband modeless Frequency Shifted Feedback laser based on VeCSEL technology. It exhibits TEM00 operation with 300 Ghz bandwidth, linear polarization and 30 mW output power in Continuous wave operation.

sensitivity imaging

_____ 168

•W. Glastre, O. Jacquin, O. Hugon, H. Guillet de Chatellus, and E. Lacot; Laboratoire Interdisciplinaire de Physique, Saint Martin

On-Chip Collimated Planar Free Space Gaussian Beams utilising Optical Lenses on a Silicon on Insulator Chip

•G. Ren, T.G. Nguyen, and A. Mitchell; CU-DOS, School of Electrical and Computer En-

CB-10.4 THU

Mid-IR Quantum Dot VECSEL

•A. Khiar, M. Witzan, A. Hochreiner, M. Eibelhuber, T. Schwarzl, and G. Springholz; Johannes Kepler University, 4040 Linz, Austria

CH-7.3 THU 16:30 16:30 Bicell fiber optics homodyne phase demodulator - experimental results. Z. Holdynski^{1,2}, •I. Merta¹, T. Nasilowski^{1,2}, and L. Jaroszewicz¹; ¹Military University of Technology, Warsaw, Poland; ²InPhoTech Ltd, Warsaw, Poland We report novel possibility of phase demodulation using bicell photodetector. Homodyne fiber demodulator reconstruct widely frequency shifted different types of signals. Proposed setup highly limited data processing and enable extreme measurement precision. CH-7.4 THU 16:45 CK-10.4 THU Acoustically tagged photons for ultimate 16:45

16:15

16:30

16:45



16:45

16:30

		urope-IQEC 2013 · Thursday 1	6 May 2013	
ROOM 14a predicted mathematically are ver-	ROOM 14b	CM-8.2 THU 16:15	CG-7.2 THU 16:15	ROOM EINSTEIN
ntal Characterization of Cluster ng Fibre Sources <i>A. Tame², A. Clark³, A. McMillan¹,</i> <i>W. Wadsworth⁴, and J. Rarity¹;</i> y of Bristol, Bristol, United King- perial College London, London, ngdom; ³ University of Sydney, Syd- ralia; ⁴ University of Bath, Bath, ngdom tonic crystal fibre sources of pho- we characterize entangled states of four photons, locally equivalent to tes, which we use to demonstrate a for measurement based quantum 3.		The effect of porosity on cell ingrowth in 3D laser-fabricated biodegradable scaffolds for bone regeneration <i>P. Danilevicius</i> ¹ , <i>L. Georgiadi</i> ^{1,2} , <i>F. Claeyssens</i> ³ , <i>C. Paterman</i> ³ , <i>M.</i> <i>Chatzinikoloaidou</i> ^{1,2} , and •M. Farsari ¹ ; ¹ IESL-FORTH, Heraklion, Greece; ² Department of Materials Science and Technology, University of Crete, Heraklion, Greece; ³ Kroto Research Institute, University of Sheffiled, Sheffield, United Kingdom We demonstrate the fabrication by Direct Laser Writing of 3D biodegradable scaffolds with different pore sizes. We investigate the material biodegradability and effect of scaf- fold porosity on cell adhesion and prolifera- tion using mouce pre-osteoblastic cells.	Multidimensional High Harmonic Spectroscopy •V. Serbinenko and O. Smirnova; Max Born Institute, Berlin, Germany We consider high harmonic generation in orthogonally polarized fundamental and weak multicolor fields as multidimensional pump-probe spectroscopy. We present an- alytical approach, which extracts informa- tion about electron subcycle dynamics di- rectly from the modulation of HHG signal.	Blinking suppression and biexcitonic emission D. Canneson ¹ , L. Biadala ¹ , S. Buil ¹ , •X. Quélin ¹ , C. Javaux ² , B. Dubertret ² , and JP. Hermier ^{1,3} ; ¹ Université de Versailles Saint-Quentin - GEMaC, Versailles, France; ² ESPCI - LPEM, Paris, France, ³ Institut Uni- versitaire de France, Paris, France Intensity fluctuations of thick shell CdSe/CdS nanocrystals are studied between room temperature. The statistic of the emission is determined, as well as the Quantum Yield and the lifetime of the trion and the charged biexciton.
HU 16:30 ntal state estimation for spatial erski ^{1,2} , K. Johnsen ¹ , C. Scarcella ³ , ¹ , K. Shalm ¹ , S. Tisa ⁴ , A. Tosi ³ , , and T. Jennewein ¹ ; ¹ Institute	CF/IE-13.2 THU16:30Ultrafast Non-Thermal ElectronDynamics in Single Layer Graphene•D. Brida ¹ , C. Manzoni ² , G. Cerullo ² , A.Tomadin ³ , M. Polini ³ , R.R. Nair ⁴ , A.K.Geim ⁴ , K.S. Novoselov ⁴ , S. Milana ⁵ , A.	CM-8.3 THU16:30Laser 3D nanostructuring of polymers: mechanisms study and targeted applications•M. Malinauskas ¹ , A. Zukauskas ¹ , G. Seniutinas ^{2,3} , D. Paipulas ¹ , V. Sirutkaitis ¹ , Lastrageter and the second state of the second stat	CG-7.3 THU16:30Interrupted virtual single-photon transition•J. Herrmann ¹ , M. Weger ¹ , R. Locher ¹ , M. Sabbar ¹ , P. Rivière ^{2,3} , U. Saalmann ³ , JM. Rost ³ , L. Gallmann ¹ , and U. Keller ¹ ; L. Gallmann ¹ , and U. Keller ¹ ;	IH-6.3 THU 16:30 Evidence of macroscopic coherence at room temperature: Rabi oscillation induced pulse break-up in a quantum dot amplifier M. Kolarczik ¹ , •N. Owschimikow ¹ , Y. M. Kolarczik ¹ , •N. Owschimikow ¹ , Y. M. Kolarczik ¹ , •N. Owschimikow ¹ , Y.

D. Hamel¹, K. Shalm¹, S. Tis K. Resch¹, and T. Jennewein¹; ¹Institute for Quantum Computing, University of Waterloo, Waterloo, Canada; ²Institute of Physics, Nicolaus Copernicus University, Torun, Poland; ³Politecnico di Milano, Dipartimento di Elettronica e Informazione, Milano, Italy; ⁴Micro Photon Device, Bolzano, Italy

An estimation of a spatially encoded qubit state is demonstrated by implementing a 28element quantum measurement using an array of detectors and carefully designed imaging optics.

IB-8.4 THU

efficiency pr ified.

IB-8.2 TH

Experiment States using •B. Bell¹, M.

R. Nock¹, V

¹University

dom; ²Impe

United Kinge

ney, Austral United Kinge

Using photo

ton pairs, we

three and for

cluster states

logic gates for computing.

IB-8.3 TH

Experiment qubits •P. Kolender:

Experimental Analysis of Qudit Entangled States using the time-energy degree of freedom •D.L. Richart^{1,2}, W. Laskowski^{1,2,3}, Y. Fischer^{1,2}, and H. Weinfurter^{1,2}; ¹Max

16:45

Geim⁴, K.S. Novoselov⁴, S. Milana⁵, A Lombardo⁵, and A.C. Ferrari⁵; ¹University of Konstanz, Konstanz, Germany; ²Politecnico di Milano, Milano, Italy; ³NEST, Scuola Normale Superiore, Pisa, Italy; ⁴University of Manchester, Manchester, United Kingdom; ⁵University of Cambridge, Cambridge, United Kingdom

We study the ultrafast dynamics of nonthermal electron relaxation in graphene upon impulsive excitation. The 10-fs resolution two-color pump-probe allows us to observe non-equilibrium electron relaxation at early times unveiling Auger processes and charge multiplication.

CF/IE-13.3 THU

Femtosecond Low-Energy Dynamics of a Charge Density Wave in TiSe₂ •M. Porer¹, J.-M. Ménard¹, H. Dachraoui², U. Leierseder¹, K. Groh¹, J. Demsar³, U. Heinzmann², and R. Huber¹; ¹Department

CM-8.4 THU

16:45

Initiator-Free Multiphoton Polymerization for 3D Nanostructure Fabrication

•A. Giakoumaki^{1,2}, E. Kabouraki^{1,3}, M. Vamvakaki^{1,3}, and M. Farsari¹; ¹IESL-

CG-7.4 THU

our theoretical study.

Optical Response of Electron Wave-packet Interference Revisited

•M. Lucchini, J. Herrmann, A. Ludwig, M. Sabbar, R. Locher, L. Gallmann, and U. Keller: Department of Physics, Institute of

¹Department of Physics, Institute of Quan-

tum Electronics, ETH Zurich, Zürich,

Switzerland; ²Departamento de Química,

Universidad Autónoma de Madrid, Madrid,

Spain; ³Max Planck Institute for the Physics

We report optical gain created by the in-

terruption of the temporal evolution of the

dipole response of a quantum-mechanical

two-level system. A transient absorption ex-

periment in helium confirms the results of

of Complex Systems, Dresden, Germany

IH-6.4 THU

16:45

A Transformation-Optical Approach to Enhance Optical Gradient Forces with Metamaterials

•V. Ginis¹, P. Tassin², C.M. Soukoulis², and I. Veretennicoff¹; ¹Vrije Universiteit Brus-

Seniutinas^{2,3}, D. Paipulas¹, V. Sirutkaitis¹, and S. Juodkazis^{2,3}; ¹Laser Research Center, Department of Quantum Electronics, Physics Faculty, Vilnius University, Vilnius, Lithuania; ²Micro-Photonics Centre, Engineering and Industrial Sciences Faculty, Swinburne University of Technology, Melbourne, Australia; ³Melbourne Centre for Nanofabrication, 151 Wellington Road, Clayton, Melbourne, Australia

We present recent study on high-precision direct laser fabrication of polymers focussing on light matter interaction mechanisms at nanoscale: multiphoton absorption, avalanche ionization and thermal effects. We show possible applications in integrated microoptics and biomedicine.

16:45

_____ 169 _____

n dot

M. Kolarczik¹, $\bullet N$. Owschimikow¹, Y. Kaptan¹, U. Woggon¹, J. Korn², B. Lingnau², *E.* Schöll², and K. Lüdge²; ¹Institut für Optik und Atomare Physik, Technische Universität Berlin, Berlin, Germany; ²Institut für Theoretische Physik, Technische Universität Berlin, Berlin, Germany

Intense laser pulse propagating through an inverted quantum dot ensemble develop a periodic modulation of their temporal envelope. Numerical simulations confirm that this signature is consistent with optically induced Rabi oscillations in the material system.

16:45

CLEO[®]/Europe-IQEC 2013 · Thursday 16 May 2013

ROOM 1

Zaragoza, Spain; ³Ultrafast Dynamics Group, Institute for Quantum Electronics, ETH Zurich, Zurich, Switzerland; ⁴Centro Nacional de Aceleradores, Universidad de Sevilla, Sevilla, Spain

We demonstrate high gain waveguides written in heavily doped (Er,Yb) La-Al-P glass. Combining high repetition rate, slit shaping and glass composition optimization, we fabricated a 5.1 dB/cm short waveguide (1,7 cm) lasing at 1534 nm.

CJ-12.5 THU

Visible laser operation of Pr,Mg:SrAl₁₂O₁₉ waveguides

•F. Reichert¹, T. Calmano¹, S. Müller¹, D.-T. Marzahl¹, P.W. Metz¹, and G. Huber^{1,2}; ¹Institut of Laser-Phyics, Hamburg, Germany; ²The Hamburg Centre for Ultrafast Imaging, Hamburg, Germany

We present green, red, and deep-red laser operation of fs-laser-written waveguides inscribed in bulk Pr,Mg:SrAl₁₂O₁₉ material. Output powers of 36mW, 1065mW, and 504mW were obtained, respectively. Waveguides were characterized for losses and mode field diameters.

CJ-12.6 THU

Efficient direct-laser written Yb:ZBLAN Waveguide Laser

•G. Palmer^{1,2}, S. Gross¹, A. Fuerbach¹, D. Lancaster³, T. Monroe³, and M. Withford¹; ¹Department of Physics and Astronomy, Centre for Ultrahigh Bandwidth Devices for Optical Systems (CUDOS), MQ Photonics Research Centre, Macquarie University, Sydney, Australia; ²European XFEL GmbH, Hamburg, Germany; ³Institute for Photonics and Advanced Sensing (IPAS), Scholl of Chemistry and Physics, University of Adelaide, Adelaide, Australia

We present an Yb:ZBLAN waveguide laser fabricated by rapid direct fs-laser writing. The laser provides low lasing threshold and slope efficiencies in excess of 80 %. Insertion losses are as low as -0.7 dB/cm.

ROOM 4a

¹University of Brescia, Brescia, Italy;

We show that two modes interacting nonlin-

early in the weakly dispersive regime can ex-

hibit a coexistence of wave breaking mech-

anisms, such that a gradient catastrophe

yielding a dispersive shock wave competes

Dispersive time stretching measurements

supercontinuum generation around 1550

•B. Wetzel¹, A. Stefani¹, L. Larger¹, P.-A.

Lacourt¹, J.-M. Merolla¹, T. Sylvestre¹,

A. Kudlinski², A. Mussot², G. Genty³,

F. Dias⁴, and J.M. Dudley¹; ¹Institut

FEMTO-ST, UMR 6174 CNRS-Université

de Franche-Comté, Besançon, France;

²PhLAM/IRCICA CNRS-Université Lille 1,

USR 3380/UMR 8523, Villeneuve d'Ascq,

France; ³Department of Physics, Tampere

University of Technology, Tampere, Finland;

⁴School of Mathematical Sciences, University College Dublin, Dublin, Republic of Ireland We report experimental real time measurements of supercontinuum generation spectral fluctuations around 1550 nm, yielding

direct characterization of statistics and cor-

relations across a 200 nm bandwidth. Ex-

perimental results are in excellent agreement

Conical diffraction, pseudospin, and

nonlinear wave dynamics in photonic

•D. Leykam¹, O. Bahat-Treidel², and A.

Desyatnikov¹; ¹The Australian National Uni-

versity, Canberra, Australia;² The University

We demonstrate theoretically that wave dy-

namics in Lieb lattices are governed by

an integer pseudo-spin. Different pseudo-

spin states can be distinguished by conical

diffraction patterns. The nonlinearity re-

duces circular to four-fold discrete rotational

of Queensland, Brisbane, Australia

with numerical simulations.

IG-5.6 THU

Lieb lattices

symmetry.

of real-time spectra and statistics for

²University of Ferrara, Ferrara, Italy

with modulational instability.

IG-5.5 THU

nm

17:00

17:15

ROOM 4b

d'Hères, France

An imaging system combining the high sensitivity of acoustically tagged Laser Optical Feedback Imaging and the high resolution of Synthetic Aperture Laser technique is presented; a potential application is optically resolved imaging through scattering media.

CH-7.5 THU

17:00

17:15

An Archimedean Screw made of light •C. Vetter, T. Eichelkraut, and A. Szameit; Institute of Applied Physics, Jena, Germany

We report on the flexible experimental realization of spatially spiralling intensity distributions that can rotate in time. For this purpose we employ interfering Bessel beams of different order.

CK-10.5 THU

tralia

17:00

and measured.

Diffractive and Refractive Microlens Integration with Single Photon Detector Smart Pixels

ROOM 13a

gineering, RMIT University, Melbourne, Aus-

An on-chip optical lens which can launch

and maintain wide and well-collimated

Gaussian beam in free space was fabricated

•A. Waddie¹, A. McCarthy¹, G. Buller¹, S. Tisa², and M. Taghizadeh¹; ¹Institute of Photonics and Quantum Sciences, EPS, Heriot-Watt University, Edinburgh, United Kingdom; ²Micro Photon Devices, Bolzano, Italy In this paper we present details of the integration of diffractive and refractive microlens arrays with a customised single photon avalanche photodiode smart-pixel array including an analysis of the angular tolerance of the composite structure.

ROOM 13b

Mid-infrared Vertical External Cavity Surface Emitting Lasers based on quantum dot active regions have been realized. The active regions consist of PbTe dots in a CdTe host matrix. The lasers cover the wavelength range 2.7-4.3um.

CB-10.5 THU

17:00

Power scaling of narrow-linewidth 2 μ m GaSb-based semiconductor disk laser

•S. Kaspar, M. Rattunde, S. Adler, T. Töpper, C. Manz, K. Köhler, and J. Wagner; Fraunhofer-Institut für Angewandte Festkörperphysik, Freiburg, Germany

A 2 µm GaSb-based semiconductor-disklaser with < 60 kHz linewidth, > 1 W CWoutput power has been realized. The feasibility of further power scaling into the > 2 Wrange will be demonstrated.

CK-10.6 THU

Integrated Polymer Microlenses for Two-dimensional Collimation of Light

•L. Chang, N. Ismail, R.M. de Ridder, M. Pollnau, and K. Wörhoff; Integrated Optical Microsystems Group, MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands

We demonstrate direct on-chip integration of reflowed polymer microlenses, which enables light collimation from planar channel waveguides in both lateral and vertical directions. A divergence angle reduced by a factor of 25 is demonstrated experimentally.

CB-10.6 THU

17:15

17:00

The effect of hole leakage and Auger recombination on the temperature sensitivity of GaInAsSb/GaSb mid-infrared lasers

B.A. Ikyo¹, I.P. Marko¹, K. Hild¹, •A.R. Adams¹, S. Arafin², M.-C. Amann², and S.S. Sweeney¹; ¹Advanced Technology Institute and Department of Physics, University of Surrey, Guildford, United Kingdom; ² Walter Schottky Institut, Technische Universität München, Garching, Germany Type-I GaInAsSb/GaSb lasers emitting at $2.3\mu m$ and $2.6\mu m$ are investigated using temperature and pressure. We show that Auger recombination and to a lesser extent hole leakage determine the temperature dependence of Jth in these devices.

170

17:15 from Single-mode Optical Waveguides

CLEO[®]/Europe-IQEC 2013 · Thursday 16 May 2013

ROOM 14a

Planck Insitute for Quantum Optics, Garching, Germany; ²Ludwig Maximilian Universität München, München, Germany; ³Institute of Theoretical Physics and Astrophysics, University of Gdansk, Gdansk, Poland

We present experimental results on the efficient reconstruction of qudit entangled quantum states with dimensions up to 2x8 encoded in the time-energy degree of freedom.

17:00

17:15

IB-8.5 THU

Characterization and Manipulation of Energy Entangled Qudits

•A. Stefanov, C. Bernhard, B. Bessire, and T. Feurer; University of Bern, Institute of Applied Physics, Bern, Switzerland

We show the experimental realization of energy-bins entangled qudits, with dimension up to 4. We performed tomographic characterization of the states and showed violation of Bell inequalities for maximally and non-maximally entangled states.

IB-8.6 THU

Characterisation of the spatial purity of photon pairs generated in a multimode non-linear waveguide

M. Karpiński, C. Radzewicz, and •K. Banaszek; Faculty of Physics, University of Warsaw, Warsaw, Poland

We verified experimentally spatial purity of photon pairs generated via type-II parametric down-conversion in a multimode periodically poled potassium titanyl phosphate nonlinear waveguide. The process was restricted to fundamental spatial modes by exploiting intermodal dispersion.

ROOM 14b

of Physics, University of Regensburg, Regensburg, Germany; ²Molecular and Surface

Physics, University of Bielefeld, Bielefeld, Ger-

many; ³Department of Physics, Ilmenau Uni-

The collective terahertz free-carrier response

of $1T - \text{TiSe}_2$ is tracked during ultrafast photo-induced melting of a charge-density

wave. The subsequent reordering exhibits

high sensitivity to the carrier density, as ex-

Photoexcitation Cascade and Multiple

Hot Carrier Generation in Graphene

•K.-J. Tielrooij¹, J. Song^{2,3}, S. Jensen^{4,5}

A. Centeno⁶, A. Pesquera⁶, A. Zurutuza

Elorza⁶, M. Bonn⁴, L. Levitov², and F. Koppens¹; ¹ICFO - Institute de Ciencies

Fotoniques, Catelldefels (Barcelona), Spain;

²Department of Physics, Massachusetts In-

stitute of Technology, Cambridge, United

States; ³School of Engineering and Applied Sciences, Harvard University, Cambridge,

United States; ⁴Max Planck Institute for

Polymer Research, Mainz, Germany; ⁵FOM

Institute AMOLF, Amsterdam, The Nether-

lands; ⁶Graphenea SA, Donostia-San Sebas-

We show that energy relaxation of pho-

toexcited e-h pairs in doped single-layer

graphene is dominated by e-e scattering,

which leads to the creation of secondary hot

electrons from the conduction band ("hot-

Ultrafast Hot Exciton Dissociation at

•M. Maiuri¹, G. Grancini², D. Fazzi², A

Petrozza², D. Brida¹, G. Cerullo¹, and G.

Lanzani^{1,2}; ¹Politecnico di Milano, Milano,

We probe charge generation in

sub-15-fs time resolution, for sufficient high

pump energy, hot charge-transfer excitons

are produced in less than 50 fs, that can

rapidly separate into free polarons.

Italy; ²CNST@Polimi, IIT, Milano, Italy

PCPDTBT:PCBM blend.

pected within an excitonic model.

CF/IE-13.4 THU

tian, Spain

carrier multiplication").

CF/IE-13.5 THU

Organic Interfaces

versity of Technology, Ilmenau, Germany

ROOM 21

FORTH, Heraklion, Greece; ²Department of Chemistry, University of Crete, Heraklion, Greece; ³Department of Materials Science and Technology, Heraklion, Greece

We demonstrate for the first time the fabrication and characterization of 3D nanostructures by multiphoton polymerization using a material without photoinitiator. We show that polymerization occurs through a photo-induced redox initiation.

CM-8.5 THU

17:00

17:15

Exploiting

Core-scanned fibre Bragg gratings inscribed using ultrashort pulses and a point by point setup

•R.G. Krämer^{1,2}, R.J. Williams², M.J. Withford², A. Tünnermann¹, and S. Nolte¹; ¹Institute of Applied Physics, Jena, Germany; ²Centre for Ultrahigh-bandwidth Devices for Optical Systems, MQ Photonics Research Centre, Sydney, Germany

We present a core-scanning technique for fibre Bragg gratings using a point-by-point inscription setup, that has markedly reduced scattering losses, flexible grating period and larger-area modifications with potential for inscription into large mode area fibres.

CM-8.6 THU

Laser Crystallisation of Semiconductor Core Optical Fibres

•N. Healy¹, S. Mailis¹, T. Day², P. Sazio¹, J. Badding², and A. Peacock¹, ¹Optoelectronics Research Centre, Southampton, United Kingdom; ²Penn State University, Pennsylvania, United States

A laser annealing technique is used to crystallise the core of an amorphous silicon optical fibre. The core of the resulting fibre has high material quality and its optical transmission losses are dramatically reduced.

ROOM 22

Quantum Electronics, ETH Zurich, CH-8093 Zurich, Switzerland

Photoabsorption around the first ionization threshold and in the presence of a strong infrared field was studied in helium. The previously introduced wavepacket interference picture was found to not completely explain the observed optical response.

CG-7.5 THU

17:00

Extreme Nonlinear Optical Processes with Beams Carrying Orbital Angular Momentum

•C. Kern^{1,2}, M. Zürch^{1,2}, P. Hansinger^{1,2}, A. Dreischuh³, and C. Spielmann^{1,2,4}; ¹Institute of Optics and Quantum Electronics, Friedrich-Schiller-University Jena, Jena, Germany; ²Abbe Center of Photonics, Jena, Germany; ³Department of Quantum Electronics, Faculty of Physics, Sofia University, Sofia, Bulgaria; ⁴Helmholtzinstitut Jena, Jena, Germany

We show experimental evidence that optical vortices can be produced in the extreme ultraviolet (XUV) using high-harmonic generation (HHG) driven by ultra-short laser pulses. We found that such beams can survive high nonlinearities.

CG-7.6 THU

The role of the Kramers-Henneberger atom in the higher-order Kerr effect

S. Patchkovskii¹, •M. Richter², F. Morales², O. Smirnova², and M. Ivanov^{2,3,4}; ¹Steacie Institute for Molecular Sciences, National Research Council of Canada, Ottawa, Canada; ²Max-Born Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin, Germany; ³Department of Physics, Humboldt University, Berlin, Germany; ⁴Department of Physics, Imperial College London, South Kensington Campus, London, United Kingdom

We discuss the connection between strongfield ionization, saturation of the Kerr response, and the formation of the Kramers-Henneberger atom and long-living excitations in intense external fields.

ROOM EINSTEIN

sel, Brussel, Belgium; ²Iowa State University, Ames, IA, United States

We show how transformation optics allows to enhance optical forces between two optical waveguides over several magnitudes by altering the perceived distance between the waveguides. This transformation can be implemented using single-negative metamaterial thin films.

IH-6.5 THU

17:00

17:15

17:00

17:15

Resonant optical trapping and back-action effects in hollow photonic crystal cavities

•N. Descharmes, U.P. Dharanipathy, M. Tonin, Z. Diao, and R. Houdré; Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

We report on the first experimental demonstration of resonant optical trapping of dielectric particles in hollow photonic crystal cavities. The existence of mutual interaction between the confined field and the particle is revealed.

IH-6.6 THU

Time Domain Investigation of Radio Frequency Acousto-Mechanical Tuning of Photonic Crystal Nanocavity Modes

•S.S. Kapfinger¹, D.A. Fuhrmann¹, S.M. Thon², H. Kim², D. Bouwmeester², P.M. Petroff³, A. Wixforth¹, and H.J. Krenner¹; ¹Lehrstuhl für Experimentalphysik 1, Universität Augsburg, Augsburg, Germany; ²Physics Department, University of California, Santa Barbara, United States; ³Materials Department, University of California, Santa Barbara, United States

The dynamic spectral tuning of a photonic crystal nanocavity with embedded quantum dots by a radio frequency surface acoustic wave is investigated in the time domain. The observed characteristics promise real-time control of light-matter interactions.

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17:15

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CG-P: CG Poster Session

CG-P.1 THU

13:00 - 14:00

Micro-focusing of XUV attosecond pulses by grazing-incidence toroidal mirrors

•L. Poletto¹, F. Frassetto¹, F. Calegari³, A. Trabattoni², and M. Nisoli²; ¹CNR-Institute of Photonics and Nanotechnologies, Padova, Italy; ²Politecnico of Milano, Department of Physics, Milano, Italy; ³CNR-Institute of Photonics and Nanotechnologies, Milano, Italy The design of optical systems for micro-focusing of XUV attosecond pulses through grazing-incidence toroidal mirrors is presented. Two mirrors are used in a compensated configuration to provide high demagnification of the source with negligible aberrations.

CG-P.2 THU

Single cycle midIR pulse: spatial, temporal and absolute phase characterisation

•S. Weber^{1,2}, T. Witting¹, J. Tisch¹, and J. Marangos¹; ¹Imperial College London, London, United Kingdom; ²CEA Saclay, IRAMIS, Service des Photons, Atomes et Molécules, Gif-sur-Yvette, France

1.7 cycles midIR pulse has been measured via a tunable SEA-F-SPIDER arrangement providing both temporal and spatial characterisation. The intrinsic CEP stability of the pulse is monitored and stabilised from a simple interferometric measurement.

CG-P.3 THU

A Conceptually General Coherent X-Ray Attosecond Pulse Shaper

•C. Serrat and N. Suarez; Polytechnical University of Catalonia, Terrassa, Spain

We present a tool for control of the spectral phase and amplitude in high-order harmonic generation. Isolated attosecond pulses are produced by means of a folding effect on the electron quantum trajectories generating the harmonics.

CG-P.4 THU

Control of Fragmentation Reactions in Impulsively Aligned Polyatomic Molecules by Selective Removal of Inner-Valence Electrons

X. Xie¹, K. Doblhoff-Dier², H. Xu¹, S. Roither¹, A. Iwasaki³, M. Schöffler¹, D. Kartashov¹, K. Yamanouchi³, A. Baltuška¹, S. Gräfe², and •M. Kitzler¹; ¹Photonics Institute, Vienna University of Technology, Vienna, Austria; ²Institute for Theoretical Physics, Vienna University of Technology, Vienna, Austria; ³Department of Chemistry, School of Science, The University of Tokyo, Japan We show experimentally and theoretically that alignment dependent ionization from specific lower-lying

molecular orbitals into a certain electronically excited dissociative ionic state allows implementing a control scheme for fragmentation and isomerization reactions in polyatomic molecules.

CG-P.5 THU

Tabletop Lensless Imaging Apparatus using an Ultrashort High Harmonic XUV Source

•M. Zürch¹, C. Kern¹, and C. Spielmann^{1,2}; ¹Institute of Optics and Quantum Electronics, Jena, Germany; ²Helmholtzinstitut Jena, Jena, Germany

We present an apparatus based on an ultrafast laser and high harmonic generation that allows for highresolution lensless imaging with a selectable wavelength in the XUV-regime. Images with resolution in the micron-range were recorded.

CG-P.6 THU

Optically Produced Collimated Quasimonoenergetic Electron Beams For Laser-Plasma Acceleration

•Y. Malkov¹, A. Stepanov¹, D. Yashunin¹, L. Pugachev², P. Levashov², N. Andreev², and A. Andreev³; ¹Institute of Applied Physics of the Russian Academy of Sciences, Nizhny Novgorod, Russia; ²Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia; ³Vavilov State Optical Institute (GOI) Research Institute for Laser Physics, St Petersburg, Russia We studied generation of quasimonoenergetic electron bunches in the 0.2-0.8 MeV range when 10^17 W/cm^2 femtosecond laser radiation interacted with aluminum foil edge. PIC simulations confirm acceleration in the self-modulated laser wakefield in preplasma.

CG-P.7 THU

Development of a carrier-envelope phase stabilized, few-cycle laser system for precision spectroscopy in the time domain

•T. Kanai, T. Mizuno, and T. Azuma; RIKEN, Wako-shi, Japan

We report on a novel methodology of attosecond physics to explore fundamental physics and the present status of our laser and spectroscopy system, which was specially designed for this purpose from scratch.

CG-P.8 THU

Far field characteristics of a petawatt-class laser using plasma mirrors

•V. Bagnoud¹, C. Brabetz², B. Zielbauer¹, G. Scott^{3,4}, H. Powell⁴, and D. Neely^{3,4}; ¹GSI Helmholtz Center for Heavy Ion Research, Darmstadt, Germany; ²Johann Wolfgang Goethe University, Frankfurt, Germany; ³Rutherford Appleton Laboratory, Didcot, United Kingdom; ⁴University of Strathclyde, Glasgow, United Kingdom We propose and demonstrate a setup to directly measure the focus of a high-energy petawatt-class laser using plasma mirrors. This leads to new insights on the effect of plasma mirrors on the laser far field.

CG-P.9 THU

Photoemission enhancement from copper illumina-

ted with a radial polarized femtosecond laser pulse •H. Tomizawa^{1,2}, H. Dewa¹, A. Mizuno¹, and T. Taniuchi¹; ¹Japan Synchrotron Radiation Research Institute, Hyogo, Japan; ²RIKEN SPring-8 Center, Hyogo, Japan

We have developed a new compact of photocathode gun utilizes laser coherency, using radial-polarization on a metal cathode. The enhancement factor of photoemission was observed 1.4 times at 1.6 GV/m of the laser Zfield.

CG-P.10 THU

Isolated attosecond pulses by self-compression in short gas-filled fibers

•P.N. Anderson¹, P. Horak¹, J.G. Frey², and W.S. Brocklesby¹; ¹Optoelectronics Research Centre, University of Southampton, Southampton, United Kingdom; ²Chemistry, University of Southampton, Southampton, United Kingdom

Numerical simulations predict that self-compression and HHG can be performed in-situ within short gasfilled fibers to generate isolated 350 as XUV pulses from 40 fs NIR fields.

CG-P.11 THU

Optimized Conditions for Intense Isolated Attosecond Pulse Generation

•G. Ma^{1,2}, J. Mikhailova¹, F. Krausz^{1,3}, G. Tsakiris¹, and L. Veisz¹, ¹Max-Planck-Institut für Quantenoptik, Garching, Germany; ²Shanghai Institute of Optics and Fine Mechanics, Shanghai, China, People's Republic of (PRC); ³Ludwig-Maximilians-Universität München, Garching, Germany

Optimized conditions for efficiently generating intense isolated attosecond pulses via relativistic high harmonic generation are investigated by simulations. An unrivalled high efficiency of about 1% for harmonics below 40nm is predicted in our coming experiment.

CG-P.12 THU

Attosecond pulse shaping

•D. Austin¹ and J. Biegert^{1,2}; ¹Institut de Ciencies Fotoniques, Barcelona, Spain; ²Institució Catalana de Recerca i Estudis Avançais, 08010 Barcelona, Spain, Barcelona, Spain

We propose arbitrary shaping of attosecond pulses produced using high harmonic generation - includ-

ing attosecond chirp compensation - using quasi-phase matching with a modulation of the dipole excitation that is spatially addressable along the the propagation axis.

CG-P.13 THU

Electron-ion correlation effects in strong field ionization

•L. Torlina¹, M. Ivanov^{1,2,3}, Z. Walters^{4,1}, and O. Smirnova¹; ¹Max Born Institute, Berlin, Germany; ²Humboldt University, Berlin, Germany; ³Imperial College London, London, United Kingdom; ⁴Max Planck Institute for the Physics of Complex Systems, Dresden, Germany

Strong field ionization is a fundamentally multielectron process which may leave the ion in different excited states. We develop an analytical theory accounting for ionic excitations induced by coupling between the departing and core electrons.

CG-P.14 THU

The R-matrix method for attosecond spectroscopy

A. Harvey, F. Morales, O. Smirnova, and •D. Brambila; Max-Born-Institut, Berlin, Germany

We present calculations of photoelectron angular distributions ionized by a HHG source, and HHG spectra, from aligned CO_2 , and compare to experiment. We discuss our newly adapted R-matrix codes, an essential component of the calculations.

CG-P.15 THU

Power Efficient Relativistic Multi-Stage Stable UV Channel Formation in Underdense Plasmas

•A.B. Borisov and C.K. Rhodes; University of Illinois at Chicago, Chicago, United States

Stability control of multi-TW relativistic channels leads to power efficient stable multi-stage UV channel formation in underdense plasmas with the efficiency of power transport into the channel exceeding 90%.

CG-P.16 THU

Sub-fs pulse generation and characterisation in the VUV

•D. Fabris¹, T. Witting¹, J. Henkel², F. Frank¹, W. Okell¹, Z. Abdelrahman¹, M. Lein², J. Marangos¹, and J. Tisch¹; ¹Imperial College London, London, United Kingdom; ²Institut für Theoretische Physik and Centre for Quantum Engineering and Space-Time Research, Leibniz Universität, Hannover, Germany

The method for production and characterisation of a sub-fs VUV (10-20eV) pulse will be discussed. Theoretical simulations predicts atime duration of ~700as. Preliminary measurements show a photon flux of ~1010 photons\shot.

CG-P.17 THU

Plateau structure in photoelectron spectra of Kr gas induced by intense circular polarized laser pulses

•T. Mizuno, T. Kanai, and T. Azuma; RIKEN Adavance Science Institute, wako, Japan

We found the plateau structure of photoionization of Kr gas by circular polarization light. This is not explained by traditional rescattering process.

CG-P.18 THU

The LILIA (Light Ions laser Induced Acceleration) experiment at LNF

S. Agosteo¹, M.P. Anania², C. De Martinis³, D. Delle Side⁴, A. Fazzi¹, G. Gatti², D. Giove³, D. Giulietti⁵, L. Gizzi⁶, L. Labate⁶, P. Londrillo⁷, •V. Nassisi⁴, A. Pola¹, S. Sinigardi⁷, G. Turchetti⁷, V. Varoli¹, L. Velardi⁴, G. Buccolieri⁴, and M. Caresana¹; ¹INFN and Polytechnic of Milan, Milan, Italy; ²INFN LNF Frascati, Frascati, Italy; ³INFN and University of Milan, Milan, Italy; ⁴INFN LEAS and University of Salento, Lecce, Italy; ⁵INFN and University of Pisa, Pisa, Italy; ⁶INFN and CNR of Pisa, Pisa, Italy; ⁷INFN and University of Bologna, Bologna, Italy

A laser named FLAME by $10^{19} W/cm^2$ has been deployed. An experiment of light ions acceleration through laser-matter interaction (LILIA) has been proposed. Using Al targets protons of more than 1.6 *MeV* have been detected.

CG-P.19 THU

Enhanced High Harmonic Generation Driven by Two-Color Laser Pulses with Two Foci

F. Lu¹, •Y. Xia¹, S. Zhang², D. Chen¹, Y. Zhao¹, and B. Liu¹; ¹National Key Laboratory of Tunable Laser Technology, Harbin Institute of Technology, Harbin, China, People's Republic of (PRC); ²Department of physics, Harbin Institute of Technology, Harbin, China, People's Republic of (PRC)

We demonstrate a enhancement of high harmonic generation in CO_2 by using two color laser pulses with two foci. The intensity of harmonic H23 increased by a factor of 65 compared to a single focus.

CG-P.20 THU

Pulse Contrast Enhancement at the Orion Laser Facility

•S. Elsmere, T. Bett, C. Danson, S. Duffield, D. Egan, M. Girling, E. Harvey, D. Hillier, N. Hopps, D. Hoarty, D. Hussey, M. Norman, S. Parker, P. Treadwell, and D. Winter, AWE, Reading, United Kingdom

Contrast enhancement of a pettawatt beam line has been demonstrated by frequency doubling, at sub aperture, of a 500 J pulse. Details of beam line performance are presented showing a pulse contrast greater than 10^{13} .

CG-P.21 THU

Proposal for sub-femtosecond pulse generation with controlled carrier-envelope phase

Z. Tibai¹, G. Tóth¹, M. Mechler², J. Fülöp², and •J. Hebling^{1,2}; ¹Institute of Physics, University of Pécs, Pécs, Hungary; ²MTA-PTE High-Field Terahertz Research Group, Pécs, Hungary

We propose a robust method for producing few-cycle pulses with prescribed shaped in the EUV-VUV spec-

tral range by coherent undulator radiation of relativistic ultrathin electron layers, which are produced by IFEL.

CG-P.22 THU

On the Accuracy of the Single-shot Two-dimensional Angular Dispersion Measurement

•A. Börzsönyi^{1,2}, A. Andrásik¹, A. Kovács¹, M. Gstalter^{2,3}, and K. Osvay¹; ¹Department of Optics and Quantum Electronics, University of Szeged, Szeged, Hungary; ²CE Optics Kft., Szeged, Hungary; ³École Nationale Supérieure de Physique, Univ. of Strasbourg, Strasbourg, France

The accuracy of the two-dimensional technique for single-shot measurement of angular dispersion has been characterized. The precision of 0.1 microrad/nm allows it being a tool for real time monitoring of attosecond driving laser beams.

13:00 - 14:00

IA-P: IA Poster Session

IA-P.1 THU

Quantum control of spin-correlations in ultracold lattice gases

P. Hauke¹, •R. Sewell¹, M. Mitchell^{1,2}, and M. Lewenstein^{1,2}; ¹ICFO, Barcelona, Spain; ²ICREA, Barcelona, Spain

We describe a new technique for preparing and detecting spatial spin-correlations and multipartite entanglement in a quantum lattice gas based on entropic cooling via quantum non-demolition (QND) measurement and feedback.

IA-P.2 THU

Propagation of few-photon states in waveguide arrays

•N. Belabas Plougonven, C. Minot, I. Abram, I. Robert-Philip, and A. Beveratos; Laboratory for Photonic and Nanostructures, Marcoussis, France

We quantitatively explore the ability of coupled waveguide arrays to characterize and manipulate two-photon and NOON states. We emphasize in particular the potential of patterned arrays in which the coupling is structured.

IA-P.3 THU

Programming quantum interference with multiple scattering

•S.R. Huisman, T.J. Huisman, T.A.W. Wolterink, A.P. Mosk, and P.W.H. Pinkse; MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands We control quantum interference in opaque scattering materials by phase modulation of incident optical modes.

IA-P.4 THU

Two-Photon Rydberg Excitation of Trapped Strontium Ions

•C. Maier, F. Pokorny, G. Higgins, and M. Hennrich; Institute for Experimental Physics, Innsbruck, Austria An alternative method for trapped-ion quantum computing may be realized by exciting the ions into Rydberg states. We will discuss ideas and progress of our experimental setup to realise two-photon Rydberg excitation of strontium ions.

IA-P.5 THU

Synthesis of arbitrary interference patterns with high visibility

S. Shabbir, M. Swillo, and •G. Björk; School of Engineering Sciences, KTH Royal Institute of Technology, SE - 106 91. Stockholm. Sweden

Using coherent state input, we demonstrate the synthesis of arbitrary interference patterns and conclude that it is neither the shape of the interference pattern nor the visibility that differentiates quantum and classical interference.

IA-P.6 THU

Experimental Generation of 2000-Mode Entangled Graph States •S. Yokoyama¹, C. Sornphiphatphong¹, T. Kaji¹, R. Ukai¹, S.C. Armstrong^{1,2}, S. Suzuki¹, J.-i. Yoshikawa¹, N.C. Menicucci³, and A. Furusawa¹; ¹The University of Tokyo, Tokyo, Japan; ²The Australian National University, Canberra, Australia; ³The University of Sydney, NSW, Australia

We report on the generation of a 2000-mode fully entangled graph state, suitable as a resource for quantum information protocols. The graph is created by entangling 1000 pairs of temporally encoded EPR states.

IA-P.7 THU

Measurement-induced amplification of optical cat-like states

A. Laghaout¹, J. Neergaard-Nielsen¹, J. Rigas², C. Kragh¹, A. Tipsmark¹, and •U. Lund Andersen^{1,2}; ¹Department of Physics, Technical University of Denmark, Lyngby, Denmark; ²Quantum Information Theory Group, Institut für Theoretische Physik I,and Max-Planck Research Group, Institute of Optics, Information and Photonics, Universität Erlangen-Nürnberg, Erlangen, Germany

An amplification scheme of coherent state superpositions (CSS) is proposed using homodyne heralding. The width of homodyne post-selection is accounted for, as well as the impurity of squeezing for approximate CSSs. Recursive amplification is analyzed.

IA-P.8 THU

Fast and non-destructive vector field magnetometry with cold atomic ensembles

•N. Behbood¹, F. Martin Ciurana¹, G. Colangelo¹, M.

Napolitano¹, R. Sewell¹, and M. Mitchell^{1,2}; ¹ICFO - The Institute of Photonic Sciences, Castelldefels (Barcelona), Spain; ²ICREA - Institucio Catalana de Recerca i Estudis Avanc ats, Bacelona, Spain

We report on a fast, nondestructive and sensitive measurement technique that uses atomic spin precession and non-destructive Faraday rotation probing to measure all three components of the magnetic field with kHz bandwidth.

IA-P.9 THU

Dispersion Sensitivity of Amplitude and Phase Modulated Time-Energy Entangled Photons

•C. Bernhard, B. Bessire, A. Stefanov, and T. Feurer; University of Bern, Institute of Applied Physics, Bern, Switzerland

We investigate the effect of dispersion on spatial light modulator shaped time-energy entangled photons. We compare two coincidence detection descriptions for different shaper functions as a function of the dispersion.

IA-P.10 THU

Dynamical suppression of unwanted transitions in multistate quantum systems

•G. Genov and N. Vitanov; Department of Physics, Sofia University, Sofia, Bulgaria

We propose a method to suppress unwanted transition channels and achieve perfect population transfer in multistate quantum systems by using composite pulse sequences.

IA-P.11 THU

Nonclassical lasing in circuit quantum electrodynamics

•C. Navarrete-Benlloch¹, J.J. García-Ripoll², and D. Porras³; ¹Max-Planck Institute for Quantum Optics, Garching, Germany; ²Instituto de Física Fundamental - CSIC, Madrid, Spain; ³Universidad Complutense, Madrid, Spain

We show how a proper driving of the gap of a superconducting qubit interacting with the modes of a resonator allows for the generation of nonclassical states of the latter both through cooling and amplification.

IA-P.12 THU

An on-chip cross-waveguide QD spin-photon interface and its applications

•A.B. Young¹, A.J. Ramsey⁴, I.J. Luxmoore², N.A. Wasley², A.C.T. Thijssen³, A. Laing^{1,3}, M.G. Thompson^{1,3}, A.M. Fox², M.S. Skolnick², J.G. Rarity¹, and R. Oulton^{1,3}; ¹Merchant Venturers School of Engineering, University of Bristol, Woodland Road, Bristol, BS8 1TR, UK, Bristol, United Kingdom; ²School of Physics and Astronomy, University of Sheffield, Sheffield, S3 7RH, UK, Sheffield, United Kingdom; ³HH Wills Physics Laboratory, University of Bristol, Tyndall Avenue, Bristol, BS8 IFD, UK, Bristol, United Kingdom; ⁴Hitachi Cambridge Laboratory, Hitachi Europe Limited, Cambridge, CB3 OHE, UK, Cambridge, United Kingdom

We present a quantum dot spin-photon interface in a linear optical circuit that is simple to fabricate and may be used to produce >100 photon cluster states and entangle remote spins.

IA-P.13 THU

Photon pair generation in quadratic waveguide arrays: A classical optical simulation

•M. Gräfe¹, A.S. Solntsev², R. Keil¹, A. Tünnermann¹, S. Nolte¹, A.A. Sukhorukov², Y.S. Kivshar², and A. Szameit¹; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany; ²Nonlinear Physics Centre, Research School of Physics and Engineering, The Australian National University, Canberra, Australia

Biphoton generated through spontaneous parametric down-conversion and their correlated quantum walks in one-dimensional nonlinear waveguide arrays are investigated. We experimentally emulate this process by the linear evolution of classical light in a two-dimensional structure.

IA-P.14 THU

Towards a down-conversion source of positively spectrally correlated and decorrelated photon pairs at telecom wavelength •T. Lutz^{1,2}, P. Kolenderski^{1,3}, and T. Jennewein¹; ¹Institute for Quantum Computing, University of Waterloo, Waterloo, Canada; ²Universität Ulm, Ulm, Germany; ³Nicolaus Copernicus University, Torun, Poland We experimentally characterize a spontaneous parametric down-conversion source, based on a Beta-Barium-

Borate crystal capable of emitting photons with positive or no spectral correlations. Our system employs a carefully designed detection method exploiting two InGaAs detectors.

IA-P.15 THU

Single-cycle squeezing from chirped quasi-phasematched optical parametric down-conversion

D. Horoshko^{1,2} and •M. Kolobov¹; ¹Laboratoire PhLAM, Université Lille 1, Villeneuve d'Ascq, France; ²B. I. Stepanov Institute of Physics, NASB, Minsk, Belarus We describe the generation of squeezed light with an octave-broad spectrum of squeezing by means of parametric down-conversion in a quasi-phase-matched nonlinear crystal with a linear chirp of the spatial frequency of periodical poling.

IA-P.16 THU

Generation of Narrowband, Entangled Photon Pairs in Birefringent Fibre

•A. McMillan¹, A. Clark², B. Bell¹, W. McCutcheon¹, T. Wu¹, W. Wadsworth³, and J. Rarity¹; ¹University of Bristol, Bristol, United Kingdom; ²University of Sydney, Sydney, Australia; ³University of Bath, Bath, United Kingdom An entangled photon pair source based on crosspolarised four-wave mixing in spliced sections of conventional birefringent optical fibre is demonstrated. The generated pair photons are widely separated in wavelength at 850nm and 1420nm.

IA-P.17 THU

Entanglement of macroscopic Bell states

•T. Iskhakov¹, B. Kanseri², G. Rytikov³, M. Chekhova^{1,4,5}, and G. Leuchs^{1,5}; ¹Max-Planck Institute for the Science of Light, Erlangen, Germany; ²Institut d'Optique Graduate School, Paris, France; ³Ivan Fedorov State University of Printing Arts, Moscow, Russia; ⁴M. V. Lomonosov Moscow State University, Moscow, Russia; ⁵University of Erlangen-Nurenberg, Erlangen, Germany

We generated a full set of macroscopic Bell states containing 10^6 photons per pulse, proved their entanglement, and observed the photon-number correlations with respect to both polarization and frequency modes.

IA-P.18 THU

Optimal Temporal Mode Extraction for Quantum State Engineering via a Direct Multimode Analysis of Homodyne Data •O. Morin, C. Fabre, and J. Laurat; Laboratoire Kastler Brossel, UPMC, ENS, CNRS, Paris, France

We propose a novel method to experimentally extract the optimal temporal mode in quantum state engineering. This technique only relies on a multimode analysis of homodyne data.

IA-P.19 THU

Spatially multimode Raman scattering: optical memory and new, direct method for measuring diffusion

•R. Chrapkiewicz and W. Wasilewski; Faculty of Physics, University of Warsaw, Warsaw, Poland

We present first to our knowledge generation and retrieval of spatially multimode collective excitations in warm Rubidium vapors. Analyzing their their decoherence we retrieve diffusion coefficients. Using Raman interface we produce highly correlated delayed images.

IA-P.20 THU

Two-photon spectra of quantum systems

•E. del Valle¹, A. Gonzalez-Tudela², F.P. Laussy², C. Tejedor², and M.J. Hartmann¹; ¹Technische Universität München, München, Germany; ²Universidad Autónoma de Madrid, Madrid, Spain

We apply our recently developed method to compute time and frequency resolved N-photon correlations to analyse different open quantum systems (lightmatter coupling, resonance fluorescence, single and twophoton generation, entangled systems) via their "twophoton spectrum".

IA-P.21 THU

Non-collinear retrieving of stored orbital angular momentum of light in cold atoms

R. de Oliveira¹, •L. Pruvost², P. Barbosa¹, D. Felinto¹, D. Bloch³, and J. Tabosa¹; ¹Universidade Federal de Pernambuco, Recife, Brazil; ²Université Paris-Sud, Orsay, France; ³Université Paris-Nord, Villetaneuse, France

We report on the storage and non-collinear retrieving of orbital angular momentum of light in an ensemble of cold cesium atoms. The stored and retrieved beams are shown to have the same orbital angular momentum.

IA-P.22 THU

Single photon interference via induced coherence with and without induced emission

•A. Heuer, S. Raabe, and R. Menzel; Institute of Physics and Astronomy, University of Potsdam, Germany Two signal beams emitted from two parametric down converters show first order interference by the process of induced coherence. The differences, if induced coherence occur with or without stimulated emission were under investigation.

IA-P.23 THU

Chronocyclic Wigner function of ultrafast time-frequency entangled parametric downconversion states

•B. Brecht and C. Silberhorn; Applied Physics, University of Paderborn, Warburger Strasse 100, 33098 Paderborn, Germany

We present an alternative description of time-frequency entangled ultrafast PDC states, based on the chronocyclic Wigner function formalism. Our approach combines the seemingly disparate continuous and discrete variable theories and highlights remarkable similarities between them.

IA-P.24 THU

Indistinguishable particles in non-Hermitian lattices and their correlations

•M. Gräfe¹, R. Heilmann¹, R. Keil¹, T. Eichelkraut¹, M. Heinrich², S. Nolte¹, and A. Szameit¹; ¹Institute of Applied Physics, Abbe Center of Photonics, Friedrich-Schiller-Universität Jena, Jena, Germany, Jena, Germany; ²CREOL, The College of Optics & Photonics, University of Central Florida, Orlando, United States

We present a novel approach to investigate quantum random walks of indistinguishable particles in non-Hermitian lattices exhibiting loss. Especially analyzed are two-particle dynamics in quasi-parity-timesymmetric systems for a variety of input states.

IA-P.25 THU

Spin cooling via incoherent feedback in an ensemble of cold Rb atoms

•N. Behbood¹, F. Martin Ciurana¹, G. Colangelo¹, M. Napolitano¹, R. Sewell¹, and M. Mitchell^{1,2}; ¹ICFO - The Institute of Photonic Sciences, Castelldefels (Barcelona), Spain; ²ICREA - Institucio Catalana de Recerca i Estudis Avanc ats, Bacelona, Spain

We report an experimental study of a new technique for spin cooling an ensemble of ultracold atoms via quantum non-demolition measurement and incoherent feedback.

IA-P.26 THU

Towards Observation of Quantum Optomechanical Correlations

•S. Deléglise, A. Tavernarakis, T. Karassouloff, P. Verlot, S. Zerkani, J. Teissier, D. Garcia-Sanchez, T. Briant, P.-F. Cohadon, and A. Heidmann; Laboratoire Kastler Brossel, Paris, France

Radiation pressure is responsible for the quantum backaction noise in continuous interferometric position measurements. We have designed a table-top experiment to demonstrate this effect and realize various quantum optics experiments with an optomechanical system.

IA-P.27 THU

Direct observation of sub-binomial light

•T. Bartley¹, G. Donati¹, X.-M. Jin^{1,2}, A. Datta¹, M. Barbieri¹, and I. Walmsley¹; ¹Clarendon Laboratory, Department of Physics, University of Oxford, Oxford, United Kingdom; ²Department of Physics, Shanghai Jiao Tong University, Shanghai, China, People's Republic of (PRC) We present an experiment showing direct observation of sub-binomial light. We show that the binomial param-

13:00 - 14:00

IH-P: IH Poster Session

IH-P.1 THU

Manipulating light matter interaction with Mie resonators

•G. Boudarham¹, B. Rolly¹, R. Abdeddaim¹, J.-M. Greffin¹, B. Stout¹, S. Bidault², and N. Bonod¹; ¹Institut Fresnel, CNRS UMR 7249, Campus Universitaire de Saint-Jérôme, Marseille, France; ²Institut Langevin, ES-PCI Paris-Tech, CNRS UMR 7587, Paris, France We show theoretically that near-infrared quadrupolar magnetic resonances in silicon particles can preferentially promote magnetic versus electric radiative deexcitation in trivalent erbium ions at 1.54 μ m, and vice versa.

IH-P.2 THU

Radiative Coupling of Quantum Dots in a Disordered Photonic Crystal Waveguide

•M. Minkov and V. Savona; Ecole Polytechnique Federale de Lausanne EPFL, Lausanne, Switzerland For a system of two quantum dots in a disordered W1 waveguide, we perform a detailed theoretical analysis of the magnitude and distance dependence of the photonmediated dot-dot excitation transfer rate.

IH-P.3 THU

Tunnelling of vacuum fluctuations in a 3D photonic band gap; strongly inhibited spontaneous emission •*E. Yeganegi*¹, *A. Lagendijk*^{1,2}, *A. Mosk*¹, *and W. Vos*¹; ¹Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ²FOM Institute for Atomic and Molecular Physics (AMOLF), Amsterdam, The Netherlands We map the frequency-dependent inhibition of spontaneous emission in 3D photonic bandgap crystals. Measurements show that the inhibition factor is frequency dependent which suggest intriguing finite size effects whereby vacuum fluctuations tunnel into the bandgap. eter provides a reliable, direct witness of nonclassicality when using multiplexed on-off detectors to measure a variety of optical states.

IA-P.28 THU

IH-P.4 THU

spect to the emitter.

Coherent optical nanoscopy

IH-P.5 THU

IH-P.6 THU

cavities.

dots

Photon Number Squeezing with a Noisy Fiber Amplifier Source by Balanced Detection Technique •S. Sawai, H. Kawauchi, K. Hirosawa, and F. Kannari; Department of Electronics and Electrical Engineering, Keio University, Yokohama, Japan

Sub 10-nm accuracy in positioning plasmonic

nanostructures on self-assembled GaAs quantum

•K. Lindfors^{1,2}, M. Pfeiffer^{1,2}, B. Fenk¹, F. Phillipp³, P.

Atkinson⁴, A. Rastelli⁴, O.G. Schmidt⁴, H. Giessen², and

M. Lippitz^{1,2}; ¹Max Planck Institute for Solid State Re-

search, Stuttgart, Germany;²4. Physics Institute and Re-

search Center SCOPE, University of Stuttgart, Stuttgart,

Germany; ³Max Planck Institute for Intelligent Systems,

Stuttgart, Germany; ⁴IFW Dresden, Dresden, Germany

We demonstrate a flexible method based on solid-state

quantum emitters whose position we can determine with

nanometer precision that allows us to fabricate nanos-

tructures positioned with sub-10 nm accuracy with re-

A. Mohammadi¹ and •M. Agio²; ¹Persian Gulf Univer-

sity, Bushehr, Iran; ²European Laboratory for Nonlinear

The contribution has been withdrawn by the authors.

photonic crystal cavity in monocrystalline diamond •*J. Riedrich-Möller*¹, *S. Pezzagna*², *J. Meijer*², *M. Fischer*³,

S. Gsell³, M. Schreck³, and C. Becher¹; ¹Universität des

Saarlandes, Experimentalphysik FR 7.2, Campus E 2.6,

66123 Saarbrücken, Germany; ²Universität Leipzig, Nuk-

leare Festkörperphysik, Linnéstrasse 5, 04103 Leipzig,

Germany; ³Universität Augsburg, Experimentalphysik IV,

We present strategies for controlled coupling of single

color centers to photonic crystal cavities in diamond by

both fabricating a cavity around a pre-localized color

center and implanting single ions into pre-fabricated

Universitätsstrasse 1 Nord, 86159 Augsburg, Germany

Controlled coupling of single color centers to a

Spectroscopy (LENS), Sesto Fiorentino, Italy

Hall B0

We achieved photon number squeezing at 1.55 μ m using a noisy erbium-doped fiber laser, making use of collinear balanced detection technique, where intensity noise at a specific radio-frequency is canceled between two pulses.

IA-P.29 THU

Subwavelength Interference with Classical Light

•P. Hong and G. Zhang; The MOE Key Laboratory of Weak Light Nonlinear Photonics and School of Physics, Nankai University, Tianjin, China, People's Republic of (PRC)

IH-P.7 THU

Three-dimensional emission patterns from flat organic microlasers

•S. Bittner¹, C. Lafargue¹, C. Ulysse², J. Zyss¹, and M. Lebental¹; ¹Laboratoire de Photonique Quantique et Moléculaire, Ecole Normale Supérieure de Cachan, CNRS UMR 8537, Cachan, France; ²Laboratoire de Photonique et de Nanostructures, CNRS UPR20, Route de Nozay, Marcoussis, France

We investigate the three-dimensional far-field emission from flat organic microlasers and observe emission out of the cavity plane. The connection between the emission patterns and diffraction at a dielectric edge is investigated.

IH-P.8 THU

Nano Spatially and Femto Temporally Localized Laser Source

P.N. Melentiev¹, A.E. Afanasiev¹, A.A. Kuzin², A.S. Baturin², and •V.I. Balykin¹; ¹Institute for Spectroscopy Russian Academy of Sciences, Troitsk, Moscow reg., Russia; ²Moscow Institute of Physics and Technology, Dolgoprudniy, Moscow reg., Russia

We study photoluminescence and nonlinear optical processes from single nanohole and nanoslit. These two physical effects and using a microcavity opens up the possibility of constructing of nano spatially and femto temporally wavelength tunable light source.

IH-P.9 THU

Parametric polariton scattering as a source of entangled light

•L. Einkemmer¹, S. Portolan², Z. Vörös¹, and G. Weihs¹; ¹University of Innsbruck, Innsbruck, Austria; ²Atominstitut, Technical University of Vienna, Vienna, Austria

We theoretically study various polariton scattering schemes, and evaluate their merit as a source of entangled photons. We investigate the effect of phonons and that of resonant Rayleigh scattering on the quality of entanglement. We achieved subwavelength interference of a double-slit mask without post-selected operation with a new calssical source, which is realized by using a spatial light modulator to modulate a laser beam.

IH-P.10 THU

Parametric polariton scattering in quantum wires and coupled planar microcavities

L. Einkemmer¹, •P. Mai¹, S. Mathias¹, Z. Vörös¹, G. Weihs¹, A.M. Andrews², H. Detz², G. Strasser², K. Winkler³, A. Forchel³, C. Schneider³, S. Höfling³, and M. Kamp³; ¹Department of Experimental Physics, University of Innsbruck, Innsbruck, Austria; ²Institute of Solid State Electronics, Technical University of Vienna, Vienna, Austria; ³Department of Technical Physics, University of Würzburg, Würzburg, Germany

Using time-correlated photon counting, we experimentally study parametric polariton scattering, with the aim of producing entangled photon pairs. We model the system theoretically by numerical simulations based on a quantum Langevin approach.

IH-P.11 THU

Plasmonic Amplifier of the Evanescent Field of Free Electrons

•J.-K. So¹, J.-Y. Ou¹, G. Adamo^{1,2}, F.J. García de Abajo^{1,3}, K.F. MacDonald¹, and N.I. Zheludev^{1,2}; ¹Optoelectronics Research Centre & Centre for Photonic Metamaterials, University of Southampton, Southampton, United Kingdom; ²Centre for disruptive Photonic Technologies, Nanyanag Technological University, Singapore, Singapore; ³IQFR - CSIC, Madrid, Spain

We show experimentally for the first time that freeelectron evanescent fields can be amplified by a plasmonic nanolayer in much that same way as optical evanescent fields are amplified in the poor-man's superlens.

IH-P.12 THU

Determination of the orientation of a single nano-emitter by polarisation analysis

C. Lethiec¹, J. Laverdant², C. Javaux³, B. Dubertret³, C. Schwob¹, L. Coolen¹, and •A. Maître¹; ¹Institut des Nanosciences de Paris, Paris, France; ²LPMCN, Lyon, France; ³LPEM, Paris, France

We determine by emission polarization analysis the nature of emitting dipoles (linear-1D or 2 linear orthogonal

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incoherent dipoles-2D). By rotating the analyzer, we can infer from the polarized transmitted intensity the orientation of the emitter.

IH-P.13 THU

Optimized Thermal Conductivity Enhancement of Polar Nanotubes due to Surface Phonon-Polaritons

•J. Ordonez-Miranda, L. Tranchant, T. Antoni, and S. Volz; Ecole Centrale Paris, Paris, France

We study the contribution of the surface phononpolaritons to the thermal conductivity of polar nanotubes. For a SiO2 nanotube, values of about 1 W/m.K are obtained, which are comparable to its bulk phonon thermal conductivity.

IH-P.14 THU

Enhancement of second-harmonic generation from gold nanoparticles through passive elements

•R. Czaplicki¹, H. Husu^{1,2}, J. Mäkitalo¹, R. Siikanen¹, J. Lehtolahti³, J. Laukkanen³, M. Kuittinen³, and M. Kauranen¹; ¹Tampere University of Technology, Department of Physics, Tampere, Finland; ²Centre for Metrology and Accreditation (MIKES), Espoo, Finland; ³University of Eastern Finland, Department of Physics and Mathematics, Joensuu, Finland

We show that the presence of passive elements enhances second-harmonic generation from arrays of active metal nanoparticles. Our results provide a completely new concept for optimizing the nonlinear response of metamaterials.

IH-P.15 THU

Size dependent surface plasmon resonance broadening in non-spherical nanoparticles: single gold nanorods

V. Juvé^{1,3}, M.F. Cardinal^{2,4}, A. Lombardi¹, A. Crut¹,
 P. Maioli¹, L. M. Liz-Marzan², N. Del Fatti¹, and F. Vallée¹; ¹FemtoNanoOptics group, Université Lyon 1,

CNRS, Institut Lumière Matière,43 Bd du 11 Novembre, 69622, Villeurbanne, France; ²Departamento de Quimica Fisica, Universidade de Vigo, 36310, Vigo, Spain; ³Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie,D-12489, Berlin, Germany; ⁴Department of Chemistry, North,2145 Sheridan Road, Evanston, United States

We investigate the quantum size effects in metallic nonspherical nanoparticles.

The linewidth of the localized surface plasmon resonance is measured in single gold nanorods and shows a dependence on the two geometrical dimensions.

IH-P.16 THU

Plasmonic Oligomers as Effective Red Light Scatterers to Enhance the Performance of Organic Solar Cells

•F. Pastorelli^{1,2}, S. Bidault³, J. Martorell^{2,4}, and N. Bonod¹; ¹Institut Fresnel, Marseille, France; ²ICFO-Institut de Ciències Fotòniques, Barcelona, Spain; ³Institut Langevin, Paris, France; ⁴Universitat Politecnica de Catalunya, Terrassa, Spain

Metallic nanoparticles are being embedded in organic photovoltaic devices to better harvest the sun radiation. However, isolated nanoparticles have limited potential in such thin-film devices. We overcame this limitation by using dimers and trimers solutions.

IH-P.17 THU

Shape dependence of the quadratic nonlinear properties of gold nanoparticles

A. Anu¹, A. Lehoux², J. Zyss¹, H. Remita², and I. Ledoux-Rak¹; ¹LPQM, Institut d'Alembert, ENS Cachan, Cachan, France; ²LCP, Université Paris Sud, Orsay, France

We explore the quadratic nonlinear optical (NLO) properties of gold nanorods, showing the higher nonlinearity of high aspect ratio particles. A strong exaltation of NLO properties of dyes attached to nanorods is also evidenced.

IH-P.18 THU

A Plasmonic Switch based on Electrically Controlled Cavity Resonances

•C. McPolin, D. O'Connor, J.-S. Bouillard, A. Krasavin, W. Dickson, G. Wurtz, and A. Zayats; King's College London, London, United Kingdom

We numerically demonstrate a compact plasmonic switch, based on a cavity structure, that allows for the signal to be dynamically controlled via electrical means, yielding extinction ratios of up to 9dB.

IH-P.19 THU

Measurements on the Optical Transmission Matrices of Strongly Scattering Nanowire Layers

•D. Akbulut¹, T. Strudley², J. Bertolotti¹, T. Zehender³, E.P.A.M. Bakkers^{3,4}, A. Lagendijk¹, W.L. Vos¹, O.L. Muskens², and A.P. Mosk¹; ¹Complex Photonic Systems (COPS), MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands; ²School of Physics and Astronomy, University of Southampton, Southampton, United Kingdom; ³Department of Applied Physics, Eindhoven University of Technology, Eindhoven, The Netherlands; ⁴Kavli Institute of Nanoscience, Delft University of Technology, Delft, The Netherlands

We measure optical transmission matrices of strongly scattering GaP nanowire layers. Measured matrices show presence of correlations in the transmitted fields. We study the measured matrices to retrieve optical properties of the samples.

IH-P.20 THU

strongly scattering optical phenomena in GaAs powder

*T. van der Beek*¹, *P. Barthelemy*², *P.M. Johnson*¹, *D.S. Wiersma*³, and •A. Lagendijk¹; ¹FOM Institute AMOLF,

Amsterdam, The Netherlands; ²Delft University of Technology, Delft, The Netherlands; ³LENS and CNR-INO, Firenze, Italy

The contribution has been withdrawn by the authors.

IH-P.21 THU

Quantum coherence controls the charge separation in a prototypical artificial light harvesting system

S.M. Falke¹, C.A. Rozzi², N. Spallanzani³, A. Rubio², E. Molinari², D. Brida³, M. Maiuri³, G. Cerullo³, H. Schramm¹, J. Christoffers¹, and •C. Lienau¹; ¹für Physik, Carl von Ossietzky Universität, Oldenburg, Germany; ²CNR, Centro S3, Centro S3, Modena, Italy; ³IFN-CNR, Dipartimento di Fisica, Politecnico di Milano, Milano, Italy

We report ultrafast nonlinear spectra and first-principles quantum-dynamics simulations of an artificial prototypical light harvesting system - a supramolecular triad. Our results provide strong evidence for quantumcorrelated wavelike motion inducing the ultrafast photoinduced charge transfer.

IH-P.22 THU

Cooperative Electromagnetic Interactions and Linwidth Narrowing in Discrete Metamaterial Systems

•S. Jenkins and J. Ruostekoski; School of Mathematics, University of Southampton, Southampton, United Kingdom

We show how cooperative electromagnetic interactions between discrete resonators can lead to the formation and narrowing of a transmission resonance in planar metameterials. Our results are in excellent agreement with previous experimental observations.

13:00 - 14:00

CH-P: CH Poster Session

CH-P.1 THU

Tilted Planar Bragg Grating Refractometers

•C. Holmes, H. Rogers, K. Daly, L. Carpenter, C. Sima, P. Mennea, J. Gates, G. D'Alessandro, and P. Smith; University of Southampton, Southampton, United Kingdom Tilted planar Bragg gratings are demonstrated as effective refractometers. Increased design flexibility, compared to more traditional fibre regimes, is explored and coupling into cladding and plasmonic modes is understood using a developed numerical approach.

CH-P.2 THU

Resonance Micromechanical Mass Sensor with Holographic Interferometer

•R. Romashko^{1,2}, T. Efimov¹, and Y. Kulchin^{1,2}; ¹Institute of Automation and Control Processes, F.E.B. R.A.S, Vladivostok, Russia; ²Far-Eastern Federal University, Vladivostok, Russia

We present experimental results of applying an adaptive interferometry technique based on dynamic hologram recorded in photorefractive crystal for measurement of nano-objects mass adsorbed at micromechanical resonators with pico-gram resolution.

CH-P.3 THU

Optical Measurements on Rotating Micro-Tools

•M. Benedetti^{1,2}, G. Capelli^{1,2}, M. Norgia^{1,3}, and G. Giuliani^{1,2}; ¹University of Pavia, Pavia, Italy; ²Julight S.r.l., Pavia, Italy; ³Politecnico di Milano, Milano, Italy The vibrations and eccentricity of rotating micro-tools (diameter 600 um, speed up to 30,000 rpm) are measured through a custom-made triangulation laser sensor.

CH-P.4 THU

Self-Mixing Dual-Frequency Laser Doppler Velocimeter

•C.-H. Cheng, L.-C. Lin, and F.-Y. Lin; Institute of Photonics Technologies, Department of Electrical Engineer-

ing, National Tsing Hua University, Hsinchu, China, Republic of (ROC)

Self-mixing dual-frequency laser Doppler velocimeter based on the hybrid dynamics of the optical injection and the optical feedback of a semiconductor laser has been demonstrated. It shows the direction discriminability and high sensitivity.

CH-P.5 THU

Fiber Optic Vector Magnetic Field Gradient Sensing System

•A. Davis; US Naval Research Laboratory, Washington, DC, United States

The contribution has been withdrawn by the authors.

CH-P.6 THU

Electro-Optic High Voltage Sensor for Utility Application

•S. Wildermuth^{1,2}, K. Bohnert¹, S. Marchese¹, O. Steiger¹, J. van Mechelen¹, L. Rodoni¹, G. Eriksson³, and J. Czyzewski⁴; ¹ABB Switzerland Ltd., Corporate Research, Baden-Dättwil, Switzerland; ²ABB AG, Corporate Research, Ladenburg, Germany; ³ABB Sweden Ltd., Corporate Research, Västeras, Sweden; ⁴ABB Switzerland Ltd., High Voltage Components, Micafil Bushings, Zurich, Switzerland

We have developed an electro-optic ac-voltage sensor based on a novel concept for high-voltage-proof packaging. It passed all required dielectric tests (operating voltage: 300kV). Accuracy of 0.2% over a wide temperature range was experimentally verified.

CH-P.7 THU

High-Feedback DFB/FBG-Induced Noise Analysis and Static/Dynamic strain Sensing Applications

•D. Tosi¹ and G. Perrone²; ¹University of Limerick, Limerick, Republic of Ireland; ²Politecnico di Torino, Torino, Italy

High-feedback chaotic noise induced in DFB laser and FBG system is analyzed through eigendecomposition. Sensing application as static+dynamic FBG interrogation is presented.

CH-P.8 THU

Influence of the Mode Field Diameter on the Strain and Temperature Sensitivity of Different Fibres

•M. Murawski^{1,2}, Z. Holdynsk^{1,2}, M. Szymanski^{1,2}, T. Tenderenda^{1,2}, L. Ostrowski^{1,2}, A. Lukowski^{1,2}, K. Pawlik^{1,2}, M. Napierala^{1,2}, P. Marc¹, L. Jaroszewicz¹, and T. Nasilowski^{1,2}; ¹Institute of Applied Physics, Military University of Technology, Warsaw, Poland; ²InPhoTech Ltd, Warsaw, Poland

In this paper we present the theoretical and experimental study of the influence of the mode field diameter on the fiber sensitivity to the temperature and longitudinal strain.

CH-P.9 THU

Coupled waveguide integrated optic segment piston sensor for the GMT

•F. Bennet¹, K. Uhlendorf¹, R. Gardhouse¹, R. Conan¹, B. Espeland¹, and A. Bouchez²; ¹Research School of Astronomy and Astrophysics, Australian National University, Mount Stromlo Observatory, Canberra, Australia; ²Giant Magellan Telescope Organization, P.O. Box 90933, Pasadena, United States

Integrated optic segment piston sensor for the GMT uses laser-written coupled waveguides produce an output signal dependant on the segment piston. Segment piston with a sensitivity of less than 35nm with input Strehl >15%.

CH-P.10 THU

Polymer Fiber Optic Sensors for Strain Monitoring in Solid Rocket Motors' Propellant

•C. Riziotis¹, L. Eineder², L. Bancallari³, and G. Tussiwand²; ¹1National Hellenic Research Foundation, Theoretical and Physical Chemistry Institute, Photonics for Nanoapplications Laboratory, Athens, Greece; ²2Bayern-Chemie GmbH, Missile Propulsion Systems, Aschau am Inn, Germany; ³3MBDA Italia S.p.A, Missile Systems, La Spezia, Italy

Polymer Optical Fibers embedded in the propellant of Solid Rocket Motors are demonstrated for monitoring strains higher than 10%. A new architecture incorporating a closed-loop fiber is proposed and its theoretical behaviour is experimentally verified.

CH-P.11 THU

Full Characterisation of a Focussed Extreme Ultraviolet Beam Using a Non-Redundant Array of Apertures

•A.D. Parsons¹, P. Baksh¹, R.T. Chapman^{2,3}, B. Mills¹, J.G. Frey², and W.S. Brocklesby¹; ¹Optoelectronics Research Centre, Southampton, United Kingdom; ²School of Chemistry, Southampton, United Kingdom; ³Rutherford Appleton Laboratories, Didcot, United Kingdom A novel technique for full coherent beam profiling utilising a Non-Redundant array of apertures is present. The technique is applied experimentally in the EUV using a high harmonic source and the results investigated by simulations.

CH-P.12 THU

Measuring the Optical Properties of Natural Silks

•D. Little and D. Kane; MQ Photonics Research Centre, Department of Physics and Astronomy, Macquarie University, Sydney, Australia

There is an emerging interest in natural silks as an optical material. Here we present an accessible new technique for measuring the optical properties of these challenging samples, including the first reported optical absorption measurements.

CH-P.13 THU

Dual Frequency Combs Fourier Transform Spectrometer in Mid-infrared Region based on Femtosecond Optical Parametric Oscillators

•Y. Jin, J. Mandon, S. Cristescu, and F. Harren; Institute for Molecules and Materials, Nijmegen, The Netherlands A dual frequency combs Fourier transform spectrometer is demonstrated for the mid-infrared region. Based on optical parametric oscillators(OPO), the spectral coverage tuned from 2.7um to 4.7um, make it suitable for trace gas sensing.

CH-P.14 THU

Ultrafast Leak Detection of Hydrocarbons Using a 3.3 um Fabry-Perot Quantum Cascade Laser

•J. Jágerská¹, B. Tuzson¹, H. Looser², H. Prinz³, A. Bismuto^{4,5}, M. Beck⁴, and L. Emmenegger¹; ¹Empa, Swiss Federal Laboratories for Materials Science and Technology, Dübendorf, Switzerland; ²FHNW, University of Applied Sciences, Windisch, Switzerland; ³Wilco AG, Wohlen, Switzerland; ⁴ETH Zürich, Zürich, Switzerland; ⁵Alpes Lasers SA, Neuchâtel, Switzerland

We present a Mid-IR optical analyzer based on 3.3um Fabry-Perot QCL for industrial leak detection of aerosol propellants. Insensitive to water interference and operated without wavelength scanning, it reaches 1ppm precision within 10ms of measurement.

CH-P.15 THU

Detecting exoplanets with extreme adaptive optics and a single-mode fibre fed spectrograph

•N. Jovanovic¹, N. Cvetojevic², O. Guyon¹, F. Martinache¹, and J. Lawrence³; ¹Subaru Telescope, Hilo, United States; ²Macquarie University, Sydney, Australia; ³Australian Astronomical Observatory, Sydney, Australia

We report on a novel astronomical spectrograph design that combines several photonic technologies with an extreme adaptive optics system in order to achieve the high precision required for characterizing near Earth mass exoplanets.

CH-P.16 THU

A Quantum Cascade Laser based mid-infrared Sensor for the Detection of Carbon Monoxide and Nitrous Oxide in the Jet of a Microwave Plasma preheated Auto-Ignition Burner

•F. Schad¹, F. Eitel², S. Wagner^{2,3}, A. Dreizler^{2,3}, and W. Elsäßer^{1,3}; ¹Institute for Applied Physics, Darmstadt, Germany; ²Institute of Reactive Flows and Diagnostics, Darmstadt, Germany; ³Center of Smart Interfaces, Darmstadt, Germany

We report on mid-infrared TDLAS sensor for detection of N2O and CO in a microwave-plasma preheated autoignition burner. We achieve normalized detection limits below 8ppm*m for both molecules at elevated temperatures of up to 2000K.

CH-P.17 THU

Fluorescence excitation emission matrix spectroscopy of strongly absorbing samples using fibre-optic probes

•D. Munzke¹, J. Saunders², H. Omrani², O. Reich¹, and

H.-P. Loock²; ¹University of Potsdam - innoFSPEC, Potsdam, Germany; ²Queen's University, Kingston, Canada Fluorescence emission excitation matrix spectroscopy using fibre-optic probes is applied for the investigation of strongly absorbing samples. Four detector configurations are discussed. Theoretical simulations are validated with experimental results on strongly absorbing oil-contaminated jet fuel.

CH-P.18 THU

Non-destructive real-time monitor to measure 3D-bunch charge distribution with spectral decoding EO-sampling

⁶H. Tomizawa^{1,2}, Y. Okayasu¹, S. Matsubara¹, T. Togashi¹, K. Ogawa¹, T. Matsukawa³, and H. Minamide³; ¹Japan Synchrotron Radiation Research Institute, Hyogo, Japan; ²RIKEN SPring-8 Center, Hyogo, Japan; ³RIKEN, Sendai, Japan

We developed a novel 3D-BCD monitor. This 3D-BCD monitor is based on an Electro-Optic sampling technique with multiple EO crystal detectors in spectral decoding. We successfully demonstrated the first bunch measurement with DAST crystal.

CH-P.19 THU

Adaptive Phase Estimation with Squeezed Thermal Light

•A. Berni¹, L. Madsen¹, M. Lassen¹, B. Nielsen¹, M. Paris², and U. Andersen¹; ¹Department of Physics, Technical University of Denmark, Lyngby, Denmark; ²Department of Physics, Università degli Studi di Milano, Milano, Italy

In this work we investigate experimentally an adaptive phase estimation protocol, in which the phase information is encoded in a squeezed thermal state and extracted by means of homodyne measurements and Bayesian post-processing.

CH-P.20 THU

Phase Noise Performance of Double-Loop Optoelectronic Microwave Oscillators

R.M. Nguimdo¹, Y.K. Chembo², •P. Colet¹, and L. larger²; ¹Instituto de Física Interdisciplinar y Sistemas Complejos, IFISC (CSIC-UIB), Palma de Mallorca, Spain; ²UMR CNRS FEMTO-ST 6174/Optics Department, Universite Franché-Comté, Besançon, France

We introduce an optoelectronic oscillator for ultra-pure microwave generation with two nonlinearly-coupled delay loops. Besides reducing the phase noise spurious peaks, this system allows for stable microwave emission with larger amplitude.

CH-P.21 THU

Nanometrology using localized surface plasmon resonance spectroscopy

•C. Jeppesen¹, D.N. Lindstedt², A.V. Laurberg², A. Kristensen³, and N.A. Mortensen¹; ¹Department of Photonics Engineering, DTU Fotonik, Technical University of Denmark, Kongens Lyngby, Denmark; ²Danish Technological Institute, Taastrup, Denmark; ³Department of Micro- and Nanotechnology, DTU Nanotech, Technical University of Denmark, Kongens Lyngby, Denmark Initial results on the characterization technique: localized surface plasmon resonance (LSPR) spectroscopy is presented. The LSPR spectroscopy is utilized to evaluate 4" wafer scale fabrication uniformity and its potential as a nanometrology tool is discussed.

CH-P.22 THU

Ultrasensitive plenoptic microscope for imaging through turbid media

•W. Glastre, O. Hugon, O. Jacquin, H. Guillet de Chatellus, and E. Lacot; Laboratoire Interdisciplinaire de Physique, Saint Martin d'Hères, France

An ultrasensitive plenoptic microscope combining Laser Optical Feedback Imaging and Synthetic Aperture techniques is presented; a comparison with a classical setup based on a microlens array is made.

CH-P.23 THU

Nanometrology of sub-wavelength circular holes in gold nanofilms using Optical Surface Profilometry •D. Little and D. Kane; MQ Photonics Research Centre, Department of Physics & Astronomy, Macquarie Univer-

sity, Sydney, Australia

We measure the diameter of sub-wavelength circular holes in gold nanofilm using an optical surface profile, demonstrating the potential of optical surface profilometry as a viable nanometrology technique.

CH-P.24 THU

Optical fringe pattern processing using empirical mode decomposition based algorithms

•M. Trusiak and K. Patorski; Institute of Micromechanics and Photonics, Warsaw University of Technology, Warsaw, Poland

In the paper two empirical mode decomposition based fringe pattern processing techniques are presented. First algorithm performs fringe pattern enhancement and normalization, the second one separates fringe families encountered in grating interferometry (moiré) methods.

CH-P.25 THU

A Hollow Waveguide Michelson Interferometer

•J. Banerji¹, A.R. Davies², and R.M. Jenkins³; ¹Physical Research Laboratory, Navrangpura, India; ²Royal Hol-

loway University of London, Egham, United Kingdom; ³HollowGuide Ltd, Malvern, United Kingdom

A novel Michelson interferometer is proposed where hollow waveguides guide the input radiation between the interferometer components. Significant decreases in sensitivity to angular misalignment are predicted with potential performance benefits for sensing, metrology and spectrometry.

CH-P.26 THU

High-resolution broadband spectroscopy with a resonator-based phase modulator

•N. Berger; Technion - Israel Institute of Technology, Haifa, Israel

Considerable enhancement of the resolution and spectral range of Fabry-Perot spectrometers is proposed. A 1-MHz resolution within a 62.9-GHz range is numerically demonstrated for a finesse of 72. The spectral range can achieve 10 THz.

13:00 - 14:00

IG-P: IG Poster Session

IG-P.1 THU

Mirror transformation of Airy pulses under the action of third order dispersion.

•R. Driben^{1,2}, Y. Hu³, Z. Chen⁴, B. Malomed¹, and R. Morandotti³; ¹Department of Physical Electronics, Faculty of Engineering, Tel-Aviv University, Tel-Aviv, Israel; ²Department of Physics & CeOPP, University of Paderborn, Paderborn, Germany; ³Institut National de la Recherche Scientifique, Varennes, Québec, Montreal, Canada; ⁴Department of Physics & Astronomy, San Francisco State University, San Francisco, United States By analytical and numerical studies we demonstrate the mirror transformation of Airy pulses propagating in fibers with strong positive third order dispersion. After reaching a focal point, Airy pulse propagates with its acceleration reversed.

IG-P.2 THU

Generation of ultra-compressed solitons with propagation invariant, high tunable wavelength shift in Raman inactive gas-filled hollow-core photonic crystal fibers

•R. Driben^{1,2} and B. Malomed¹; ¹Department of Physical Electronics, Faculty of Engineering, Tel-Aviv, Israel; ²Department of Physics & CeOPP, University of Paderborn, Paderborn, Germany

Generating of ultra-compressed solitons with propagation invariant, high tunable wavelength up and dawnshift in Raman inactive gas-filled hollow-core PCFs is proposed. Universal optimal third order dispersion strength parameter was found for the compression and conversion.

IG-P.3 THU

Polarization-domain-wall complexes in fiber lasers

•C. Lecaplain¹, P. Grelu¹, and S. Wabnitz²; ¹Laboratoire Interdisciplinaire Carnot de Bourgogne, U.M.R. 6303 C.N.R.S., Dijon Cedex, France; ²Dipartimento di Ingegneria dell'Informazione, Università di Brescia, Brescia, Italy We study theoretically and experimentally the emergence of polarization-domain walls in fiber oscillators. We highlight their complex composite nature and the multifaceted range of dynamics available while exploring the system parameters.

IG-P.4 THU

Rogue Waves Generated through Quantum Chaos

•C. Liu¹, A. Falco², T. Krauss³, and A. Fratalocchi¹; ¹PRIMALIGHT, Department of Electrical Engineering and Department of Applied Mathematics and Computational Science, KAUST, Thuwal, Saudi Arabia; ²School of Physics and Astronomy, University of St. Andrews, St. Andrews, United Kingdom; ³Department of Physics, University of York, York, United Kingdom

We demonstrate a new avenue to generation of rouge waves in a linear optical micro-cavity based on the phenomenon of quantum chaos by analytical theory and abinitio simulation.

IG-P.5 THU

Characterization of the synchronization regimes of a self-injected two-frequency laser

M. Romanelli, L. Wang, •M. Brunel, and M. Vallet; Institut de Physique de Rennes, Rennes, France

We characterize quantitatively the bounded-phase and the phase-locked regimes of a self-injected dualfrequency laser. By measuring the phase noise spectra, we show that the quality of the locking is the same for both regimes.

IG-P.6 THU

Pattern formation in optomechanical cavities

•J. Ruiz-Rivas¹, C. Navarrete-Benlloch², G. Patera³, E. Roldán¹, and G.J. de Valcárcel¹; ¹Universitat de València, Valencia, Spain; ²Max-Planck Institut für Quantenoptik, Munich, Germany; ³Université de Lille, Lille, France We predict pattern formation, including cavity solitons, in an optomechanical cavity in which one of its mirrors can be deformed by radiation pressure.

IG-P.7 THU

Information processing using an electro-optic oscillator subject to multiple delay lines

•S. Ortín¹, L. Appeltant², L. Pesquera¹, G. Van der Sande², J. Danckaert², and J.M. Gutiérrez¹; ¹Instituto de Física de Cantabria (IFCA), Santander, Spain; ²Vrije Universiteit Brussel, Brussels, Belgium

We show numerically that a opto-electronic delay oscillator with multiple delay lines can solve high-demanding memory tasks. The inclusion of the extra delay lines increases the memory capacity of the photonic reservoir computer.

IG-P.8 THU

Front pinning induced by spatial inhomogeneous forcing in a Fabry-Pérot Kerr cavity with negative diffraction

•V. Odent, S. Coulibaly, P. Glorieux, M. Taki, and E. Louvergneaux; Laboratoire de Physique des Lasers, Atomes et Molécules, Lille, France

We evidence the pinning of propagating fronts subjected to inhomogeneous spatial forcing. The analytical results are confirmed by experiments in a Pérot-Fabry Kerr cavity pumped by a Gaussian profile and submitted to negative diffraction.

IG-P.9 THU

Diffractive resonant radiation by spatial solitons in waveguide arrays

•F. Biancalana² and T. Tran¹; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Heriot-Watt University, Edinburgh, United Kingdom

We study analytically and numerically a new kind of diffractive resonant radiation emitted by spatial solitons, generated in waveguide arrays with Kerr nonlinearity, which mimics the resonant radiation emitted by solitons in optical fibers.

IG-P.10 THU

Suppression of Modulation Instability by Spatio-Temporal Modulation •K. Staliunas; UPC&ICREA, Barcelona, Spain

Hall B0

We show by analytical and numerical studies, that modulation instability can be universally suppressed by resonant spatio-temporal modulation of the system. We study universal CGLE model, but also consider implementation in concrete nonlinear optical systems.

IG-P.11 THU

Control of excitable pulses in an optically injected semiconductor laser

M. Turconi, B. Garbin, M. Feyereisen, M. Giudici, and •*S. Barland; Institut Non Lineaire de Nice, Valbonne, France* We demonstrate the control of excitable intensity pulses in a semiconductor laser with injected signal. Triggering those pulses via a phase modulation may prove useful due to the signal regeneration property of excitable systems.

IG-P.12 THU

Delay Induced Instabilities of Cavity Solitons in Passive and Active Laser Systems

•M. Tlidi¹, A. Vladimirov^{2,3}, A. Pimenov², K. Panajotov⁴, D. Puzyrev⁵, S. M. Yanchuk⁵, and S. M. Gurevich⁶; ¹Université Libre de Bruxelles (ULB), Bruxelles, Belgium; ²Weierstrass Institute, Berlin, Germany; ³Cork Institute of Technology, Cork, Republic of Ireland; ⁴Vrije Universiteit Brussel, Brussel, Belgium; ⁵Humboldt University of Berlin, Berlin, Germany; ⁶University of Münster, Münster, Germany

We study delayed feedback effect on the dynamics of solitons in passive and active optical devices. We investigate the dependence of the drift instability threshold and soliton velocity on feedback phase and carrier relaxation rate.

IG-P.13 THU

Semi-analytical model for the evolution of femtosecond pulses during supercontinuum generation in synchronously pumped ring cavities

 M.J. Schmidberger^{1,2}, F. Biancalana^{1,3}, P.S.J. Russell^{1,2}, and N.Y. Joly^{2,1}; ¹Max Planck Institute for the Science of Light, Erlangen, Germany; ²Department of Physics, University of Erlangen-Nuremberg, Erlangen, Germany; ³School of Engineering & Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom

We study supercontinuum generation in synchronously pumped photonic crystal fibre ring cavities using a numerically efficient, semi-analytical multiscale model based on a discrete map built up from numerical solutions of the generalised nonlinear Schrödinger equation.

IG-P.14 THU

Polarization characteristics of superoscillatory beams •K. Makris¹, D. Papazoglou^{2,3}, S. Tzortzakis^{2,3}, and D. Psaltis⁴; ¹Department of Electrical Engineering, Princeton University, Princeton, United States; ²Institute of Electronic Structures and Laser, Foundation for Research and Technology Hellas, Heraklion, Greece; ³Materials Science and Technology Department, University of Crete, Heraklion, Greece; ⁴School of Engineering, Swiss Federal Institute of Technology Lausanne (EPFL), Lausanne, Switzerland

Polarization aspects of superoscillations are analyzed. A method that controls the polarization of the subwavelength regions with respect to the surrounding high intensity lobes is presented. Vectorial superoscillatory solutions of Maxwell's equations are also examined.

IG-P.15 THU

Impact of Optical Feedback on a Quantum Dot Laser Emitting Simultaneously from the Ground and Excited States

•M. Virte^{1,2}, K. Panajotov^{2,3}, and M. Sciamanna¹; ¹Optel Research Group and LMOPS (Laboratoire Matériaux Optiques, Photoniques et Systèmes) EA-4423, Supélec - Université de Lorraine, Metz, France; ²Brussels Photonics Team, Department of Applied Physics and Photonics (B-PHOT TONA), Vrije Universiteit Brussels, Brussels, Belgium; ³Institute of Solid State Physics, Sofia, Bulgaria We theoretically study the impact of optical feedback on the mode competition between the ground and excited state of a quantum dot laser. We bring new light and provide a theoretical framework for recent experiments.

IG-P.16 THU

Resilience of large amplitude coherent output in coupled lasers

•J. Zamora-Munt, M.A. Matías, and P. Colet; IFISC (CSIC-UIB), Campus Universitat Illes Balears, Palma de Mallorca, Spain

We study synchronization in laser arrays coupled through global frequency-filtered feedback and through direct optical injection on some elements into others. A suitable mathematical framework allows to understand the effect of the coupling topologies.

IG-P.17 THU

Delay feedback induces drift of multipeaks cavity solitons in VCSEL devices

•E. Averlant^{1,3}, A. Vladimirov², K. Panajotov³, H. Thienpont³, and M. Tlidi¹; ¹Faculté des Sciences, Université Libre de Bruxelles, Brussels, Belgium; ²Weierstrass In-

stitute for Applied analysis and stochastics, Berlin, Germany; ³Department of applied physics and photonics(IR-TONA), Vrije Universiteit Brussel, Brussels, Belgium We show that cavity solitons exhibit a spontaneous motion in VCSELS subject to injection and delay feedback. Their speed and the threshold of their drift are derived in the limit of nascent bistability.

IG-P.18 THU

On-off and Multistate Intermittencies in Cascaded Random Distributed Feedback Fibre Laser

•A. Lanin¹, S. Sergeyev¹, D. Nasiev¹, D. Churkin^{1,2}, and S. Turitsyn¹; ¹Aston University, Birmingham, United Kingdom; ²Institute of Automation and Electrometry SB RAS, Novosibirsk, Russia

We experimentally study intermittency in cascaded random distributed feedback fiber laser. The on-off intermittency developed near the second Stokes wave generation threshold is changed into multistate intermittencies at higher power.

IG-P.19 THU

Parametric resonance in periodically tapered optical fibres: scalar and vectorial modulational instability bands

•A. Armaroli¹ and F. Bianalana^{1,2}; ¹ Max Planck Research Group "Nonlinear Photonic Nanostructures" Max Planck Institute for the Science of Light, Erlangen, Germany; ² School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, United Kingdom

We analyse the modulational instability (MI) process induced by periodic variations of the parameters of an optical fibre along the propagation direction. It occurs in situations where conventional MI is forbidden and is widely tunable.

NOTES

A, AadhiCD-9.1 TUE
A. Ishaaya, AmielCJ-5.5 WED,
CJ-P.29 WED
Aalto, Antti
Aaronson, Scott
Abaio, Javier García de CI-5.2 WED
Abajo, Javier García deIG-3.2 WED Abbachi, MarcoIG-3.2 WED Abbas, Allaoua
Abbas Allaoua •CE/IE-P 29 WED
Abdeddaim Redba IH-P1 THU
Abdelrahman Zara CG-P 16 THU
Abdelraman, Zara
Abdi Mabdi IP DE MONI IA 7.6 THU
Abdeddaim, Redha CG-P.16 THU Abdelrahman, Zara CG-P.16 THU Abdelraman, Zara CG-3.3 WED Abdi, MehdiIB-P.5 MON, IA-7.6 THU Abdolvand, Amin CM-P.4 SUN,
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Abdul Sattar, Zubaida•CB-P.41 MON
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Abe, Ryo
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Abram, Izo CK-7.6 THU, IA-P.2 THU
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Abramski, Krzysztof CH-1.3 MON.
Abrate Silvio CI-P 36 WED
Abreu Afonso Javier CL72 WED
Abil Philippe CK 0.2 THU
Abstraiter Cerbard CE 3.5 MON
Abrate, Silvio
Acer, Ouali
Aceves, Alejandro B CD-12.4 WED Ackemann, Thorsten CC-P.4 SUN, IF-3.2 SUN, CB-P.20 MON, IG-1.2 TUE,
Ackemann, I norstenCC-P.4 SUN,
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Adam, Pavel CH-2.1 TUE
Adamiec, Pavel CB-P.32 MON
Adamo, Giorgio
Adamonis, Jonas•CD-P.6 TUE
Adams, Alfred CE-P.32 TUE
Adams, Alfred R•CB-10.6 THU
Adams, Alfred R
Adams, Alfred R
Adams, Alfred R. •CB-10.6 HU Adams, Charles IB-P.15 MON Adato, Ronen CK-6.3 WED Adler, Steffen CB-10.5 THU
Adams, Alfred R
Adamonis, Jonas •CD-P.6 TUE Adams, Alfred CE-P.32 TUE Adams, Alfred R•CB-10.6 THU Adams, Charles IB-P.15 MON Adato, Ronen
Adams, Alfred R
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Adams, Alfred R
Aggraberta, Antonia K CE-2.0 MON Agger, Christian CD-P.9 TUE Agio, Mario
Agarrabeltia, Antonia R CE-2.0 MON Agger, Christian CD-P.9 TUE Agio, Mario
Agarrabeltia, Antonia R CE-2.0 MON Agger, Christian CD-P.9 TUE Agio, Mario
Agarrabeltia, Antonia R CE-2.0 MON Agger, Christian CD-P.9 TUE Agio, Mario
Agaraberta, Antonia R. CD-P.9 TUE Aggor, Christian CD-P.9 TUE Agio, Mario •IH-P.5 THU Agnesi, Antoniangelo CD-6.1 MON, CE-6.3 TUE Agosteo, Stefano Agranat, Aharon CD-8.5 TUE Aguergaray, Claude CJ-P.6 WED,
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Ahrens, Johan
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Aizpurua, Javier
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Akahane, Kouichi
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Akikusa, Naota•CB-2.1 SUN Aksu, SerapCK-6.3 WED
Aksu, SerapCK-6.3 WED
Aktürk, Selçuk•SH-1.1 WED,
CM-5.2 WED
Al-Janabi, HadiCL-P.1 SUN
Al-Samaneh, Ahmed CB-8.4 THU
Alam, Shaif-ulCJ-10.6 THU
Alam, Shaif-ulCJ-10.6 THUAlam, ShaifulCJ-10.4 THUAlbach, DanielCA-8.1 WED
Albach, DanielCA-8.1 WED
Alberich, MaiderCM-7.2 THU
Albert, Claire
Albert, Ferdinand
Albert, FerdinandCK-7.2 THU
Alberucci, AlessandroCD-8.1 TUE
Albrecht, AlexCA-4.1 SUN
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Alcusa-Sáez, Erica P •CE-P.22 TUE Alduraibi, Mohammad CC-P.4 SUN,
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Aleksandrov, NickolayCF/IE-6.1 MON Aleksandrov, VeselinCA-P.7 SUN,
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Alesenkov, Aleksandr•CM-P.12 SUN
Alex, Aneesh
Alifano, PietroCM-P.3 SUN
Ališauskas, Skirmantas CD-1.1 SUN, CF/IE-6.2 MON, •CF/IE-6.3 MON,
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Almeida, Euclides CE-P.33 TUE
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Alonso, BenjamínCF/IE-3.2 SUN,
Alonso, BenjamínCF/IE-3.2 SUN, CF/IE-P.40 WED
Alonso, BenjamínCF/IE-3.2 SUN, CF/IE-P.40 WED Alonso-Ramos. CarlosCK-9.3 THU
Alonso, BenjamínCF/IE-3.2 SUN, CF/IE-P.40 WED Alonso-Ramos. CarlosCK-9.3 THU
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Alonso, BenjamínCF/IE-3.2 SUN, CF/IE-P.40 WED Alonso-Ramos, CarlosCK-9.3 THU Alouini, MehdiCL-5.4 TUE, CA-10.6 WED Alpmann, ChristinaCL-3.4 MON
Alonso, Benjamín CF/IE-3.2 SUN, CF/IE-P.40 WED Alonso-Ramos, Carlos CK-9.3 THU Alouini, Mehdi
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Alonso, Benjamín CF/IE-3.2 SUN, CF/IE-P.40 WED Alonso-Ramos, Carlos CK-9.3 THU Alouini, Mehdi

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Amarie, Sergiu•CC-P.2 SUN,	CD-9.2 TUE, CF/IE-P.8 WED
•IH-1.6 SUN	Appeltant, Lennert
Amiranashvili, Shalva CF/IE-6.5 MON,	Apuzzo, Aniello II-P.2 WED
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Ammar, MahdiIC-P.6 TUE	Arantchouk, Leonid CD-P.16 TUE,
Amo, Alberto IG-3.2 WED, IH-5.1 THU	
	CD-10.1 TUE
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Amselem, EliasIB-4.5 TUE	Aravazhi, Shanmugam CE-6.1 TUE,
Amthor, JuliaCI-P.17 TUE	PD-A.4 WED
Amy-Klein, Anne CB-2.4 SUN,	Arbabzadah, Emma•CA-9.6 WED
	Archambault, Andre CJ-P.13 WED
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Anandarajah, Prince M CB-7.2 THU	CH-7.2 THU
Anania, Maria Pia CG-P.18 THU	Ardana-Lamas, Fernando •CG-6.5 THU
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Andersen, ThomasCJ-6.4 WED	Argence, BérangèreCB-2.4 SUN
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Andersen, Ulrik L IA-7.5 THU	Argiolas, Nicola CE-P.35 TUE,
Anderson, Patrick N•CG-P.10 THU	CE-8.4 WED
Andrade, Jose CF/IE-P.1 WED	Argyris, Apostolos
	Argyros, Alexander
Andrásik, AttilaCG-P.22 THU	
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CD-10.1 TUE, CF/IE-P.25 WED	Armaroli, Andrea CD-2.5 SUN,
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Andreev, Alexander•CG-3.1 WED,	Armstrong, SeijiIA-5.3 WED
CG-P.6 THU	Armstrong, Seiji C IP D1 MON
	Armstrong, Seiji C IB-P.1 MON,
Andreev, NikolayCG-P.6 THU	IA-P.6 THU
Andres, Miguel CJ-P.26 WED	Arnold, Aidan •IF-P.13 SUN, IG-1.2 TUE,
Andrés, Miguel V CE-P.22 TUE,	•IC-P.5 TUE, •IA-4.6 WED
CJ-P.42 WED	Arnold, ChristopheIH-4.4 THU
Andrés, Pedro•CD-4.4 SUN	Arnold, Cord LCF/IE-9.1 WED
Andresen, Esben Ravn •IF-P.7 SUN,	Arnold, Nikita •II-P.7 WED, II-3.3 THU
•CL-5.1 TUE	Arriola, Alex CF/IE-P.42 WED
Andrews, Aaron Maxwell CB-1.4 SUN,	Arriola, Alexander•CM-6.7 THU,
CB-2.3 SUN, CC-P.3 SUN,	CM-7.2 THU
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Andriano, Domenico CK-6.2 WED	Artar, AlpCK-6.3 WED
Andrianov, Alexey CA-P.1 SUN	Artemov, VasiliyCM-P.18 SUN
Andrianov, Eugeny S CK-P.31 MON Andriukaitis, Giedrius CF/IE-4.6 SUN,	Aschieri, Pierre CJ-P.4 WED
Andriukaitis, Giedrius, CF/IE-4.6 SUN.	Ashida, MasaakiCC-1.4 SUN,
CA-8.2 WED	•CC-P.10 SUN
Andryieuski, Andrei•CC-4.3 SUN	Aspect, Alain
Angelov, Ivan	Assad, Syed IB-P.3 MON, IB-P.7 MON
CF/IE-5.6 MON	Assanto, Gaetano CD-8.1 TUE
Angurel, Luis A CM-P.30 SUN	Assémat, Elie CI-3.1 WED
Anielski, Paweł•IF-P.11 SUN	Assion, Andreas CF/IE-9.2 WED
Ansari, Vahid IB-1.5 MON	Atature, Mete•IH-4.1 THU
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	Atheneselvie Juane CM 2.2 CIN
	Athanasakis, Irene CM-2.2 SUN
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Anthur, AravindCD-P.20 TUE Antier, MarieJSII-2.5 WED Antipenkov, RomanCD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, OlegCA-6.2 TUE Antipov, Oleg LCA-6.3 TUE Antipov, SergeyQJ-P.9 WED	Atkinson, PaolaIH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry AII-2.3 WED Aubourg, Adrien•CA-P.25 SUN, •CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN,
Anthur, AravindCD-P.20 TUE Antier, MarieJSII-2.5 WED Antipenkov, RomanCD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, OlegCA-6.2 TUE Antipov, Oleg LCA-6.3 TUE Antipov, SergeyCJ-P.9 WED Antkowiak, MaciejCL-2/ECBO.2 SUN	Atkinson, PaolaIH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry ACI-2.3 WED Aubourg, Adrien•CA-P.25 SUN, •CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-4.4 SUN
Anthur, AravindCD-P.20 TUE Antier, MarieJSII-2.5 WED Antipenkov, RomanCD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, OlegCA-6.2 TUE Antipov, Oleg LCA-6.3 TUE Antipov, SergeyQJ-P.9 WED	Atkinson, PaolaIH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry ACI-2.3 WED Aubourg, Adrien•CA-P.25 SUN, •CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-4.4 SUN
Anthur, Aravind	Atkinson, PaolaIH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry AII-2.3 WED Aubourg, Adrien•CA-P.25 SUN, •CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-4.4 SUN Audoin, BertrandCF/IE-P.29 WED,
Anthur, Aravind	Atkinson, PaolaIH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry AII-2.3 WED Aubourg, Adrien•CA-P.25 SUN, •CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-4 SUN Audoin, BertrandCF/IE-P.29 WED, CF/IE-P.32 WED
Anthur, AravindCD-P.20 TUE Antier, MarieJSII-2.5 WED Antipenkov, RomanCD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, OlegCA-6.2 TUE Antipov, Oleg LCA-6.3 TUE Antipov, SergeyCJ-P.9 WED Antkowiak, MaciejCL-2/ECBO.2 SUN Antoine, HeidmannIA-7.3 THU Antoni, ThomasIH-P.13 THU Anu, AnuIH-P.17 THU	Atkinson, PaolaIH-P.4 THU Atmatzakis, EvangelosCF/IE-11.4 THU Atwater, Harry AII-2.3 WED Aubourg, AdrienCA-P.25 SUN, CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-4.4 SUN Audoin, BertrandCF/IE-P.29 WED, CF/IE-P.32 WED Augère, BéatriceCJ-8.1 WED
Anthur, Aravind •CD-P.20 TUE Antier, Marie •JSII-2.5 WED Antipenkov, Roman CD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, Oleg •CA-6.2 TUE Antipov, Oleg CA-6.2 TUE Antipov, Oleg CA-6.2 TUE Antipov, Sergey •CJ-P.9 WED Antkowiak, Maciej •CL-2/ECB0.2 SUN Antoine, Heidmann IA-7.3 THU Antoni, Thomas IH-P.13 THU Anu, Anu IH-P.17 THU Anumula, Sunilkumar •CG-2.2 TUE	Atkinson, Paola
Anthur, Aravind •CD-P.20 TUE Antier, Marie •JSII-2.5 WED Antipenkov, Roman CD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, Oleg CA-6.2 TUE Antipov, Oleg L CA-6.3 TUE Antipov, Sergey •CJ-P.9 WED Antkowiak, Maciej CL-2/ECBO.2 SUN Antoine, Heidmann IA-7.3 THU Antoni, Thomas IH-P.13 THU Anu, Anu IH-P.17 THU Anumula, Sunilkumar CG-2.2 TUE Aolita, Leandro IB-P.4 MON	Atkinson, PaolaIH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry AII-2.3 WED Aubourg, Adrien•CA-P.25 SUN, •CA-P.26 SUN Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN, CA-4.4 SUN Audoin, BertrandCF/IE-P.29 WED, CF/IE-P.32 WED Augère, BéatriceCJ-8.1 WED Auguste, FrédéricID-P.6 MON Aungskunsiri, KIA-2.1 MON
Anthur, Aravind •CD-P.20 TUE Antier, Marie •JSII-2.5 WED Antipenkov, Roman CD-P.6 TUE, CF/IE-P.4 WED, CG-5.2 THU Antipov, Oleg •CA-6.2 TUE Antipov, Oleg CA-6.2 TUE Antipov, Oleg CA-6.2 TUE Antipov, Sergey •CJ-P.9 WED Antkowiak, Maciej •CL-2/ECB0.2 SUN Antoine, Heidmann IA-7.3 THU Antoni, Thomas IH-P.13 THU Anu, Anu IH-P.17 THU Anumula, Sunilkumar •CG-2.2 TUE	Atkinson, Paola

Aparo, Lorenzo IB-P.2 MON, IA-2.5 MON Apolonski, AlexanderCF/IE-2.2 SUN,
Apolonski, AlexanderCF/IE-2.2 SUN,
CD-9.2 THE CE/IE-P.8 WED
Appeltant, Lennert IG-P.7 THU Apuzzo, Aniello II-P.2 WED Arabul, Umit CL-P.16 SUN Arafin, Shamsul
Apuzzo, Aniello II-P.2 WED
Arabul, Umit
Arafin, ShamsulCB-10.6 THU
Arantchouk, Leonid CD-P.16 TUE,
CD-10.1 TUE
Araújo, Cid CE-P.33 TUE
Aravazhi, Shanmugam CE-6.1 TUE, PD-A.4 WED
PD-A.4 WED
Arbabzadah, Emma•CA-9.6 WED Archambault, AndreCJ-P.13 WED Arcizet, OlivierPD-B.4 WED, CH 7 2 THU
Archambault, Andre CJ-P.13 WED
Arcizet, Olivier PD-B.4 WED,
Ardana-Lamas, Fernando •CG-6.5 THU
Ardron, Marcus•CM-P.14 SUN Arend, CarstenIA-3.5 MON
Arend, Carsten IA-3.5 MON
Argence, Bérangère
Argence, Bérengère ID-P.6 MON
Argiolas, Nicola CE-P.35 TUE,
Argyris, Apostolos CB-P.31 MON Argyros, Alexander CC-P.8 SUN Arie, Ady CD-2.6 SUN, CD-7.5 MON Armaroli, Andrea CD-2.5 SUN,
Argyros, Alexander CC-P.8 SUN
Arie Adv CD-2.6 SUN CD-7.5 MON
Armaroli Andrea CD-2.5 SUN
•IG-P.19 THU
Armstrong Seiji IA-5.3 WED
Armstrong Seiji C IB-P1 MON
Armstrong, SeijiIA-5.3 WED Armstrong, Seiji CIB-P.1 MON, IA-P.6 THU
Arnold, Aidan •IF-P.13 SUN, IG-1.2 TUE,
IC-P5 THE IA-46 WED
Arnold, ChristopheIH-4.4 THU Arnold, Cord LCF/IE-9.1 WED Arnold, NikitaII-P.7 WED, II-3.3 THU Arriola, AlexCF/IE-P.42 WED
Arnold Cord I CE/IE-9.1 WED
Arnold Nikita •II-P7 WED II-3.3 THU
Arriola Alex CE/IE-P 42 WED
Arriola, Alexander
CM-7.2 THU
Arroyo-Almanza, Diana A CB-5.3 TUE
Arelanov Denis CD 5.6 MON
Arslanov, Denis CD-5.6 MON Artar, Alp CK-6.3 WED
Artemov Vasiliv CM P 18 SUN
Acchiori Diarra CLP4 WED
Aschida Massaki CC 1 4 SUN
Artemov, VasiliyCM-P.18 SUN Aschieri, PierreCJ-P.4 WED Ashida, MasaakiCC-1.4 SUN, •CC-P.10 SUN
•CC-P.10 JUN
Aspect, Alain
Assad, Syed IB-P.3 MON, IB-P.7 MON
Assanto, Gaetano CD-8.1 TUE
Assemat, Elie CI-3.1 WED
Assanto, Gaetano CD-8.1 TUE Assemat, Elie CL-8.1 TUE Assion, Andreas CF/IE-9.2 WED Atature, Mete
Atature, Mete•IH-4.1 THU
Athanasakis, Irene CM-2.2 SUN
Atkinson, PaolaIH-P.4 THU
Atmatzakis, Evangelos .•CF/IE-11.4 THU
Atwater, Harry A II-2.3 WED
Atlantasakis, Irene (M-2.2 SUN Atlantasakis, Irene CM-2.2 SUN Atkinson, Paola IH-P.4 THU Atmatzakis, Evangelos •CF/IE-11.4 THU Atwater, Harry A
•CA-P.26 SUN
Aubry, NicolasCA-P.25 SUN, CA-P.26 SUN, CF/IE-4.2 SUN,
CA-P.26 SUN, CF/IE-4.2 SUN,
CA-4.4 SUN
Audoin, Bertrand CF/IE-P.29 WED,
CF/IE-P.32 WED
Augère, Béatrice
Auguste, Frédéric ID-P.6 MON
Aungskunsiri, K IA-2.1 MON
Aurand Bastian CE/IE-2.4 SUN

Aurélien, Kuhn	IA-7.3 THU
Austin, Dane	CG-P.12 THU
Averlant. Etienne	•IG-P.17 THU
Averlant, Etienne Avino, Saverio	
Avino, Saverio	. CH-2.1 TUE
Ayoub, Mousa CD-7.1 MON	•IF-P.15 SUN,
CD-7.1 MON Azhar, Mohiudeen Azuma, Toshiyuki CG-P.17 THU Babic, Fehim CJ-P.10 WED, CJ-P.19 WI CJ-P.20 WED, CJ-7.4 WEI Babushkin, Ihar Sacci, Luca	
Azhar, Mohiudeen	. •CD-3.6 SUN
Azuma, Toshiyuki	CG-P.7 THU.
	,
CG-P.17 THU	
Babic, FehimCL-2	/ECBO.3 SUN
Pahin Sarray CE	
Dabin, Sergey	TL-F.0 VVLD,
CJ-P.10 WED, CJ-P.19 WI	=D,
CLP 20 WED CL7 4 WE	ר
CJ-1.20 WED, CJ-1.4 WE	
Babushkin, IharCF	/IE-P.28 WED
Bacci. Luca	. CE-P.35 TUE
Babbankin, infarCF Bacci, Luca Bache, Morten .IF-P.2 SUI CD-3.2 SUN, CD-P.39 TUI CL-5.3 TUE, CF/IE-P.11 V •CF/IE-P.13 WED, CF/IE- •CF/IE-P.41 WED, CD-11. Bache Mortenf	
Dache, Morten . IF-F.2 301	N, IF-F.9 30N,
CD-3.2 SUN, CD-P.39 TU	Ε,
CL-5 3 THE CE/IE-P 11 V	VED
•CF/IE-P.13 WED, CF/IE-	P.35 WED,
•CE/IE-P 41 WED CD-11	3 WED
Dealer Menteuf	
	. CL-1.2 WLD
Bachelier. Guillaume	. CH-7.2 THU
Bächle, Andreas	CB 4 5 THE
Dacille, Allureas	. CD-4.5 TOL,
JSII-P.2 WED	
Bachmann Dominic	•CC-P 3 SUN
Bachmann, Dominic Bachor, HansCL-1/ IA-5.3 WED	ECBO.2 SUN,
IA-5.3 WED	
Dealers Have Allerst	
Bachor, Hans-Albert Badarla, Venkata Ramaiah	IA-5.1 VVED
Badarla, Venkata Ramaiah	CD-5.3 MON,
•CD-P.41 TUE	
•CD-F.41 TOL	<u></u>
Badding, John	.CM-8.6 IHU
Bader Marianne	1A-1 2 MON
Badikov, Dmitrii	CA-P.30 SUN
Badikov, Valerii	CA-P.30 SUN
Badikov, Valerii	CA-P.30 SUN
Badikov, Valerii Baechle, Andreas	CA-P.30 SUN JSII-2.2 WED
Badikov, Valerii Baechle, Andreas Baets, Roel	CA-P.30 SUN JSII-2.2 WED . CK-9.2 THU
Bader, Marianne Badikov, Dmitrii Badikov, Valerii Baechle, Andreas Baets, Roel	CA-P.30 SUN JSII-2.2 WED CK-9.2 THU
Badikov, Valerii Baechle, Andreas Baets, Roel Baev, Alexander	CA-P.30 SUN JSII-2.2 WED . CK-9.2 THU . CK-6.1 WED
Badikov, Valerii Baechle, Andreas Baets, Roel Baev, Alexander Bagaev, Sergei	CA-P.30 SUN JSII-2.2 WED CK-9.2 THU CK-6.1 WED CA-2.3 SUN
Badikov, Valerii Baechle, Andreas Baets, Roel Bagaev, Alexander Bagaev, Sergei Bagari Tolga	CA-P.30 SUN JSII-2.2 WED CK-9.2 THU CK-6.1 WED CA-2.3 SUN •CH-6 3 THU
Badikov, Valerii Baechle, Andreas Baets, Roel Baev, Alexander Bagaev, Sergei Bagci, Tolga	CA-P.30 SUN JSII-2.2 WED . CK-9.2 THU . CK-6.1 WED . CA-2.3 SUN •CH-6.3 THU
Badikov, Valerii Baechle, Andreas Baets, Roel Baev, Alexander Bagaev, Sergei Bagci, Tolga Bagnoud, Vincent	CA-P.30 SUN JSII-2.2 WED CK-9.2 THU CK-6.1 WED CA-2.3 SUN CH-6.3 THU JSI-1.3 MON,
Badikov, Valerii Baechle, Andreas Baets, Roel Baev, Alexander Bagaev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU. •CG-P.8 THI	CA-P.30 SUN JSII-2.2 WED CK-9.2 THU CK-6.1 WED CK-6.1 WED CK-6.3 THU JSI-1.3 MON, J
Bagoav, Sergei Bagci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THU	. CA-2.3 SUN •CH-6.3 THU JSI-1.3 MON,
Bageev, Sergei Bagaev, Sergei Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Babat-Treidel Omri	CA-2.3 SUN CA-2.3 SUN CH-6.3 THU .JSI-1.3 MON, J
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Babat-Treidel Omri	CA-2.3 SUN CA-2.3 SUN CH-6.3 THU .JSI-1.3 MON, J
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Babat-Treidel Omri	CA-2.3 SUN CA-2.3 SUN CH-6.3 THU .JSI-1.3 MON, J
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Babat-Treidel Omri	CA-2.3 SUN CA-2.3 SUN CH-6.3 THU .JSI-1.3 MON, J
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Babat-Treidel Omri	CA-2.3 SUN CA-2.3 SUN CH-6.3 THU .JSI-1.3 MON, J
Bagev, Alexander Bagaev, Sergei Bagci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Baker, Howard Bakkers, Erik	• CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU • CH-4.3 THU • CH-4.3 THU • CH-4.3 THU • CH-8.4 WED • CK-9.6 MON
Bagev, Alexander Bagaev, Sergei Bagci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Baker, Howard Bakkers, Erik	• CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU • CH-4.3 THU • CH-4.3 THU • CH-4.3 THU • CH-8.4 WED • CK-9.6 MON
Bagev, Alexander Bagaev, Sergei Bagci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Baker, Howard Bakkers, Erik	• CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU • CH-4.3 THU • CH-4.3 THU • CH-4.3 THU • CH-8.4 WED • CK-9.6 MON
Bagev, Alexander Bagaev, Sergei Bagci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Baker, Howard Bakkers, Erik	• CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU • CH-4.3 THU • CH-4.3 THU • CH-4.3 THU • CH-8.4 WED • CK-9.6 MON
Bagev, Alexander Bagaev, Sergei Bagci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Baker, Howard Bakkers, Erik	• CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU • CH-4.3 THU • CH-4.3 THU • CH-4.3 THU • CH-8.4 WED • CK-9.6 MON
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baigat Shehata, Andrea Baker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Bakksh, Peter Balakireva, Irina	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED CK-P.6 MON . IH-P.19 THU CH-P.11 THU IF-P.5 SUN
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baigat Shehata, Andrea Baker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Bakksh, Peter Balakireva, Irina	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED CK-P.6 MON . IH-P.19 THU CH-P.11 THU IF-P.5 SUN
Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baigat Shehata, Andrea Baker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Bakksh, Peter Balakireva, Irina	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED CK-P.6 MON . IH-P.19 THU CH-P.11 THU IF-P.5 SUN
Bagev, Alexander Bagaev, Sergei Bagaci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Bahgat Shehata, Andrea Baker, Moritz Baker, Howard Bakkers, Erik Bakkers, Erik Bakkers, Erik Bakker, Hotar Bakker, Hotar Bakker, Hotar Bakker, Evaldas Balciunas, Tadas	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . JSI-1.3 MON, J
Bagzev, Sergei Bagzev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Bakker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Baksh, Peter Balakireva, Irina Balciunas, Evaldas Balciunas, Evaldas	• CH-0.1 WED • CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CK-9.2 THU . CA-8.4 WED CK-P.6 MON .IH-P.19 THU CH-P.11 THU IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU
Bagzev, Sergei Bagzev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Bakker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Baksh, Peter Balakireva, Irina Balciunas, Evaldas Balciunas, Evaldas	• CH-0.1 WED • CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CK-9.2 THU . CA-8.4 WED CK-P.6 MON .IH-P.19 THU CH-P.11 THU IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU
Bagzev, Sergei Bagzev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Bakker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Baksh, Peter Balakireva, Irina Balciunas, Evaldas Balciunas, Evaldas	• CH-0.1 WED • CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CK-9.2 THU . CA-8.4 WED CK-P.6 MON .IH-P.19 THU CH-P.11 THU IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU
Bagzev, Sergei Bagzev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Bakker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Baksh, Peter Balakireva, Irina Balciunas, Evaldas Balciunas, Evaldas	• CH-0.1 WED • CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CK-9.2 THU . CA-8.4 WED CK-P.6 MON .IH-P.19 THU CH-P.11 THU IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU
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Bagzev, Sergei Bagzev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Bakker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Baksh, Peter Balakireva, Irina Balciunas, Evaldas Balciunas, Evaldas	• CH-0.1 WED • CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CK-9.2 THU . CA-8.4 WED CK-P.6 MON .IH-P.19 THU CH-P.11 THU IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU
Bagzev, Sergei Bagzev, Sergei Bagaci, Tolga Bagnoud, Vincent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Baier, Moritz Bakker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Baksh, Peter Balakireva, Irina Balciunas, Evaldas Balciunas, Evaldas	• CH-0.1 WED • CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CK-9.2 THU . CA-8.4 WED CK-P.6 MON .IH-P.19 THU CH-P.11 THU IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Honcent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahat Shehata, Andrea Bahat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bakker	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CH-P.15 SUN CM-P.15 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Honcent CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahat Shehata, Andrea Bahat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bakker	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CH-P.15 SUN CM-P.15 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Babat-Treidel, Omri Bahat-Treidel, Omri Bahgat Shehata, Andrea Bahgat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Evaldas Balakineva, Irina Balakineva, Irina Balciunas, Tadas C CF/IE-P.4 WED, •CG-5.2 Balda, Rolindes Baldini, Edoardo Baldini, Erancesco Balembois, François CA-1.5 SUN, CA-2.2 SUN, CA-P.25 SUN, CA-P.26 SU	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CH-P.15 SUN CH-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N,
Bagev, Alexander Bagaev, Sergei Bagaev, Sergei Bagai, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahagat Shehata, Andrea Bahagat Shehata, Andrea Bahagat Shehata, Andrea Baker, Howard Bakkers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . JSI-1.3 MON, J
Bagaev, Alexander Bagaev, Sergei Bagaev, Sergei Bagaci, Tolga CG-4.4 THU, •CG-P.8 THI Bahat-Treidel, Omri Bahgat Shehata, Andrea Bahgat Shehata, Andrea Baker, Howard Bakkers, Erik P.A.M. Bakkers, Evidas Balakireva, Irina Balciunas, Evaldas Balciunas, Tadas Balciunas, Tadas CF/IE-P.4 WED, •CG-5.2 Balda, Rolindes Baldini, Edoardo Baldini, Francesco Baldini, Francesco Balembois, François CA-1.5 SUN, CA-2.2 SUN, CA-P.25 SUN, CA-2.2 SUN, CF/IE-4.2 SUN, CA-4.4 SU Ballarini, Dario	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CH-P.15 SUN CH-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahagat Shehata, Andrea Bahagat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bak	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N, JN . IG-3.1 WED,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahagat Shehata, Andrea Bahagat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bak	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N, JN . IG-3.1 WED,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahagat Shehata, Andrea Bahagat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bak	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N, JN . IG-3.1 WED,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahagat Shehata, Andrea Bahagat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bak	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N, JN . IG-3.1 WED,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahagat Shehata, Andrea Bahagat Shehata, Andrea Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Bak	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N, JN . IG-3.1 WED,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahat Shehata, Andrea Bahat Shehata, Andrea Bakers, Erik P.A.M. Bakkers, Erik P.A.M.	. CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, N, JN . IG-3.1 WED,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, CG-Pa CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahgat Shehata, Andrea Baher, Movitz Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Balakines, Evaldas Balciunas, Tadas CC CF/IE-P.4 WED, •CG-5.2 Baldani, Edoardo Baldini, Edoardo Baldini, Edoardo CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.4 SU Balle, Salvador CB-P.36 MON, •CB-P.32 M CB-P.36 MON, •CB-P.32 M CB-P.36 MON, CI-4.6 WE	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, IN, JN . IG-3.1 WED, CB-P.7 MON, ON, D,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, CG-Pa CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahgat Shehata, Andrea Baher, Movitz Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Balakines, Evaldas Balciunas, Tadas CC CF/IE-P.4 WED, •CG-5.2 Baldani, Edoardo Baldini, Edoardo Baldini, Edoardo CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.4 SU Balle, Salvador CB-P.36 MON, •CB-P.32 M CB-P.36 MON, •CB-P.32 M CB-P.36 MON, CI-4.6 WE	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, IN, JN . IG-3.1 WED, CB-P.7 MON, ON, D,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, CG-Pa CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahgat Shehata, Andrea Baher, Movitz Bakers, Erik Bakkers, Erik P.A.M. Bakkers, Erik P.A.M. Balakines, Evaldas Balciunas, Tadas CC CF/IE-P.4 WED, •CG-5.2 Baldani, Edoardo Baldini, Edoardo Baldini, Edoardo CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.4 SU Balle, Salvador CB-P.36 MON, •CB-P.32 M CB-P.36 MON, •CB-P.32 M CB-P.36 MON, CI-4.6 WE	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, IN, JN . IG-3.1 WED, CB-P.7 MON, ON, D,
Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Sergei Bagaev, Horent CG-4.4 THU, •CG-P.8 THU Bahat-Treidel, Omri Bahat Shehata, Andrea Bahat Shehata, Andrea Bakers, Erik P.A.M. Bakkers, Erik P.A.M.	. CA-2.3 SUN . CA-2.3 SUN . CA-2.3 SUN . CH-6.3 THU JSI-1.3 MON, J IG-5.6 THU . CH-4.3 THU . CH-4.3 THU . CA-8.4 WED . CK-P.6 MON . IH-P.19 THU CK-P.6 MON IF-P.5 SUN CM-P.15 SUN F/IE-4.6 SUN, THU . CE-P.19 TUE . CD-2.1 SUN CK-P.10 MON . CA-1.3 SUN, IN, JN . IG-3.1 WED, CB-P.7 MON, ON, D,

CF/IE-4.6 SUN, CJ-2.5 SUN,
CF/IE-4.6 SUN, CJ-2.5 SUN, CF/IE-6.2 MON, CF/IE-6.3 MON, CG-1.2 TUE, CG-1.5 TUE, CG-2.3 TUE, CA-8.2 WED, CJ-6.4 WED, CL-8.2 WED, CG-6.2 TUE
CG-1.2 TUE, CG-1.5 TUE, CG-2.3 TUE,
CA-8.2 WED, CJ-6.4 WED,
CJ-P.21 WED, CG-5.2 THU,
CG-P.4 THU
Balykin, Victor I
Dalzer, Jan C
Bamberg, Fabian
Banaszek Konrad •IB-8.6 THU
Banaszek, Konrad
Bancallari, Luca CH-P.10 THU
Bancelin, Stéphane CL-P.4 SUN
Bandrauk, André D CF/IE-P.23 WED,
Bancelin, Stéphane CL-P.4 SUN Bandrauk, André D CF/IE-P.23 WED, •CG-5.5 THU
Banerjee, SaumyabrataCA-7.2 TUE, CA-7.3 TUE, CA-8.1 WED
CA-7.3 TUE, CA-8.1 WED
Banerji, Jay•CH-P.25 THU Bang, Ole IF-P.10 SUN, CD-P.9 TUE, CD-P.45 TUE, CD-P.48 TUE,
Bang, Ole IF-P.10 SUN, CD-P.9 TUE,
CJ-P.14 WED, JSIII-P.6 WED
Banzer Peter CK_4.2 SUN CE-2.0 MON
Baraldi Giorgio CM-6.5 THU
Baranov Andrey CF-8.5 WFD
Barbay, Sylvain
Bañuelos, Jorge CE-2.6 MON Banzer, Peter . CK-4.2 SUN, CE-P.4 TUE Baraldi, Giorgio CM-6.5 THU Baranov, Andrey
Barbier, Margaux•CD-3.3 SUN
Barbieri, Marco IB-2.4 TUE, IA-5.4 WED,
IA-1.27 1110
Barbosa, Péricles IA-P.21 THU Bardella, Paolo CB-3.2 MON,
Bardella Paolo CB-3.2 MON
CB-4.2 IUE
CB-4.2 IUE
CB-4.2 IUE
CB-4.2 IUE Bardou, NathalieIH-1.2 SUN Bargigia, IlariaCH-4.3 THU Barland, StéphaneCB-8.1 THU, IC-P 11 THU IC-5 3 THU
CB-4.2 IUE Bardou, NathalieIH-1.2 SUN Bargigia, IlariaCH-4.3 THU Barland, StéphaneCB-8.1 THU, IC-P 11 THU IC-5 3 THU
CB-4.2 I UE Bardou, NathalieIH-1.2 SUN Bargigia, IlariaCH-4.3 THU Barland, StéphaneCB-8.1 THU, IC-P 11 THU IC-5 3 THU
CB-4.2 I UE Bardou, NathalieIH-1.2 SUN Bargigia, IlariaCH-4.3 THU Barland, StéphaneCB-8.1 THU, IC-P 11 THU IC-5 3 THU
CB-4.2 TUE Bardou, Nathalie

Baskiotis, Catherine •CJ-10.4 THU
Bassi Paolo CK 2.1 SUN
Bassi, PaoloCK-2.1 SUN Bastard, LionelCJ-P.36 WED
Batista, AdrianaCE-P.33 TUE
Battle, Phil CD-6.3 MON
Baturin, Andrey S
Baudisch, Matthias IF-1.2 SUN,
CF/IE-3.5 SUN, CG-1.4 TUE,
CF/IE-9.6 WED
Baudouin, Quentin JSIII-1.2 WED
Bauerschmidt, Sebastian IH-1.5 SUN
Baumann, Kristian IC-1.3 TUE
Daumann, KristianIC-1.5 TUE
Baumert, MathisIC-P.1 TUE
Baumert, MathisIC-P.1 TUE Baumert, ThomasCF/IE-1.1 SUN Baumgartl, MartinCJ-7.2 WED
Baumgartl, Martin CJ-7.2 WED
Baumgartner, OskarCB-1.4 SUN Bautista, GodofredoCL-P.8 SUN,
Deutiste Cedeforde CL DO CUN
Bautista, GodoffedoCL-P.8 SUN,
•CL-4.5 MON, •CE-7.6 WED
Bayer, TimCF/IE-1.1 SUN
Baylón-Fuentes, Antonio CD-10.4 TUE,
•CD-10.5 TUE
Baz, Assaad•CJ-11.5 THU
Bazieva, Natalia
Parray Maraa CE D 25 THE
Dazzan, Marco•CE-P.55 TUE,
Bazieva, NataliaCC-P.5 SUN Bazzan, MarcoCE-P.35 TUE, CE-8.4 WED
Beaudoin, Gregoire PD-A.5 WED,
CB-10.3 THU
Beaufils Sylvie CE-4.6 TUE
Paka Jacanh CR 0 5 THU
Debe, Joseph
Beaufils, Sylvie
Becher, Christoph IA-3.5 MON, IH-4.3 THU, IH-P.6 THU
IH-4.3 THU, IH-P.6 THU
Beck, Mattias CB-1.1 SUN, CB-1.3 SUN,
CB-2.2 SUN, CB-2.6 SUN, CC-P.1 SUN,
CD-2.2 JUN, CD-2.0 JUN, CC-F.1 JUN,
CC-P.15 SUN, CB/CC-1.2 MON,
CC-P.15 SUN, CB/CC-1.2 MON,
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED,
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten CL-6.3 TUE
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten CL-6.3 TUE
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten CL-6.3 TUE
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, TorstenCL-6.3 TUE Becker, ChristophIC-2.1 TUE Becker, MartinCH-2.3 TUE,
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, TorstenCL-6.3 TUE Becker, ChristophIC-2.1 TUE Becker, MartinCH-2.3 TUE,
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, TorstenCL-6.3 TUE Becker, ChristophIC-2.1 TUE Becker, MartinCH-2.3 TUE, CJ-P.5 WED, CJ-9.1 THU, CJ-10.6 THU
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten CL-6.3 TUE Becker, Christoph CI-2.1 TUE Becker, Martin CH-2.3 TUE, CJ-P.5 WED, CJ-9.1 THU, CJ-10.6 THU Beckmann, Tobias CD-5.5 MON
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten CL-6.3 TUE Becker, Christoph CI-2.1 TUE Becker, Martin CH-2.3 TUE, CJ-P.5 WED, CJ-9.1 THU, CJ-10.6 THU Beckmann, Tobias CD-5.5 MON
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten CL-6.3 TUE Becker, Christoph CH-2.3 TUE, CJ-P.5 WED, CJ-9.1 THU, CJ-10.6 THU Beckmann, Tobias CD-5.5 MON Bednyakova, Anastasia •CF/IE-P.8 WED,
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
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CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten
CC-P.15 SUN, CB/CC-1.2 MON, CB/CC-1.5 MON, II-1.2 WED, CH-P.14 THU Beck, Torsten

Palli Fadavian CD 2 F CUN	
Bellini, Nicola CL-0.5 TUE	
Belli, Federico	
Belmonte Palmero, Carlos CB-P.13 MON	
Belshaw Louise CE/IE-1.4 SUN	
Ders Dallin Dallian CE 2.2 MON	
Ben Bakir, Badnise CE-3.2 WON	
Ben Salem, Amine JSIII-2.2 WED	
Benabid, Fetah•CJ-11.1 THU,	
C I 11 2 THU	
Devellent Devil	
Benalloul, PaulCK-P.22 MON Bencheikh, Kamel•CK-8.2 THU	
Bencheikh, Kamel•CK-8.2 THU	
Bendahmane, AbdelkrimJSIII-P.1 WED	
Benedetti, Alessio II-P.9 WED	
Benedetti, Mauro CL-P.11 SUN,	
Benedetti, Mauro	
Bengtsson Magnus TE-2/LIM 3 THE	
Dengesson, Magnus IT-2/EIM.S TOE	
Benichi, Hugo IB-P.10 MON	
Bennet, Francis•CH-P.9 THU	
Bennett, Anthony J PD-B.3 WED.	
Bengery, ZsoltCM-P.19 SUN Bengtsson, MagnusTF-2/LIM.3 TUE Benichi, HugoIB-P.10 MON Bennet, FrancisCH-P.9 THU Bennett, Anthony JPD-B.3 WED, IB-6.4 THU	
Benoit, AurélienCA-1.3 SUN Benson, Oliver IH-1.3 SUN, IA-3.2 MON, CK-7.1 THU	
Benson, Oliver IH-1.3 SUN, IA-3.2 MON,	
CK-7.1 THU	
Bente, E.A.J.M CB-3.3 MON	
Bente, Erwin CB-P.5 MON,	
CB-P.36 MON	
Benyattou, Taha CK-1.4 SUN Bercy, Anthony ID-3.4 MON Berdejo, Victor CJ-12.4 THU	
Bercy Anthony ID-3.4 MON	
Derey, Anthony	
Berdejo, Victor	
Bereś-Pawlik, ElzbietaCJ-P.44 WED	
Beresna, Martynas	
CM-43 WED CM-53 WED	
Derge, Luc	
CF/IE-P.28 WED	
Bereś-Pawlik, ElzbietaCJ-P.44 WED Beresna, Martynas CJ-P.44 WED Beresna, Martynas CM-P.24 SUN, CM-4.3 WED, CM-5.3 WED Bergé, Luc CF/IE-P.23 WED, CF/IE-P.28 WED Berger, Naum	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, FrancisCJ-P.44 WED Bergmann, AnnaCB-P.44 WED Bergmann, AnnaCB-8.6 THU Bernhard, ChristofIF-P.12 SUN,	
Berghmans, Francis CJ-P.44 WED Bergmann, Anna CB-P.44 WED Bergmann, Anna CB-8.6 THU Bernhard, Christof IF-P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardt, Edward H CL-P.9 SUN Bernhardt, Birgitta CH-P.19 SUN Berni, Adriano GC-2.2 WED Bertolotti, Jacopo CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU	
Berghmans, Francis CJ-P.44 WED Bergmann, Anna CB-P.44 WED Bergmann, Anna CB-8.6 THU Bernhard, Christof IF-P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardt, Edward H CL-P.9 SUN Bernhardt, Birgitta CH-P.19 SUN Berni, Adriano GC-2.2 WED Bertolotti, Jacopo CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU	
Berghmans, Francis CJ-P.44 WED Bergmann, Anna CB-P.44 WED Bergmann, Anna CB-8.6 THU Bernhard, Christof IF-P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardt, Edward H CL-P.9 SUN Bernhardt, Birgitta CH-P.19 SUN Berni, Adriano GC-2.2 WED Bertolotti, Jacopo CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU	
Berghmans, Francis	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •CH-P.20 THO Berghmans, Francis CJ-P.44 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof	
Berger, Naum •Ch-P.20 THO Berghmans, Francis CJ-P.24 WED Bergmann, Anna •CB-8.6 THU Bernhard, Christof F.P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardi, Edward H. CL-P.9 SUN Bernhardt, Birgitta CH-P.2 SUN Bernhardt, Birgitta CH-P.19 THU Bersch, Christoph Cl-P.12 SUN, IG-2.2 WED Bertolotti, Jacopo Bertolotti, Jacopo CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU Bertucci, Alessandro Bessire, Bänz	
Berghmans, Francis CJ-P.44 WED Berghmans, Francis CJ-P.44 WED Bergmann, Anna ··CB-8.6 THU Bernhard, Christof	
Bergher, Naum	
Berghmans, Francis CJ-P.44 WED Bergmans, Francis CJ-P.44 WED Bergmann, Anna ··CB-8.6 THU Bernhard, Christof, F.P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardi, Edward H. ··CL-P.9 SUN Bernhardt, Birgitta ··CH-5.2 THU Berni, Adriano ··CH-P.19 THU Bersch, Christoph ··IG-2.2 WED Bertolotti, Jacopo ··CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU Bertrand-Grenier, Antony ·CL-4.2 MON Bertucci, Alessandro ··CL-P.1 SUN Bessire, Bänz ··IF-P.12 SUN, •IB-P.14 MON, IA-P.9 THU, IB-8.5 THU Bessire, Bänz ··CH-P.1 UB Bestig, Jens ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CH-P.1 TUE Beveratos, Alexios ··CH-P.1 TUE Beveratos, Alexios ··CH-7.6 THU, IA-P.2 THU Beyer, Joern ··IB-7.3 THU Biandari, Rakesh ··CA-1.1 SUN Biandari, Fabio ···IG-P.19 THU Biancalana, Fabio ···CH-9.1 FUN Biancalana, Fabio ···CH-9.2 SUN, CD-3.4 SUN, CK-4.1 SUN, •II-P.6 WED, •IG-P 9 THU IG-P 13 THU	
Berghmans, Francis CJ-P.44 WED Bergmans, Francis CJ-P.44 WED Bergmann, Anna ··CB-8.6 THU Bernhard, Christof, F.P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardi, Edward H. ··CL-P.9 SUN Bernhardt, Birgitta ··CH-5.2 THU Berni, Adriano ··CH-P.19 THU Bersch, Christoph ··IG-2.2 WED Bertolotti, Jacopo ··CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU Bertrand-Grenier, Antony ·CL-4.2 MON Bertucci, Alessandro ··CL-P.1 SUN Bessire, Bänz ··IF-P.12 SUN, •IB-P.14 MON, IA-P.9 THU, IB-8.5 THU Bessire, Bänz ··CH-P.1 UB Bestig, Jens ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CH-P.1 TUE Beveratos, Alexios ··CH-P.1 TUE Beveratos, Alexios ··CH-7.6 THU, IA-P.2 THU Beyer, Joern ··IB-7.3 THU Biandari, Rakesh ··CA-1.1 SUN Biandari, Fabio ···IG-P.19 THU Biancalana, Fabio ···CH-9.1 FUN Biancalana, Fabio ···CH-9.2 SUN, CD-3.4 SUN, CK-4.1 SUN, •II-P.6 WED, •IG-P 9 THU IG-P 13 THU	
Berghmans, Francis CJ-P.44 WED Bergmans, Francis CJ-P.44 WED Bergmann, Anna ··CB-8.6 THU Bernhard, Christof, F.P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardi, Edward H. ··CL-P.9 SUN Bernhardt, Birgitta ··CH-5.2 THU Berni, Adriano ··CH-P.19 THU Bersch, Christoph ··IG-2.2 WED Bertolotti, Jacopo ··CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU Bertrand-Grenier, Antony ·CL-4.2 MON Bertucci, Alessandro ··CL-P.1 SUN Bessire, Bänz ··IF-P.12 SUN, •IB-P.14 MON, IA-P.9 THU, IB-8.5 THU Bessire, Bänz ··CH-P.1 UB Bestig, Jens ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CH-P.1 TUE Beveratos, Alexios ··CH-P.1 TUE Beveratos, Alexios ··CH-7.6 THU, IA-P.2 THU Beyer, Joern ··IB-7.3 THU Biandari, Rakesh ··CA-1.1 SUN Biandari, Fabio ···IG-P.19 THU Biancalana, Fabio ···CH-9.1 FUN Biancalana, Fabio ···CH-9.2 SUN, CD-3.4 SUN, CK-4.1 SUN, •II-P.6 WED, •IG-P 9 THU IG-P 13 THU	
Berghmans, Francis CJ-P.44 WED Bergmans, Francis CJ-P.44 WED Bergmann, Anna ··CB-8.6 THU Bernhard, Christof, F.P.12 SUN, IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU Bernhardi, Edward H. ··CL-P.9 SUN Bernhardt, Birgitta ··CH-5.2 THU Berni, Adriano ··CH-P.19 THU Bersch, Christoph ··IG-2.2 WED Bertolotti, Jacopo ··CL-P.14 SUN, •CL-2/ECBO.1 SUN, IH-P.19 THU Bertrand-Grenier, Antony ·CL-4.2 MON Bertucci, Alessandro ··CL-P.1 SUN Bessire, Bänz ··IF-P.12 SUN, •IB-P.14 MON, IA-P.9 THU, IB-8.5 THU Bessire, Bänz ··CH-P.1 UB Bestig, Jens ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CF/IE-9.2 WED Bett, Thomas ··CH-P.1 TUE Beveratos, Alexios ··CH-P.1 TUE Beveratos, Alexios ··CH-7.6 THU, IA-P.2 THU Beyer, Joern ··IB-7.3 THU Biandari, Rakesh ··CA-1.1 SUN Biandari, Fabio ···IG-P.19 THU Biancalana, Fabio ···CH-9.1 FUN Biancalana, Fabio ···CH-9.2 SUN, CD-3.4 SUN, CK-4.1 SUN, •II-P.6 WED, •IG-P 9 THU IG-P 13 THU	
Bergher, Naum	

IH-P.16 THU
Biedermann, Benjamin CF/IE-8.1 WED
Biegert, Jens IF-1.2 SUN,
CF/IE-3.5 SUN. CG-1.4 TUE.
Biedermann, Benjamin CF/IE-8.1 WED Biegert, JensIF-1.2 SUN, CF/IE-3.5 SUN, CG-1.4 TUE, CF/IE-9.6 WED, CJ-10.5 THU,
CG-P.12 THU
Bierlich, Jörg
Diggerstall, Devoli
Bigot, LaurentCJ-11.3 THU,
Biggerstaff, Devon
Bigourdan, FlorianIH-3.4 THU Bimbard, ErwanIA-1.4 MON
Bimbard, ErwanIA-1.4 MON
Binhammer Thomas CE/IE-P1 WED
CF/IE-9.1 WED
Bioud, Fatam-ZorhaIF-4.4 SUN Birch, RolfCA-10.5 WED
Birch, Rolf CA-10.5 WED
Birkholz, Simon
Birkholz, Simon
Birr Tobias II-2.5 WED
Picmute Alfrede CP 1 1 SUN
Bismuto, Alfredo CB-1.1 SUN, CB-1.3 SUN, CB-2.2 SUN, CB-2.6 SUN,
CD-1.3 JUN, CD-2.2 JUN, CD-2.0 JUN,
CH-P.14 THU
Bittner, Stefan CK-7.4 THU,
•IH-P.7 THU
Bize, SebastienID-1.3 MON Björk, GunnarIA-P.5 THU
Björk, Gunnar
Blackbeard, Nicholas CB-P.33 MON
Blaize. Svlvain
Bland-Hawthorn, Joss CH-1.6 MON
Blaser Stéphane CB-1 3 SUN
Blackbeard, Nicholas CB-P.33 MON Blaize, SylvainII-P.2 WED Bland-Hawthorn, Joss CH-1.6 MON Blaser, StéphaneCB-1.3 SUN, CC-P.15 SUN, CH-1.2 MON
Blast Martin CL4 3 WED
Blasl, Martin
Diatt, N
Blazek, Martin
Bley, KarinaCK-6.4 WED
Blin, Stéphane CB-P.18 MON
Blinne, Alexander
Bloch, Daniel IH-2.4 WED, IA-P.21 THU
Bloch, Immanuel
Bloch, ImmanuelIC-1.1 TUE Bloch, JacquelineIG-3.2 WED,
IH-5.1 THU Blondy, Jean-Marc CJ-P.38 WED Bluhms, Valdis IA-4.1 WED Blum, Christian CL-2/ECBO.1 SUN, •IH-2.3 WED
Blondy, Jean-Marc CJ-P.38 WED
Bluhms, Valdis IA-4.1 WED
Blum, Christian CL-2/ECBO.1 SUN.
•IH-2.3 WED
Blume Gunnar CB-P 11 MON
•IH-2.3 WED Blume, GunnarCB-P.11 MON, CB-P.17 MON, CB-9.2 THU Bochmann, JoergIA-1.5 MON Bock, MartinCF/IE-11.3 THU Bodenmüller, DanielCK-P.16 MON Bodrov, Sergey•CF/IE-6.1 MON Boetti, Nadia GiovannaCJ-P.36 WED Boffi, Pierpaolo CI-P.9 TUE, CI-P.11 TUE Bogaerts, WimCK-9.2 THU Bogaerts, WimCK-9.2 THU
Bochmann Joerg IA-15 MON
Bock Martin CE/IE 11 3 THU
Bodenmüller Deniel CK D16 MON
Dodenmuller, DanielCK-P.10 MON
Bodrov, Sergey•CF/IE-0.1 MON
Boetti, Nadia Giovanna CJ-P.36 WED
Both, Pierpaolo CI-P.9 TUE, CI-P.11 TUE
Bogaerts, WimCK-9.2 THU
Bogan, Christina•CH-6.5 THU
Boge, Robert CG-1.1 TUE
Bøggild, PeterCC-4.3 SUN
Bogaris, Will
Boguslawski, Martin •JSIII-P.7 WED,
CD-11.4 WED
Bohley, Christian
Böhm, Michael CK-P 16 MON
Bohley, ChristianCD-P.36 TUE Böhm, MichaelCK-P.16 MON, CD-P.11 TUE, CH-2.2 TUE
Rohnert Klaus CH_P6 THU
Bohnert, Klaus CH-P.6 THU Boiko, Dmitri L •CF/IE-11.2 THU
Boitier Enhien CK 72 TU
Boitier, FabienCK-7.3 THU Boivin, MaximeCF/IE-9.5 WED
DOIVIN, IVIAXIMECF/IE-9.3 WED

Belli, Federico•CD-3.5 SUN	IH-P.16 THU	Boivinet, Simon•CJ-P.28 WED
Bellini, Nicola CL-6.5 TUE	Biedermann, Benjamin CF/IE-8.1 WED	Boletti, Anna •CI-P.9 TUE, •CI-P.11 TUE
Bello, Frank	Biegert, Jens IF-1.2 SUN,	Bolk, Jeroen
Belmonte Palmero, Carlos CB-P.13 MON	CF/IE-3.5 SUN, CG-1.4 TUE,	Boller, Klaus
Belshaw, Louise	CF/IE-9.6 WED, CJ-10.5 THU,	Bollero, Alberto
Ben Bakir, Badhise ĆE-3.2 MON	CG-P.12 THU	Bollig, Christoph•CJ-P.31 WED
Ben Salem, Amine JSIII-2.2 WED	Bierlich, JörgCE-4.3 TUE	Bolognesi, Giacomo CA-3.3 SUN
Benabid, Fetah	Biggerstaff, Devon IB-2.5 TUE	Bolten, Jens •CE-P.11 TUE, CK-9.4 THU
CJ-11.2 THU	Bigot, LaurentCJ-11.3 THU,	Bommer, Alexander IH-4.3 THU
Benalloul, PaulCK-P.22 MON	CJ-11.5 THU	Bonelli, BarbaraCE-P.27 TUE
Bencheikh, Kamel•CK-8.2 THU	Bigourdan, Florian IH-3.4 THU	Bonerba, Elisabetta CM-1.1 SUN
Bendahmane, AbdelkrimJSIII-P.1 WED	Bimbard, ÉrwanIA-1.4 MON	Bonetti, Yargo PD-A.9 WED
Benedetti, Alessio II-P.9 WED	Binhammer, Thomas CF/IE-P.1 WED,	Bongs, Kai ID-1.3 MON, IC-P.1 TUE
Benedetti, Mauro	CF/IE-9.1 WED	Bonn, MischaCF/IE-13.4 THU
•CH-P.3 THU	Bioud, Fatam-ZorhaIF-4.4 SUN	Bonneau, D IA-2.1 MON
Bengery, Zsolt	Birch, Rolf CA-10.5 WED	Bonneau, Damien IA-6.6 WED
	Birkholz, SimonIG-5.2 THU	
Bengtsson, Magnus TF-2/LIM.3 TUE		Bonnet, Thomas JSI-1.3 MON
Benichi, Hugo IB-P.10 MON	Birks, Tim A CE-4.1 TUE	Bonod, Nicolas IH-P.1 THU,
Bennet, Francis•CH-P.9 THU	Birr, TobiasII-2.5 WED	IH-P.16 THU
Bennett, Anthony JPD-B.3 WED,	Bismuto, Alfredo CB-1.1 SUN,	Bonora, Stefano CF/IE-3.1 SUN,
IB-6.4 THU	CB-1.3 SUN, CB-2.2 SUN, CB-2.6 SUN,	CF/IE-5.5 MON
Benoit, Aurélien CA-1.3 SUN	CH-P.14 THU	Bony, Pierre-YvesCD-1.4 SUN,
Benson, Oliver IH-1.3 SUN, IA-3.2 MON,	Bittner, StefanCK-7.4 THU,	CI-3.1 WED, PD-B.8 WED
CK-7.1 THU	•IH-P.7 THU	Bonzon, Christopher •CB/CC-1.5 MON
Bente, E.A.J.M CB-3.3 MON	Bize, SebastienID-1.3 MON	Booth, Tim CC-4.3 SUN, PD-A.3 WED
Bente, Erwin	Björk, Gunnar•IA-P.5 THU	Boppart, StephenCF/IE-8.4 WED
CB-P.36 MON	Blackbeard, Nicholas CB-P.33 MON	Borchers, Bastian
Benyattou, Taha		
	Blaize, Sylvain II-P.2 WED	Borgschulte, Andreas CF/IE-13.1 THU
Bercy, Anthony ID-3.4 MON	Bland-Hawthorn, Joss CH-1.6 MON	Borisov, Alex B
Berdejo, VictorCJ-12.4 THU	Blaser, Stéphane	Borisov, AndreiII-1.3 WED
Bereś-Pawlik, ElzbietaCJ-P.44 WED	CC-P.15 SUN, CH-1.2 MON	Borkowski, Mateusz IC-P.8 TUE
Beresna, Martynas CM-P.24 SUN,	Blasl, Martin•Cl-4.3 WED	Bornhorst, Kirstin CI-4.3 WED
CM-4.3 WED, CM-5.3 WED	Blatt, RB-3.3 TUE	Borot, Antonin•CG-3.5 WED
Bergé, Luc CF/IE-P.23 WED,	Blazek, Martin	Borrego-Varillas, Rocío CD-P.34 TUE,
CF/IE-P.28 WED	Bley, KarinaCK-6.4 WED	•CF/IE-P.40 WED
Berger, Naum•CH-P.26 THU	Blin, Stéphane	Börzsönyi, Adam•CG-P.22 THU
Berghmans, FrancisCJ-P.44 WED	Blinne, Alexander CH-4.4 THU	Boscolo, SoniaCE-8.3 WED
Bergmann, Anna•CB-8.6 THU	Bloch, Daniel IH-2.4 WED, IA-P.21 THU	Bose, Ranojoy•IA-6.1 WED
Bernhard, ChristofIF-P.12 SUN,	Bloch, Immanuel	Botey, Muriel CB-P.38 MON, IG-2.4 WED
IB-P.14 MON, •IA-P.9 THU, IB-8.5 THU	Bloch, Jacqueline	Bouazaoui, MohamedCJ-11.5 THU
Bernhardi, Edward H CL-P.9 SUN	IH-5.1 THU	Boucher, Guillaume
Bernhardt, Birgitta	Blondy, Jean-Marc	CK-7.3 THU
Berni, Adriano	Bluhms, Valdis	Bouchez, Antonin
Bersch, Christoph IG-2.2 WED	Blum, Christian CL-2/ECBO.1 SUN,	Bouchoule, IsabelleIC-P.6 TUE
Bertolotti, Jacopo CL-P.14 SUN,	•IH-2.3 WED	Boudarham, Guillaume•IH-P.1 THU
•CL-2/ECBO.1 SUN, IH-P.19 THU	Blume, Gunnar CB-P.11 MON,	Bouillard, Jean-Sebastien CK-5.3 MON,
Bertrand-Grenier, Antony CL-4.2 MON	CB-P.17 MON, CB-9.2 THU	IH-P.18 THU
Bertucci, AlessandroCL-P.1 SUN	Bochmann, Joerg IA-1.5 MON	Bouillard, JeanSebastien CE-5.4 TUE
Bessire, BänzIF-P.12 SUN,	Bock, Martin CF/IE-11.3 THU	Boulanger, Benoît CD-6.4 MON
•IB-P.14 MON, IA-P.9 THU, IB-8.5 THU	Bodenmüller, DanielCK-P.16 MON	Bourderionnet, Jerome JSII-2.5 WED
Bessonov, DmitryCM-P.8 SUN	Bodrov, Sergey•CF/IE-6.1 MON	Bourdon, PierreCJ-8.1 WED
Bethge, Jens CF/IE-9.2 WED	Boetti, Nadia Giovanna 🛛 CJ-P.36 WED	Bourennane, Mohamed •IB-4.5 TUE
Bett, Thomas ĆG-P.20 THU	Boffi, Pierpaolo CI-P.9 TUE, CI-P.11 TUE	Bourmpos, Michail •CB-P.31 MON
Bevensee Jensen, JesperCI-P.1 TUE	Bogaerts, WimCK-9.2 THU	Boutami, SalimJSII-1.5 WED
Beveratos, Alexios	Bogan, Christina•CH-6.5 THU	Bouwmans, Geraud CD-2.5 SUN,
IA-P.2 THU	Boge, Robert	CL-5.1 TUE, CJ-6.2 WED, CK-8.5 THU,
Beyer, JoernIB-7.3 THU	Bøggild, PeterCC-4.3 SUN	CJ-11.3 THU, CJ-11.5 THU
	Bogric Adonic CD P 22 THE	Bouwmeester, Dirk IH-6.6 THU
Bhandari, Rakesh	Bogris, Adonis	Rowon Wanviel CL 1/ECRO 2 CUN
Biadala, Louis IH-6.2 THU	Boguslawski, Martin • JSIII-P.7 WED,	Bowen, Warwick •CL-1/ECBO.2 SUN,
Bianalana, FabioIG-P.19 THU	CD-11.4 WED	CL-6.4 TUE, IA-5.1 WED
Biancalana, Fabio CD-2.5 SUN,	Bohley, ChristianCD-P.36 TUE	Bowen, Warwick P ID-P.5 MON,
CD-3.4 SUN, CK-4.1 SUN, •II-P.6 WED,	Böhm, Michael CK-P.16 MON,	IA-7.5 THU, CH-6.2 THU
•IG-P.9 THU, IG-P.13 THU	CD-P.11 TUE, CH-2.2 TUE	Bowers, John CB-7.3 THU
Bianco, Federica•CK-2.2 SUN	Bohnert, Klaus CH-P.6 THU	Boyland, AlexCJ-5.4 WED
Bianco, Vittorio•JSII-1.4 WED	Boiko, Dmitri L •CF/IE-11.2 THU	Bozhevolnyi, Sergey II-P.10 WED
Biancofiore, CiroIA-7.2 THU	Boitier, FabienCK-7.3 THU	Brabetz, Christian CG-P.8 THU
Bidault, SebastienIH-P.1 THU,	Boivin, MaximeCF/IE-9.5 WED	Bradler, Maximilian•CD-6.2 MON,

CF/IE-12.4 THU
Bragagna Thomas CA-P 27 SUN
Braghari Francesca CL 6 5 THE
Draghen, FrancescaCL-0.5 TOL
Braglia, Andrea•CJ-1.1 SUN
Braive, RémyCK-7.6 THU
Brake, Sebastian JSIII-P.7 WED
Bramati Alberto CE 9.6 W/ED
Bragagna, Thomas CA-P.27 SUN Bragheri, Francesca CL-6.5 TUE Braglia, Andrea CJ-1.1 SUN Braive, Rémy CK-7.6 THU Brake, Sebastian JSIII-P.7 WED Bramati, Alberto CE-9.6 WED, IG-3.1 WED, IG-3.6 WED Brambila Danilo CG-P.14 THU
IG-3.1 WED, IG-3.0 WED
Brambila, Danilo
Brambilla, Gilberto CK-4.3 SUN,
CK-4.6 SUN_CK-P 14 MON
CK-P.15 MON
Branczyk, AgataIB-6.1 THU
Brańczyk, AgataIB-6.1 THU Brandi, Fernando•CH-7.1 THU
Brandstetter, Martin •CB/CC-1.3 MON,
CB/CC-1.6 MON
Brasch Victor ID B2 MON
Brasch, Victor
ID-P.4 MON, ID-2.3 MON
Brasselet, Sophie IF-P.1 SUN, IF-4.4 SUN, •CL-4.3 MON
IF-4.4 SUN. •CL-4.3 MON
Braun Hendrike CE/IE-1 1 SUN
Braun, Paul VII-3.4 THU
Brecht, BenjaminIB-1.4 MON,
IB-1.5 MON, •IA-P.23 THU
Braun, Hendrike CF/IE-1.1 SUN Braun, Paul V II-3.4 THU Brecht, Benjamin IB-1.4 MON, IB-1.5 MON, •IA-P.23 THU Brée, Carsten CF/IE-6.5 MON,
IG-5.1 THU, IG-5.2 THU
19-5.1 1110, 19-5.2 1110
Breitkopf, Sven CJ-4.3 MON,
CJ-5.3 WED
Brelet, YohannCM-P.1 SUN, CD-P.16 TUE, CD-10.1 TUE,
CD-P16 THE CD-101 THE
CF/IE-P.25 WED, CF/IE-P.26 WED
Brennecke, Ferdinand IC-1.3 TUE
Brenner, Carsten
Buie Comille Conhie CD D 47 THE
Bressler, Christian CE/IE D2 W/ED
Bressler, Christian CF/IE-P.2 WED
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CK-P.20 MON
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, John CK-P.20 MON
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CF/IE-P.2 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johan CF/IE-1.2 SUN Breuer, Stefan CB-4.2 TUE
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johan CK-P.20 MON Breuer, Stefan CB-4.2 TUE Breuerig Lago CD-5.5 MON
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johannes CK-P.20 MON Breuer, Johannes CF/IE-1.2 SUN Breuer, Stefan CB-4.2 TUE Breunig, Ingo CD-5.5 MON
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johan CK-P.20 MON Breuer, Stefan CB-4.2 TUE Breunig, Ingo CD-5.5 MON Brevier, Julien CL-5.6 TUE
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, John CK-P.20 MON Breuer, Stefan CB-4.2 TUE Breunig, Ingo CD-5.5 MON Brevier, Julien CL-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CF/IE-P.2 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johan CF/IE-1.2 SUN Breuer, Stefan CF/IE-1.2 SUN Breuer, Stefan CL-5.5 MON Brevier, Julien CL-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU Brida, Daniele CF/IE-5.2 MON,
Bressler, Christian CP/IE-P.2 WED Bretenaker, Fabien CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johan CF/IE-1.2 SUN Breuer, Stefan CB-4.2 TUE Breunig, Ingo CD-5.5 MON Brevier, Julien CL-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU Brida, Daniele CF/IE-5.2 MON, ISIV-2.4 MON C L-7.3 WED
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johan CK-P.20 MON Breuer, Stefan CB-4.2 TUE Breunig, Ingo CB-4.2 TUE Breunig, Ingo CL-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU Brida, Daniele CF/IE-5.2 MON, JSIV-2.4 MON, CJ-7.3 WED, CE/IE 10 5 THU LH P21 THU
Bressler, Christian CF/IE-12 WED Brestenaker, Fabien CF/IE-P.2 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CF/IE-12 SUN Breuer, Johan CF/IE-12 SUN Breuer, Julien CE-4.2 TUE Breunig, Ingo CL-5.5 MON Brevier, Julien CL-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU Brida, Daniele CF/IE-5.2 MON, JSIV-2.4 MON, CJ-7.3 WED, CF/IE-10.5 THU, IH-P.21 THU,
Bressler, Christian CF/IE-P.2 WED Bretenaker, Fabien CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CA-10.6 WED Breuer, Johannes CF/IE-1.2 SUN Breuer, Stefan CF/IE-1.2 SUN Brevier, Julien CD-5.5 MON Brevier, Julien CD-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU Brida, Daniele CF/IE-5.2 MON, JSIV-2.4 MON, CJ-7.3 WED, CF/IE-10.5 THU, IH-P.21 THU, CF/IE-10.5 THU, IH-P.21 THU,
Bressler, Christian CF/IE-72 WED Brester, Christian CA-10.6 WED Breuer, Johannes CK-P.20 MON Breuer, Johannes CK-P.20 MON Breuer, Johannes CF/IE-1.2 SUN Breuer, Stefan CB-4.2 TUE Breunig, Ingo CD-5.5 MON Breiver, Julien CL-5.6 TUE Briant, Tristan IA-7.4 THU, IA-P.26 THU Brida, Daniele CF/IE-5.2 MON, JSIV-2.4 MON, CJ-7.3 WED, CF/IE-10.5 THU, IH-P.21 THU, CF/IE-12.1 THU, •CF/IE-13.2 THU, CF/IE-13.5 THU
CF/IE-P.25 WED, CF/IE-P.26 WED Brennecke, Ferdinand
Brignon, ArnaudJSII-2.5 WED
Brignon, Arnaud
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCG-P.10 THU, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, MadsCK-7.5 THU
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-1.4 TUE Brocklesby, William SCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, MadsCK-7.5 THU Bronner, WolfgangCB-4.5 TUE,
Brignon, Arnaud
Brignon, Arnaud
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, MadsCK-7.5 THU Bronner, WolfgangCB-4.5 TUE, JSII-P.2 WED Brons, JonathanCF/IE-2.2 SUN Broome. MatthewB-P.9 MON.
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, Mads .CK-7.5 THU Bronner, WolfgangCB-4.5 TUE, JSII-P.2 WED Brons, JonathanCF/IE-2.2 SUN Broome, MatthewBP-9 MON, IB-2.5 TUE, IB-6.1 THU
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, Mads .CK-7.5 THU Bronner, WolfgangCB-4.5 TUE, JSII-P.2 WED Brons, JonathanCF/IE-2.2 SUN Broome, MatthewBP-9 MON, IB-2.5 TUE, IB-6.1 THU
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, Mads .CK-7.5 THU Bronner, WolfgangCB-4.5 TUE, JSII-P.2 WED Brons, JonathanCF/IE-2.2 SUN Broome, MatthewBP-9 MON, IB-2.5 TUE, IB-6.1 THU
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, Mads .CK-7.5 THU Bronner, WolfgangCB-4.5 TUE, JSII-P.2 WED Brons, JonathanCF/IE-2.2 SUN Broome, MatthewBP-9 MON, IB-2.5 TUE, IB-6.1 THU
Brignon, ArnaudJSII-2.5 WED Brinks, DaanJSIV-1.5 MON Brito-Silva, AntonioCE-P.33 TUE Britz, AlexanderCG-P.10 THU, CH-P.11 THU Broderick, NeilCK-P.14 MON, CJ-P.6 WED, PD-A.2 WED, CJ-9.4 THU Broderick, Neil G. RJSIII-2.3 WED Broemmel, DirkCC-1.2 SUN Brøkner Christiansen, MadsCK-7.5 THU Bronner, WolfgangCB-4.5 TUE, JSII-P.2 WED Brons, JonathanCF/IE-2.2 SUN Broome. MatthewB-P.9 MON.

Brown, Christian T.A. CA-6.3 TUE Brox, Olaf CB-P.29 MON Bruchhausen, Axel CF/IE-12.2 THU Brun, Mickael CK-2.6 SUN, CD-P.33 TUE, JSII-1.5 WED Brune, Michel IA-1.1 MON Bruneau, Didier CA-P.32 SUN Brunel, Marc . CH-2.7 TUE. •IG-P.5 THU Bruner, Barry D. CG-1.3 TUE Brunne, Jens CF/IE-11.3 THU CB-7.5 THU Bruns, Juergen CI-1.2 MON Brusatin, Giovanna CF/IE-5.5 MON Buatier de Mongeot, Francesco II-P.9 WED Bubnov, Mikhail CJ-8.2 WED Buccolieri, GiovanniCG-P.18 THU Buchleitner, Andreas • JSIV-2.1 MON Buchnev, Oleksandr•CE-5.1 TUE Buchter, ScottJSII-1.3 WED CA-P.9 SUN, CA-P.11 SUN, CD-5.2 MON. •CD-6.6 MON Buck, AlexCG-4.3 THU Buckle, Malcolm CH-3.1 WED Buckup, Tiago CD-4.1 SUN, •JSIV-1.1 MON, •CE-P.17 TUE Buczynski, Ryszard •CK-P.27 MON. CE-P.29 TUE, •CJ-P.30 WED Budni, PeterJSII-2.3 WED Budnicki, Aleksander CF/IE-4.1 SUN Buettner, Thomas Frank Sebastian •CD-P.46 TUE Bugar, IgnacCJ-P.21 WED Bugge, FrankCB-P.28 MON, ČB-P.29 MON, CB-9.1 THU, CB-9.2 THU Bühler, JohannesCF/IE-12.1 THU Buijs, Robin D. CF/IE-11.1 THU Buil, Stéphanie . II-P.8 WED, IH-6.2 THU Bukelskiene, Virginija CM-P.15 SUN JSII-1.2 WED, CK-10.5 THU Burchardt, Daniel IB-P.12 MON. IB-3.2 TUE Burgermeister, Tobias CM-2.3 SUN Burgess, JacobCF/IE-12.5 THU Burgess, JamesTF-1/LIM.1 TUE Burgos, Stanley P. II-2.3 WED Burgoyne, BryanCJ-P.13 WED Burgstaller, Lukas CB-2.3 SUN Burks, Sidney IA-6.2 WED Burmeister, Frank CM-6.6 THU Burresi, MatteoCK-5.2 MON, •CK-P.35 MON Burrows, Kathryn IC-P.4 TUE Busacca, Alessandro CC-3.3 SUN Busche, Hannes IB-P.15 MON Buse, GabrielCA-4.2 SUN Buse, Karsten CD-5.5 MON, CD-P.35 TUE, CE-7.3 WED, CE-8.6 WED Bushuev, VladimirCK-P.21 MON Butement, Jonathan CM-P.25 SUN

Butkus, VytautasJSIV-1.3 MON, •JSIV-1.4 MON Büttner, EdlefF/IE-9.2 WED C. Cruz, FlavioIC-P.7 TUE C. Magno, WictorIC-P.7 TUE Cabello, AdanIB-4.5 TUE Caderae Vieter	
•JSIV-1.4 MON	
Büttner, Edlef CF/IE-9.2 WED	
C. Cruz, FlavioIC-P.7 TUE	
C. Magno, WictorIC-P.7 IUE	
Cabello, AdanIB-4.5 TUE	
Cadarso, Victor J	
Cai, Tao	
Cail, X IA-2.1 MON	
Caillat, Ludovic	
Calabretta, Nicola	
Calabretta, Nicola	
Calendron, Anne-Laure•CA-4.3 SUN, CA-7.4 TUE	
Califano, Alessio CJ-1.1 SUN	
Califano, Alessio CJ-1.1 SUN Caliman, Andrei CB-8.2 THU, CB-8.5 THU	
CB-8.5 THU	
Calkins, Brice IB-1.1 MON, JSV-1.1 TUE, IB-7.3 THU	
Calmano, ThomasCJ-P.3 WED, CJ-P.32 WED, CJ-12.5 THU	
CJ-F.52 WED, CJ-12.5 ITU	
Calò, GiovannaCK-1.1 SUN Calonico, DavideID-1.3 MON,	
Calonico, Davide ID-1.3 IVION,	
ID-3.5 MON Calvet, Pierre•CJ-11.3 THU	
Calver, Fierre	
Calvez, StephaneCB-P.16 MON Cámara Mayorga, IvánCB-P.26 MON	
Camarar Mayorga, IvanCD-F.20 MON	
Cambra Wayiga, Walt CM-P.31 SUN Cambril, Edmond CM-P.31 SUN Cambril, Edmond CK-8.5 THU Campbell, Russell IC-P.8 TUE Camus, Nicolas CG-1.4 TUE Camy, Patrice CA-6.4 TUE,	
Campbell Russell	
Camus Nicolas	
CA-10.4 WED	
Canalias, Carlota CA-2.2 SUN, CD-7.6 MON	
Canat, Guillaume•CJ-5.6 WED,	
CJ-8.1 WED Cancellieri, Emiliano IG-3.1 WED,	
IG-3.6 WED	
Cancio, Pablo CB-P.6 MON	
Cancio, Pablo CB-P.6 MON Cancio Pastor, Pablo CC-2.6 SUN Candeo, Alessia CD-9.4 TUE	
Candeo, Alessia CD-9.4 TUE	
Candiani, Alessandro•CL-P.1 SUN Cankaya, HuseyinCA-4.3 SUN,	
Cankaya, HuseyinCA-4.3 SUN, CA-7.4 TUE	
Canneson, DamienII-P.8 WED, IH-6.2 THU Canteli, DavidCE-P.16 TUE Cantu, Horacio CI-P.8 TUE, CI-4.6 WED Cao, DaIH-1.2 SUN	
Canteli David •CE-P 16 TUE	
Cantu Horacio CI-P 8 TUE CI-4 6 WED	
Cao Da IH-1 2 SUN	
Cao, Da IH-1.2 SUN Cao, Hui •CH-2.4 TUE, •JSIII-1.3 WED,	
•JSIII-1.5 WED, •PD-A.7 WED	
Capelli, GiorgioCL-P.11 SUN, CH-P.3 THU	
Capmany, José CI-1.5 MON	
Capmany, José CI-1.5 MON Capmany, Juan CA-2.1 SUN, CD-P.17 TUE	
CD-F.1/ IUE	
Cappelli, Francesco•CB-P.6 MON	
Cárabe, Julio CM-P.23 SUN, CE-P.16 TUE	
Caradac Frédéric CE/IE P.0 W/ED	
Carbone Luigi CF-9.6 W/FD	
Carbonnel lerome CD-P 16 TUF	
CD-10.1 TUE. CF/IF-P 25 WFD	
Caradec, Frédéric CF/IE-P.9 WED Carbone, Luigi CE-9.6 WED Carbonnel, Jerome CD-P.16 TUE, CD-10.1 TUE, CF/IE-P.25 WED Cardenas, Daniel CG-3.2 WED,	

CG-4.3 THU	
CG-4.5 1110	
Cardinal, M. Fernanda	. IH-P.15 THU
Carelli, Pasquale	II-1.2 WED
Caresana, Marco	CG-P.18 THU
Carelli, Pasquale Caresana, Marco Carfagna, Cosimo Carletti, LucaCF Carnier, JulienCF	CE-P.26 TUE
Carletti, Luca	. •CK-1.4 SUN
Carlier, Julien	/IE-P.29 WED
Carminati, Rémi	IH-1.2 SUN
Carnegie David	CC-P5 SUN
Carnegie, David J.	CE-P 28 THE
Carney, Kevin	CB P 22 MON
Carolan, J.	
Carolall, J.	
Carpenter, Lewis •CE-P.12 TUE, CH-P.1 TH	.CK-1.2 50N,
Carrà, Luca	CE-0.3 TUE
Carras, Mathieu JSII-1.5 WED, •JSII-P.3 W	CC-P.16 SUN,
JSII-1.5 WED, •JSII-P.3 W	ED
Carretero, Sol	.PD-A.6 WED
Carrilero, Albert	CE-2.1 MON,
CE-2.2 MON_CE-2.3 MON	J
Carson, Chris Cartella, Andrea Carter, Adrian	IC-P.5 TUE
Cartella. Andrea	F/IE-3.1 SUN
Carter. Adrian	. ĆJ-10.3 THU
Carvajal, Joan Josep Carvajal, Joan Josep Carville, Nigel Craig Casagrande, Olivier Casandruc, Eliza Casandruc, Eliza Cassataro, Marco Cassinerio, Marco	CM-P17 SUN
Carville Nigel Craig	CK-P 2 MON
Casagranda Oliviar	
Casalino Maurizio	
Casandruc, Eliza	IG-3.4 WED
Caspani, Lucia	CC-3.3 SUN
Cassataro, Marco	CC-3.3 SUN
	.CA-3.1 SUN,
CJ-9.5 THU	
Castanié, Etienne	IH-1.2 SUN
Castellano, Fabrizio	CB-2.6 SUN
Castiglioni, Luca	PD-A.1 WED
Castellano, Fabrizio Castiglioni, Luca Castillejo, Marta	CM-P.31 SUN
Castro-López, Marta	IH-3.2 THU
Castro Rigoberto	CH-3 1 WFD
Castro, Rigoberto Cataldo, FrancoCF	/IE_10 5 THU
Cataluna, Maria Ana	
CF/IE-P.37 WED	
Cavalleri, Andrea C	
Cavalleri, Andrea	
	F/IE-3.1 SUN,
IG-3.4 WED	
IG-3.4 WED Cazé, Alexandre	IH-1.2 SUN
IG-3.4 WED Cazé, Alexandre	IH-1.2 SUN
IG-3.4 WED Cazé, Alexandre	IH-1.2 SUN
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Centini, Marco	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Centini, Marco	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Celik, Mehmet Centeno, Alba Centeno, Nieves, Eduardo Centini, Marco Cerdán, Luis Ceré, Alessandro	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED •CE-2.6 MON IA-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Celik, Mehmet Centeno, Alba Centeno, Nieves, Eduardo Centini, Marco Cerdán, Luis Ceré, Alessandro	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED •CE-2.6 MON IA-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Celik, Mehmet Centeno, Alba Centeno, Nieves, Eduardo Centini, Marco Cerdán, Luis Ceré, Alessandro	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED •CE-2.6 MON IA-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Celik, Mehmet Centeno, Alba Centeno, Nieves, Eduardo Centini, Marco Cerdán, Luis Ceré, Alessandro	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED •CE-2.6 MON IA-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Celik, Mehmet Centeno, Alba Centeno, Nieves, Eduardo Centini, Marco Cerdán, Luis Ceré, Alessandro	IH-1.2 SUN CK-2.2 SUN .CJ-6.3 WED /IE-13.4 THU CI-P.9 TUE II-P.9 WED •CE-2.6 MON IA-6.3 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Centini, Marco Cerdán, Luis Cerè, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN. CF/IE-5.2 M	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 TUE II-P.9 WED IA-6.3 WED IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON.
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Centini, Marco Cerdán, Luis Cerè, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN. CF/IE-5.2 M	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 TUE II-P.9 WED IA-6.3 WED IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON.
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerdán, Luis Cere, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 TUI CE-P.34 TUE, CD-9.4 TUI	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED CM-7.5 THU IH-1.6 SUN F/IE-3.1 SUN, ON, E,
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Certini, Marco Cerdán, Luis Cerdán, Luis Cerè, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 M CE-P.34 TUE, CD-9.4 TUE CG-4.6 THU, IH-4.2 THU,	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON, 40N, E, IH-P.21 THU,
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerkauskaite, Aušra Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 N CE-P.34 TUE, CD-9.4 TUE CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON, 40N, E, IH-P.21 THU,
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Centini, Marco Cerdán, Luis Ceré, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 N CE-P.34 TUE, CD-9.4 TUE CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T CF/IE-13.5 THU	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED CH-7.5 THU IH-1.6 SUN F/IE-3.1 SUN, ON, ON, E, IH-P.21 THU, HU,
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Certini, Marco Cerdán, Luis Cerdán, Luis Cerè, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 M JSIV-P.1 MON, JSIV-2.4 TUI CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T CF/IE-13.5 THU Chaisakul, Papichaya	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON, S, IH-P.21 THU, HU, CI-2.3 TUE
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerei, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 N CE-P.34 TUE, CD-9.4 TUI CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T CF/IE-13.5 THU Chaisakul, Papichaya Chaitanya Kumar. Suddapalli	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IA-6.3 WED IH-1.6 SUN ON, E, IH-P.21 THU, HU, CI-2.3 TUE CD-9.3 TUE
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno Nieves, Eduardo Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerei, Alessandro Čerkauskaite, Aušra Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 N CE-P.34 TUE, CD-9.4 TUI CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T CF/IE-13.5 THU Chaisakul, Papichaya Chaitanya Kumar. Suddapalli	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IA-6.3 WED IH-1.6 SUN ON, E, IH-P.21 THU, HU, CI-2.3 TUE CD-9.3 TUE
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Centeno, Alba Centini, Marco Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerdán, Aušra Cernescu, Adrian Cernescu, Adrian Cerullo, Giulio CD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 N CE-P.34 TUE, CD-9.4 TUE CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T CF/IE-13.5 THU Chaisakul, Papichaya Chaitanya Kumar, Suddapalli Chalus, Olivier	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED //IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED CH-7.5 THU IH-1.6 SUN F/IE-3.1 SUN, ON, ON, IH-P.21 THU, HU, CI-2.3 TUE CD-9.3 TUE CJ-P.33 WED
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Centeno, Nieves, Eduardo Cerdán, Luis Cerdán, Críte Chasakul, Papichaya Chaitanya Kumar, Suddapalli Chalus, Olivier Chamoro-Posada, Pedro	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON, 5. IH-P.21 THU, HU, CI-2.3 TUE F/IE-P.9 WED CJ-P.33 WED IF-2.3 SUN
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Centeno, Nieves, Eduardo Cerdán, Luis Cerdán, Críte Chasakul, Papichaya Chaitanya Kumar, Suddapalli Chalus, Olivier Chamoro-Posada, Pedro	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED /IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED IA-6.3 WED IH-1.6 SUN F/IE-3.1 SUN, ON, 5. IH-P.21 THU, HU, CI-2.3 TUE F/IE-P.9 WED CJ-P.33 WED IF-2.3 SUN
IG-3.4 WED Cazé, Alexandre Cazzanelli, Massimo Çelik, Mehmet Centeno, Alba Centeno, Alba Centeno, Alba Cerdán, Luis Cerdán, Luis Cerdán, Luis Cerei, Alessandro Čerkauskaite, Aušra Cereulo, Giulio CCD-4.3 SUN, CF/IE-5.2 M JSIV-P.1 MON, JSIV-2.4 M CE-P.34 TUE, CD-9.4 TUI CG-4.6 THU, IH-4.2 THU, IH-5.3 THU, CF/IE-13.2 T CF/IE-13.5 THU Chaisakul, Papichaya Chaitanya Kumar, Suddapalli Chalus, Olivier Chamorovskiy, Yuriy	IH-1.2 SUN CK-2.2 SUN CJ-6.3 WED //IE-13.4 THU II-P.9 WED •CE-2.6 MON IA-6.3 WED CH-7.5 THU IH-1.6 SUN F/IE-3.1 SUN, ON, ON, IH-P.21 THU, HU, CI-2.3 TUE CD-9.3 TUE CJ-P.33 WED

Chanda, Debashis	. CM-7.4 THU
Chandrasekhar, Sethumadha	/an
•CI-1.1 MON	
Chang, Lantian Chang, Rockson	•CK-10.6 THU
Chang, Earthan	
•IG-3.5 WED	
Chang, Wonkeun CD-3.5 SUN, CF/IE-6.6 N	. CD-1.3 SUN,
CD-3.5 SUN, CF/IE-6.6 N	ION
Chang, Yuan-Jen	•CM-P.11 SUN
Chann, BienTF	-1/LIM.1 TUE
Chanteau, Bruno	. CB-2.4 SUN,
Chang, Yuan-Jen Chann, BienTF Chanteau, BrunoTF ID-P.6 MON, ID-3.4 MON	
Chapman, Henry Chapman, Richard. T Charalambidis, Dimitris	CL-P12 SUN
Chapman Richard T	CH_P 11 THU
Chavelenchidie Dimitrie	
Charalambidis, Dimitris	
Charalampopoulos, Ioannis Chardonnet, Christian ID-P.6 MON, •ID-3.4 MOI	. CM-2.2 SUN
Chardonnet, Christian	CB-2.4 SUN,
ID-P.6 MON, •ID-3.4 MOI	N
Charitidis, Costas	. CM-P.20 SUN
Charles, NedCF	/IE-P.42 WED,
Charitidis, Costas Charles, NedCF CM-6.7 THU	
Charmasson, Laurent Chatzimanolis, Christos Chatzinikoloaidou, Maria . Chauvat, Dominique Chavez Boggio, José M	CK-P 26 MON
Chatzimanolis Christos	CM P 20 SUN
Chatzinianons, Christos	
Chatzinikoloaidou, iviaria	
Chauvat, Dominique	CD-P.7 TUE
Chavez Boggio, José M	CK-P.16 MON,
•CD-P.11 IUE	
Cheben, Pavel	CK-9.3 THU
Chebotarevsky, Yury	CM-P.8 SUN
Chekalin Sergev	CK-P 21 MON
Cheboen, Pavel Chebotarevsky, Yury Chekalin, Sergey Chekhov, Alexander Chekhova, Maria Chelkowski, Szczepan	
Cheknov, Alexander	
Chekhova, Maria	. IA-P.17 THU
Chelkowski, Szczepan CH	/IE-P.23 WED
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Chembo, Yanne IF-P.5 SU	Ń, IG-4.6 THU
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	Ń, IG-4.6 THU CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne IF-P.5 SU Chembo, Yanne K.	CD-10.4 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K Chen, Chun-Ting Chen, Chun-Wei Chen, Danni	CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE CL-5.3 TUE,
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Dayni CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Kai Chen, Wei Chen, Wei Chen, Wei Chen, Xiaohan Chen, Yu	N, IG-4.6 THU CD-10.4 TUE, CL-10.4 TUE, CL-3.1 MON CM-P.11 SUN CE-P.23 TUE CL-5.3 TUE, CG-P.19 THU CJ-P.17 WED CK-6.3 WED CC-6.3 WED CE-9.1 WED CC-P.2 TUE II-3.2 THU CA-P.5 SUN CM-P.23 SUN
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Chun-Ting Chen, Chun-Ting Chen, Chun-Wei Chen, Danni CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Feng Chen, Kai Chen, Rui Chen, Wei Ting Chen, Xiaohan Chen, Xiaohan Chen, Yu	N, IG-4.6 THU CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-P.2 TUE II-3.2 THU CA-P.5 SUN . CM-P.23 SUN
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Chun-Ting Chen, Chun-Ting Chen, Chun-Wei Chen, Danni CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Feng Chen, Kai Chen, Rui Chen, Wei Ting Chen, Xiaohan Chen, Xiaohan Chen, Yu	N, IG-4.6 THU CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-P.2 TUE II-3.2 THU CA-P.5 SUN . CM-P.23 SUN
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Chun-Ting Chen, Chun-Ting Chen, Chun-Wei Chen, Danni CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Feng Chen, Kai Chen, Rui Chen, Wei Ting Chen, Xiaohan Chen, Xiaohan Chen, Yu	N, IG-4.6 THU CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-P.2 TUE II-3.2 THU CA-P.5 SUN . CM-P.23 SUN
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Chun-Ting Chen, Chun-Ting Chen, Chun-Wei Chen, Danni CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Feng Chen, Kai Chen, Rui Chen, Wei Ting Chen, Xiaohan Chen, Xiaohan Chen, Yu	N, IG-4.6 THU CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-P.2 TUE II-3.2 THU CA-P.5 SUN . CM-P.23 SUN
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Chun-Ting Chen, Chun-Ting Chen, Chun-Wei Chen, Danni CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Feng Chen, Kai Chen, Rui Chen, Wei Ting Chen, Xiaohan Chen, Xiaohan Chen, Yu	N, IG-4.6 THU CD-10.4 TUE, . CJ-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-P.2 TUE II-3.2 THU CA-P.5 SUN . CM-P.23 SUN
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Deying Chen, Deying Chen, Feng Chen, Feng Chen, Rai Chen, Rui Chen, Wei Chen, Wei Ting Chen, Wei Ting Chen, Xiaohan Chen, Yu Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Lifeng Cheng, Tonglei	N, IG-4.6 THU CD-10.4 TUE, . CL-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-9.2 TUE CI-P.2 TUE CI-P.2 TUE CA-P.5 SUN . CM-P.23 SUN E, IG-P.1 THU CH-P.4 THU CK-P.28 MON . CD-P.3 TUE, ED
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Deying Chen, Deying Chen, Feng Chen, Feng Chen, Rai Chen, Rui Chen, Wei Chen, Wei Ting Chen, Wei Ting Chen, Xiaohan Chen, Yu Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Lifeng Cheng, Tonglei	N, IG-4.6 THU CD-10.4 TUE, . CL-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-9.2 TUE CI-P.2 TUE CI-P.2 TUE CA-P.5 SUN . CM-P.23 SUN E, IG-P.1 THU CH-P.4 THU CK-P.28 MON . CD-P.3 TUE, ED
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Deying Chen, Deying Chen, Feng Chen, Feng Chen, Rai Chen, Rui Chen, Wei Chen, Wei Ting Chen, Wei Ting Chen, Xiaohan Chen, Yu Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Lifeng Cheng, Tonglei	N, IG-4.6 THU CD-10.4 TUE, . CL-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-9.2 TUE CI-P.2 TUE CI-P.2 TUE CA-P.5 SUN . CM-P.23 SUN E, IG-P.1 THU CH-P.4 THU CK-P.28 MON . CD-P.3 TUE, ED
Chembo, Yanne Ti-P.5 SU Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Deying Chen, Deying Chen, Feng Chen, Feng Chen, Rai Chen, Rui Chen, Wei Chen, Wei Ting Chen, Wei Ting Chen, Xiaohan Chen, Yu Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Lifeng Cheng, Tonglei	N, IG-4.6 THU CD-10.4 TUE, . CL-7.2 WED . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CK-6.3 WED CI-9.2 TUE CI-P.2 TUE CI-P.2 TUE CA-P.5 SUN . CM-P.23 SUN E, IG-P.1 THU CH-P.4 THU CK-P.28 MON . CD-P.3 TUE, ED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Kai Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Yu Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Lifeng Cheng, Tonglei CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Zhochen	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CJ-3.1 MON CM-P.11 SUN . CE-9.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CE-9.1 WED . CE-9.1 WED . CH-P.2 TUE . II-3.2 THU . CA-P.5 SUN E, IG-P.1 THU . CH-P.4 THU CK-P.28 MON . CD-P.3 TUE, ED), II-P.10 WED . CA-P.18 SUN CK-P.25 MON . CJ-P.24 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Kai Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Yu Chen, Zhigang CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Ying Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Yung Cheng, Zhochen	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, . CJ-7.2 WED . CJ-3.1 MON CM-P.11 SUN . CE-9.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CE-9.1 WED . CE-9.1 WED . CH-P.2 TUE . II-3.2 THU . CA-P.5 SUN E, IG-P.1 THU . CH-P.4 THU CK-P.28 MON . CD-P.3 TUE, ED), II-P.10 WED . CA-P.18 SUN CK-P.25 MON . CJ-P.24 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Rui Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Xiaohan Chen, Xiaohan Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Chih-Hao Cheng, Chigang CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Yu-Chieh Cheng, Zhochen Cheng, Chi Shing Cheng, Chi Shing Cheng, Chi Shing	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, .CL-31 MON CM-P.11 SUN .CL-3.1 MON CM-P.11 SUN .CE-P.23 TUE CL-5.3 TUE, .CG-P.19 THU .CJ-P.17 WED CH-P.17 WED CH-P.2 TUE IG-P.1 WED CH-P.2 TUE IG-P.1 THU .CA-P.5 SUN .CM-P.23 SUN E, IG-P.1 THU CK-P.28 MON .CL-P.3 TUE, ED .CA-P.18 SUN .CK-P.25 MON .CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Rui Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Xiaohan Chen, Xiaohan Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Chih-Hao Cheng, Chigang CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Yu-Chieh Cheng, Zhochen Cheng, Chi Shing Cheng, Chi Shing Cheng, Chi Shing	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, .CL-31 MON CM-P.11 SUN .CL-3.1 MON CM-P.11 SUN .CE-P.23 TUE CL-5.3 TUE, .CG-P.19 THU .CJ-P.17 WED CH-P.17 WED CH-P.2 TUE IG-P.1 WED CH-P.2 TUE IG-P.1 THU .CA-P.5 SUN .CM-P.23 SUN E, IG-P.1 THU CK-P.28 MON .CL-P.3 TUE, ED .CA-P.18 SUN .CK-P.25 MON .CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Rui Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Xiaohan Chen, Xiaohan Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Chih-Hao Cheng, Chigang CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Yu-Chieh Cheng, Zhochen Cheng, Chi Shing Cheng, Chi Shing Cheng, Chi Shing	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, .CL-31 MON CM-P.11 SUN .CL-3.1 MON CM-P.11 SUN .CE-P.23 TUE CL-5.3 TUE, .CG-P.19 THU .CJ-P.17 WED CH-P.17 WED CH-P.2 TUE IG-P.1 WED CH-P.2 TUE IG-P.1 THU .CA-P.5 SUN .CM-P.23 SUN E, IG-P.1 THU CK-P.28 MON .CL-P.3 TUE, ED .CA-P.18 SUN .CK-P.25 MON .CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Rui Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Xiaohan Chen, Xiaohan Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Chih-Hao Cheng, Chigang CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Yu-Chieh Cheng, Zhochen Cheng, Chi Shing Cheng, Chi Shing Cheng, Chi Shing	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, .CL-31 MON CM-P.11 SUN .CL-3.1 MON CM-P.11 SUN .CE-P.23 TUE CL-5.3 TUE, .CG-P.19 THU .CJ-P.17 WED CH-P.17 WED CH-P.2 TUE IG-P.1 WED CH-P.2 TUE IG-P.1 THU .CA-P.5 SUN .CM-P.23 SUN E, IG-P.1 THU CK-P.28 MON .CL-P.3 TUE, ED .CA-P.18 SUN .CK-P.25 MON .CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED CJ-P.24 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chembo, Yanne Kouomou Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Chun-Wei Chen, Chun-Wei Chen, Chun-Wei Chen, Reig Chen, Feng Chen, Kai Chen, Kai Chen, Wei Chen, Wei Chen, Wei Ting Chen, Xiaohan Chen, Yu Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Chih-Hao Cheng, Tonglei CD-P.4 TUE, •CJ-P.41 Wi Cheng, Ying Cheng, Ying Cheng, Ying Cheng, Zhochen Cheng, Zhochen Cheng, Chi Shing Cherikov, Alexej Chia, Shih-Hsuan Chian-Hsuan	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, CL-3.1 MON CM-P.11 SUN . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CE-9.1 WED . CH-9.2 TUE CI-9.2 TUE CA-P.5 SUN . CA-P.5 SUN . CH-P.4 THU . CK-P.28 MON • CD-P.3 TUE, ED CA-P.18 SUN • CD-P.3 TUE, ED CA-P.18 SUN CK-P.25 MON • CJ-7.5 WED CJ-7.5 WED
Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne K. CD-10.5 TUE Chembo, Yanne Kouomou Chemnitz, Mario Chen, Benjamin K. Chen, Chun-Ting Chen, Chun-Wei Chen, Chun-Wei Chen, Daynin CF/IE-P.35 WED Chen, Deying Chen, Feng Chen, Kai Chen, Rui Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Wei Chen, Xiaohan Chen, Xiaohan Chen, Zhigang CD-8.2 TU Cheng, Chih-Hao Cheng, Chih-Hao Cheng, Chigang CD-P.4 TUE, •CJ-P.41 WI Cheng, Wei Cheng, Yu-Chieh Cheng, Zhochen Cheng, Chi Shing Cheng, Chi Shing Cheng, Chi Shing	N, IG-4.6 THU CD-10.4 TUE, CD-10.4 TUE, CL-3.1 MON CM-P.11 SUN . CL-3.1 MON CM-P.11 SUN . CE-P.23 TUE . CL-5.3 TUE, . CG-P.19 THU . CJ-P.17 WED . CE-9.1 WED . CH-9.2 TUE CI-9.2 TUE CA-P.5 SUN . CA-P.5 SUN . CH-P.4 THU . CK-P.28 MON • CD-P.3 TUE, ED CA-P.18 SUN • CD-P.3 TUE, ED CA-P.18 SUN CK-P.25 MON • CJ-7.5 WED CJ-7.5 WED

Chanda Debashis

CM 7 4 THU

Chiesa, Mario	CE-P.27 TUE
Chiesa, Mario Chiodo, Nicola Chielak, Bartos	CD-P.23 TUE
Chmielak, Bartos	.CK-9.4 THU
Chng, Mei Yuen Brenda	.•IA-6.3 WED
Chng, Mei Yuen Brenda Choi, Duk-Yong Choi, Ju Won	CD-10.2 TUE
Choi. Ju Won	CE-8.2 WED
Choi, Sun Young Choma, Michael Chong, Andy Chong, Harold	CB-4.5 THE
Choma Michael	ISIII-1 3 WED
Change Andre CE	
Chong, AndyCF	CE 7.1 WED
Chong, Harold	. CE-7.1 WED
Chotia, Amodsen Chou, Shao-Wei Choudhary, Amol	IC-2.4 TUE
Chou, Shao-Wei	•CG-3.2 WED
Choudhary, Amol	CE-7.1 WED,
•CE/IE-8 3 WED •CI-12 2	THU
Chouli, Souad	CE-P 24 TUE
Chow Weng	
Chožovskie Codiminas	
Chozevskis, Gedininas	
Choževskis, Gediminas Chrapkiewicz, Radoslaw Chrastina, Daniel	•IA-P.19 THU
Chrastina, Daniel	CI-2.3 TUE
Chremmos, Ioannis D. Christen, Jürgen Christian, James Christiansen, Silke	. CD-8.2 TUE
Christen, Jürgen	•CE-1.5 MON
Christian, James	•IF-2.3 SUN
Christiansen, Silke	CE-P.4 TUE
Christodoulides, Demetrios	IB-34 THE
IG-2.3 WED	
Christodoulides, Demetrios N.	~ ~ ~ ~ ~ ~
CK-4.5 SUN, CD-8.2 TUE,	CI-2.5 TUE,
IG-2.2 WED, JSIII-1.4 WEI	О,
CK-8.3 THU	
Christoffers, Jens	IH-P.21 THU
Chrzanowski, Helen	IB-P3 MON
IB-6.6 THU	. ID-1.5 MON,
Chu, Sai T Chua, Chern Fei	. CD-2.4 SUN
Chua, Chern Fei	. CA-8.2 WED
Chuchumishev, Danail	CA-P.9 SUN,
•CD-5.2 MON, CD-6.6 MO	N
Churkin, Dmitry •CJ-P.12 WED, CJ-P.19 W CJ-9.3 THU, IG-P.18 THU	CJ-P.10 WED,
•CJ-P.12 WED, CJ-P.19 W	ED,
C I-9 3 THU IG-P 18 THU	,
Chyla, Michal	CA-5.6 THE
Ciampolillo, Maria Vittoria	
	CE-P.35 TUE,
CE-8.4 WED Ciappina, Marcelo Ciattoni, Alessandro Cibella, Sara	
Ciappina, Marcelo	.CG-6.4 IHU
Ciattoni, Alessandro	•II-P.17 WED
Cibella, Sara	II-1.2 WED
Cingolani, Roberto	. IG-3.6 WED
Cinquanta Eugenio CE	/IE-10.5 THU
Cingolani, Roberto Cinguanta, Eugenio CF Cioffi, Nicola Cirelli, Claudio Ciret, Charles Cirmi, Giovanni Ciuti, Cristiano Cizmarova Hana	
Civalli Claudia	
	. CG-1.1 TUE
Ciret, Charles	IF-3.4 SUN
Cirmi, Giovanni	•CG-4.6 THU
Ciuti, Cristiano	II-1.2 WED
Clady, Raphaël Clady, Raphaël Claeyssens, Frederik Clark, Alex IB-1.3 MON,	ECBO.2 SUN
Clady, Raphaël	.CM-1.5 SUN
Claevssens Frederik	CM-8.2 THU
Clark Alex IB 1 3 MON	
	CL-3.2 MON,
IA-P.10 THU, IB-8.2 THU	
Clarke, Edmund	. CC-P.5 SUN
Clarkson, W. Andrew	CA-9.1 WED,
CA-10.2 WED, CJ-7.5 WEI	D,
CJ-10.2 THU, CJ-10.3 THU	J
 IA-P.16 THU, IB-8.2 THU IA-P.16 THU, IB-8.2 THU Clarkson, W. Andrew CA-10.2 WED, CJ-7.5 WEI CJ-10.2 THU, CJ-10.3 THI Claudon, Julien CF 	/IE-P.5 WED.
CF/IE-11.1 THU	, ,
CF/IE-11.1 THU Clerici, Matteo	
Cline Robert	
VIIII KODELI	

II-2.5 WED, II-P.10 WED

Chichkov, Boris N. CM-1.2 SUN

Coda, VirginieIF-3.4 SUN Codemard, ChristopheCJ-5.4 WED Coen, Stéphane ID-2.1 MON, CD-12.5 WED, PD-B.7 WED, IG-4.1 THU Cogdell, Richard J. JSIV-1.5 MON Cohadon, Pierre-François ... IA-7.4 THU, IA-P.26 THU •IG-4.6 THU Cojocaru, CrinaCK-P.13 MON, CK-P.25 MON Colangelo, Giorgio IA-3.4 MON, IA-P.8 THU, IA-P.25 THU Cole, Daniel PD-B.1 WED Colet, Pere CB-P.3 MON, CB-P.20 MON, CD-P.25 TUE, •IB-4.3 TUE, •CH-P.20 THU. IG-P.16 THU. IG-4.4 THU Collier, John . CA-7.2 TUE, •CA-7.3 TUE Collin, Stéphane IH-1.2 SUN •CE-3.2 MON Colombelli, Raffaele CB/CC-1.1 MON, CB/CC-1.4 MON Coluccelli, Nicola CA-3.1 SUN, •CJ-9.5 THU Comet, Maxime JSI-1.3 MON Comte, Michel CF/IE-P.7 WED Conan, Rodolphe CH-P.9 THU JSIII-2.1 WED, CF/IE-9.3 WED, •IG-5.4 THU Cong, Zhenhua CA-P.5 SUN Consoli, Antonio CB-P.32 MON Consolino, Luigi CC-2.3 SUN CC-2.6 SUN Conti, ClaudioCB-P.14 MON, •JSIII-2.5 WED Conti, Fabio CH-7.1 THU Coolen, Laurent CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Cooper, Jonathan CL-P.10 SUN Coppola, Giuseppe CH-2.1 TUE CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE Coquelin, BenjaminCA-1.3 SUN Coradin, Thibaud CL-P.4 SUN Coreno, Marcello CF/IE-P.16 WED Corkum, Paul CG-1.5 TUE, •CG-2.1 TUE Cormier. Eric CA-6.4 TUE. CJ-6.1 WED. CJ-P.18 WED, CJ-8.2 WED Coronado, Eduardo A. CE-3.3 MON Corradini, RobertoCL-P.1 SUN Correia, Ricardo Rego Bordalo CE-P.17 TUE Cosi, Franco CK-P.10 MON Costache, FlorentaCl-4.3 WED Costanzo, Giovanni A. ID-3.5 MON Costela, AngelCE-2.6 MON Cotter, Joseph IA-4.6 WED Couairon, Arnaud CM-P.1 SUN,

CM-5.5 WED. CF/IE-P.26 WED Couderc, Vincent CA-P.8 SUN, CD-P.18 TUE, CD-12.4 WED Coudreau, Thomas IA-2.4 MON Coulibaly, Saliya IG-P.8 THU Coulombier, Quentin CD-1.3 SUN, CJ-11.3 THU Courteille, Philippe IF-3.3 SUN Courvoisier, Francois CL-P.6 SUN, •CM-5.5 WED Crégut, Olivier CF/IE-P.2 WED Crespi, Andrea IA-2.5 MON, IB-2.2 TUE, •CM-7.1 THU CF/IE-3.2 SUN, CF/IE-3.5 SUN, CF/IE-P.17 WED Cristescu, SimonaCH-1.1 MON, CD-5.6 MON, CH-P.13 THU Cristiani, IlariaCD-2.1 SUN, CK-2.1 SUN, CD-P.10 TUE, CL-6.5 TUE, CE-8.4 WED Cristiani, Matteo IB-1.6 MON Crozatier, Vincent CF/IE-5.1 MON Crump, Paul CB-P.28 MON, •CB-9.1 THU Crut, Aurélien IH-P.15 THU Crutchley, Benjamin •CE-P.32 TUE Cruz, Jose L. CJ-P.42 WED Cserteg, AndrasCJ-P.28 WED Csete, Mária•JSV-1.2 TUE Csizmadia, Tamás •CM-P.19 SUN Ctistis, Georgios•CF/IE-P.5 WED, CF/IE-11.1 THU Cubeddu, Rinaldo CH-4.3 THU Cucinotta, Annamaria CL-P.1 SUN, CM-P.7 SUN, CJ-P.2 WED Cugat, JaumeCM-P.17 SUN, ČE-7.1 WED Cui, Shuzhen CJ-8.4 WED Curto, Alberto G. IH-3.2 THU CH-P.15 THU Czyszanowski, Tomasz ... •CB-P.34 MON, CB-P.40 MON Czyzewski, Jan CH-P.6 THU Dachraoui, Hatem CF/IE-13.3 THU Dagan, MichaCG-1.3 TUE Daghestani, Nart Samir ... •CC-P.4 SUN, •CF/IE-P.37 WED Dai, XianjinCA-P.2 SUN Dale, Benjamin CL-3.1 MON D'Alessandro, Giampaolo ... CH-P.1 THU Dalla Mora, AlbertoCH-4.3 THU Daly, Keith CH-P.1 THU D'Ambrosio, Vincenzo •IB-P.4 MON Damm, Signe•CK-P.2 MON CA-P.16 SUN. CA-9.6 WED Danckaert, JanCD-P.25 TUE, CB-5.4 TUE, CB-6.2 TUE, IG-P.7 THU Daniault, Louis CJ-4.4 MON Daniel, Jae M. O.CA-10.2 WED, CJ-7.5 WED, •CJ-10.2 THU Danilevicius, Paulius CM-8.2 THU

Danilevičius, Rokas CF/IE-P.19 WED Danson, Colin CG-P.20 THU CF/IE-P.15 WED Danzmann, Karsten CH-6.5 THU Daria, VincentIA-5.1 WED Daria, Vincent Ricardo CL-1/ECBO.2 SUN Darmo, Jurai . CC-P.3 SUN, CC-4.1 SUN, CC-4.4 SUN Darguié, Benoît•CB-2.4 SUN, ID-P.6 MON Dascalu, Traian•CA-9.5 WED Dashkevich, Vladimir CA-2.3 SUN Datta, AnimeshIA-5.4 WED, IA-P.27 THU Datta, Prasanta CJ-P.23 WED Dauliat, Romain CF/IE-8.2 WED D'Auria, VirginiaIB-7.2 THU Daussy, Christophe CB-2.4 SUN, ID-P.6 MON Davenport, Michael CB-7.3 THU Davies, A. Giles CB/CC-1.1 MON Davies, Alan RiveCH-P.25 THU Day, ToddCM-8.6 THU De Angelis, Annalisa CD-P.18 TUE De Cola, Luisa CL-P.7 SUN de Francisco, Isabel CM-P.30 SUN De Giorgi, MilenaIG-3.1 WED, IG-3.6 WED de Groot, Peter A. J. CC-2.4 SUN CF/IE-11.5 THU de la Figuera, Juan CM-P.31 SUN de la Fuente, Germán F. . . •CM-P.30 SUN de la Fuente Leis, Germán . CM-4.5 WED de Liberato, Simone II-1.2 WED De Los Reyes, Glenda ... CF/IE-12.5 THU De Martinis, Carlo CG-P.18 THU de Micheli, MarcCJ-P.4 WED de Nalda, RebecaCF/IE-P.18 WED CC-2.6 SUN, CB-P.6 MON, CH-2.1 TUE de Naurois, Guy-Mael CC-P.16 SUN, JSII-P.3 WED De Nicola, Sergio CE-P.26 TUE De Ninno, Giovanni CF/IE-P.16 WED de Oliveira, Rafael IA-P.21 THU De Paz, AurélieIC-2.4 TUE de Ridder, René CL-6.1 TUE de Ridder, René M. CL-P.9 SUN, CK-10.2 THU. CK-10.3 THU. CK-10.6 THU de Riedmatten, Hugues IB-1.6 MON de Ronde, BobCF/IE-11.1 THU De, SyamsundarÓA-10.6 WED de Valcárcel, Germán J. IA-3.3 MON, IG-P.6 THU de Valcárcel, Germán José . IB-P.20 MON De Vittorio, Massimo CB-P.13 MON, CE-9.6 WED de Vivie-Riedle, Regina ... CF/IE-1.1 SUN De Wilde, Yannick IH-1.2 SUN Debernardi, Pierluigi CB-P.4 MON, •CB-8.3 THU

Decencière, EtienneCL-P.4 SUN
Decker, Manuel•II-4.2 THU
Decurey Jean-Pierre IB-P 13 MON
Decurey, Jean-Pierre IB-P.13 MON Degasperis, Antonio JSIII-2.1 WED Degiorgio, Vittorio CE-8.4 WED Dekorsy, Thomas CE-1.2 MON,
Degiorgio, Vittorio
Dekorsy, ThomasCE-1.2 MON,
CF/IE-12.2 THU
Del Fatti, NataliaIH-P.15 THU
del Hovo Jesús CI-12.4 THU
del Valle, Elena•IA-P.20 THU
Delanty, Michael
Delaporte, Philippe CK-P.26 MON,
Delaporte, Philippe CK-P.26 MON, CM-4.2 WED
Delaye, PhilippeCD-3.3 SUN Deléglise, SamuelIA-7.4 THU,
Deléglise, Samuel IA-7.4 THU,
•IA-P.20 I HU
Délen, Xavier•CA-1.3 SUN,
•CF/IE-4.2 SUN, CA-4.4 SUN Delezoide, Camille•CH-3.1 WED
Delezoide, Camille•CH-3.1 WED
Delfanazari, K CC-3.4 SUN
Delfyett, Peter•CB-3.5 MON
Delfanazari, K
ID-2.5 MON, •PD-B.1 WED
Della Giustina, Gioia CF/IE-5.5 MON
Della Giustina, Gioia CF/IE-5.5 MON Delle Side, Domenico•CM-P.3 SUN, CG-P.18 THU
CG-P.18 THU
DeiRe, Eugenio CD-8.5 TUE
Demircan, Aynan•CF/IE-0.5 MON,
•IG-5.1 THU, IG-5.2 THU Dommlor Stofon
Delle, Eugenio CD-8.5 TUE Demircan, Ayhan CF/IE-6.5 MON, •IG-5.1 THU, IG-5.2 THU Demmler, Stefan CD-6.5 MON, CG-4.5 THU, CG-6.2 THU
Dems, Maciej
CB-P.40 MON
Deng Dinghuan CD-P 3 TUF
Deng, DinghuanCD-P.3 TUE, CD-P.4 TUE, CJ-P.41 WED
Deng. Lei
Deng, LeiCI-P.1 TUE Denis-Petit. DavidJSI-1.3 MON
Deng, LeiCI-P.1 TUE Denis-Petit, DavidJSI-1.3 MON Denisov, AndreyCD-P.47 TUE
Deng, Lei
Deng, Lei CI-P.1 TUE Denis-Petit, David
Deng, Lei

Deutsch, Christoph CB/CC-1.3 MON,
CB/CC-1 6 MON
Devarapu, G. Chinna R •CK-P.24 MON
Devarapu, G. Chinna R •CK-P.24 MON Devetta, MicheleCF/IE-10.3 THU
Devi Kavita •CD-9.3 THE
Devizia, Mariadomenica ID-1.5 MON
Dewa, Hideki
Dewenter, Lena
Devizia, Mariadomenica ID-1.5 MON Dewa, Hideki CG-P.9 THU Dewenter, Lena CL-3.4 MON Deyra, Loïc CA-1.3 SUN, •CA-1.5 SUN,
•CA-2.2 SUN
Dhaka, VeerCE-3.4 MON
Dhar, Anirban
Dharanipathy, Ulagalandha Perumal
IH-6.5 THU
Dherbecourt, Jean-Baptiste
•CD-5.1 MON, CD-5.4 MON
Dhirhe Devnath CB-1.5 SUN
Dhirhe, DevnathCB-1.5 SUN Dholakia, KishanCL-2/ECBO.2 SUN
Di Domenico, Gianni CC-2/ECBO.2 SUN Di Domenico, Gianni CC-P.15 SUN Di Franco, Carlo
Di Franco, Carlo IB-P 20 MON
Di Giuseppe, GiovanniIA-7.2 THU
Diamanti Eleni IB-5 3 THU
Dianov Evgeny CI-12.1 THU
Diamanti, EleniIB-5.3 THU Dianov, EvgenyCJ-12.1 THU Diao, ZhaoluCB/CC-1.5 MON,
IH-6.5 THU
Dias, Frédéric JSIII-2.2 WED, IG-5.5 THU
Diaspro Alberto CH-7 1 THU
Diaspro, AlbertoCH-7.1 THU Diaz Diaz, JesusCL-P.2 SUN
Díaz Francesc CM-P 17 SUN
Díaz, FrancescCM-P.17 SUN, CA-P.29 SUN, CA-3.5 SUN,
CE-7.1 WED
Dickson, Wayne CK-5.3 MON,
CE-5.4 TUE, IH-P.18 THU
Diddams, Scott
PD-B.1 WED
Diddams, Scott A ID-2.2 MON
Diderjean, Julien
Didierjean, Julien CA-1.3 SUN, CA-P.25 SUN, CA-P.26 SUN,
CA-P.25 SUN, CA-P.26 SUN,
CF/IE-4.2 SUN, CA-4.4 SUN
Diebel, FalkoJSIII-P.7 WED,
•CD-11.4 WED
Dienst, Andreas
Dierolf, Volkmar CE-1.4 MON,
CK-P.8 MON, CD-P.35 TUE
Dietze, Daniel•CC-4.1 SUN
Dietzek, Benjamin
Diewald, SilviaCE-P.20 TUE
Diez, Antonio CE-P.22 TUE,
•CJ-P.42 WED
DiGiovanni, DavidPD-A.3 WED Dilhaire, Stefan CF/IE-P.29 WED
Dilhaire, Stefan CF/IE-P.29 WED
Dilley, JeromeIB-4.2 TUE Dillner, UlrichCC-1.2 SUN
Dillner, Ulrich
DiMarcello, FrankPD-A.3 WED Ding, Boyang II-P.7 WED, II-3.3 THU
Ding, Boyang II-P.7 WED, II-3.3 THU
Ding, Liang CF/IE-P.36 WED Ding, Ming •CK-4.3 SUN, •CK-P.15 MON
Ding, Ming •CK-4.3 SUN, •CK-P.15 MON
Dinu, Raluca CK-9.2 THU
Dirmeier, Thomas
Divall, Marta
CF/IE-P.21 WED
Diver, Zsolt
Diver, MartinIC-P.2 TUE Do, Mai TrangCK-P.30 MON,
•CE-9.5 WED

Deble of Dien Kethening CC 2.2 THE
Doblhoff-Dier, Katharina CG-2.3 TUE,
CG-P.4 THU
Dobner, Sven
Dochow, Sebastian CL-2/ECBO.4 SUN
Doerr. Christopher R CK-10.2 THU
Doerr, Christopher R CK-10.2 THU Doherty, Andrew ID-P.5 MON
Dolfi-Bouteyre, Agnes CJ-5.6 WED
Dolfi, DanielJSII-2.4 WED
Dolkemeyer, JanCF/IE-4.3 SUN Dombi, PéterCA-P.31 SUN, CG-4.1 THU, •IH-5.4 THU
Dombi, PéterCA-P.31 SUN,
CG-41 THU •IH-54 THU
Dominici, Lorenzo
Donati, Gaia . IA-5.4 WED, IA-P.27 THU
Donegan, John CB-P.9 MON, CB-P.10 MON, CB-P.35 MON
CB-P.10 MON, CB-P.35 MON
Dong, Chunhua
Dong, Jun•CA-P.18 SUN
Donner, TobiasIC-1.3 TUE
Döpke, Benjamin CB-P.23 MON Dorchies, Fabien CF/IE-10.3 THU Dorenbos, Sander CL-6.2 TUE,
Dorchies, Fabien CF/IE-10.3 THU
Dorenbos, Sander CL-6.2 TUE,
JSII-1.2 WED
Döring, Sven CM-6.1 THU, CM-6.6 THU
Doring, Sven Civi-0.1 Tho, Civi-0.0 Tho
Dorofeenko, Alexander V. •CK-P.31 MON
Doroshenko, Maxim CA-P.30 SUN
Dorosz, Dominik CE-P.10 TUE
Dorosz, DominikCE-P.10 TUE Dorosz, JanCE-P.10 TUE
Dostal Jakub ISIV 1.3 MON
Dostal, JakubJSIV-1.3 MON Dotsenko, IgorIA-1.1 MON
Dotsenko, Igor IA-1.1 IVION
Doualan, Jean Louis CA-6.4 TUE,
Doualan, Jean Louis CA-6.4 TUE, CA-10.4 WED
Douay, Marc
Dougakiuchi Tatsuo CB-2.1 SUN
Douillard Ludovic CK 65 W/ED
Douay, MarcCJ-11.3 THU Dougakiuchi, TatsuoCB-2.1 SUN Douillard, LudovicCK-6.5 WED
Dove, Justin
Drag, CyrilCD-5.1 MON
Drazdys, Ramutis CK-P.25 MON Dregely, Daniel
Dregely, Daniel
•II-P.11 WED
Dreischuh, AlexanderCG-7.5 THU
Dreisow, Felix CH-1.5 MON,
JSIII-P.5 WED
Dreizler, Andreas CH-P.16 THU
Drescher Markus CG-1 2 TUE
Drescher, MarkusCG-1.2 TUE Drevinskas, RokasCM-4.3 WED Drexler, WolfgangCL-6.1 TUE,
CLI 0 1 WED
•3N-2.1 WED
Driad, RachidJSII-2.2 WED,
ISII-P2 WED
Driben, RodislavIF-2.4 SUN, •IF-2.5 SUN, •IG-P.1 THU, •IG-P.2 THU
•IE-25 SUN •IG-P1 THU •IG-P2 THU
Driessen, AlfredCK-10.3 THU Driscoll, JeffreyCD-12.1 WED
Driscoll, Jeffrey CD-12.1 WED
Droques, MaximeCD-2.5 SUN,
CD-12.2 WED
Druon E CA-5.5 TUE
Druon, FCA-5.5 TUE
Druon, Frédéric•CA-4.2 SUN,
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE,
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE, CE-P.9 TUE, CA-6.4 TUE,
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE, CE-P.9 TUE, CA-6.4 TUE, CA-10.4 WED
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE, CE-P.9 TUE, CA-6.4 TUE, CA-10.4 WED Drzewietzki, Lukas•CB-4.2 TUE
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE, CE-P.9 TUE, CA-6.4 TUE, CA-10.4 WED Drzewietzki, Lukas•CB-4.2 TUE
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE, CE-P.9 TUE, CA-6.4 TUE, CA-10.4 WED Drzewietzki, Lukas•CB-4.2 TUE Du-Burck, FrédéricCD-P.23 TUE
Druon, Frédéric•CA-4.2 SUN, CJ-4.4 MON, •CA-5.2 TUE, CE-P.9 TUE, CA-6.4 TUE, CA-10.4 WED Drzewietzki, Lukas•CB-4.2 TUE Du-Burck, FrédéricCD-P.23 TUE Duan, HuigaoII-P.11 WED
Druon, Frédéric
Druon, Frédéric
Druon, Frédéric
Druon, Frédéric

IH-3.4 THU, IH-P.12 THU, IH-6.2 THU	Eidam, Tino •CJ-3.1 MON, CJ-4.3 MON,
Duboisset, Julien•IF-4.4 SUN,	CJ-5.3 WED
CL-4.3 MON	Eigenwillig, Christoph •CF/IE-8.1 WED
Dubov, MykhayloCE-8.3 WED	Eikema, Kjeld ID-3.2 MON,
	CF/IE-10.6 THU
Dubrasquet, RomainCA-6.4 TUE	
Ducci, Sara IA-2.4 MON, CK-7.3 THU	Eikema, Kjeld S.ECF/IE-7.3 MON
Duchoslav, JiriCD-P.19 TUE	Eikema, Kjeld Sijbrand Eduard
Duchoslav, JiriCD-P.19 TUE Ducloy, MartialIH-2.4 WED	CA-8.3 WED
Dudley, John CL-P.6 SUN, CM-5.5 WED,	Eilanlou, AAmani CF/IE-10.1 THU
JSIII-P.1 WED	Eilenberger, Falk
Dudley, John MIF-1.4 SUN, IB-P.13 MON, JSIII-2.2 WED,	•IF-P.2 SUN, CF/IE-P.41 WED
	Eineder, Ludwig CH-P.10 THU
CJ-9.6 THU, IG-5.5 THU	Eineder, Ludwig CH-P.10 THU Einkemmer, Lukas
Dudovich, Nirit•CG-1.3 TUE	IH-P.10 THU
Duffield, StuartCG-P.20 THU	Eisele, MaxCF/IE-5.1 MON
Duffy, MartinCF/IE-1.4 SUN	Eisermann R CK-P 18 MON
Dulgergil, Ebru	Eisermann, RCK-P.18 MON Eitel, FelixCH-P.16 THU
Dumeige, YannickCK-8.2 THU Dunaeva, ElizavetaCE-P.6 TUE	El Amili, Abdelkrim•CA-10.6 WED El Bassri, Farid•CA-P.8 SUN,
Dunaeva, Elizaveta CE-P.6 TUE	El Bassri, Farid•CA-P.8 SUN,
Dupont-Ferrier, Eva PD-B.4 WED,	•CD-P.18 TUE
CH-7.2 THU	El-Ganainy, RamyCK-4.5 SUN,
Dupont-Nivet, MatthieuIC-P.6 TUE	El-Ganainy, RamyCK-4.5 SUN, CI-2.5 TUE, IG-2.3 WED
Dupriez, PascalCJ-5.1 WED,	El Hamzaoui Hicham CI-11 5 THU
CJ-11.2 THU	El Hamzaoui, Hicham CJ-11.5 THU El-Taher, Atalla
Dupuic Alexandra CI D 12 W/ED	•CI-5.6 WED
Dupuis, Alexandre CJ-P.13 WED Dupuy, Emmanuel CF/IE-11.1 THU	
	Elahi, ParvizCJ-P.43 WED
Duque-Gomez, Federico IC-2.2 TUE Durá, Judith	Eldeniz, BurakCM-P.26 SUN
Dura, Judith•CG-1.4 TUE	Eldeniz, Yavuz Burak CL-P.16 SUN Ellafi, Dalila
Durán-Sampedro, Gonzalo . CE-2.6 MON Durand, EricCA-P.32 SUN,	Ellafi, Dalila•CB-8.2 THU
Durand, Eric CA-P.32 SUN,	Ellis, David J. P
JSII-2.1 WED	Elsaesser, Thomas•CF/IE-13.1 THU
Durand, Magali CD-11.5 WED	Elsaesser, Thomas•CF/IE-13.1 THU Elsäßer, Wolfgang CB-P.4 MON,
Durkin, Mike CJ-5.4 WED	CB-4.2 TUE, CB-5.6 TUE,
Dušek, Miloslav IB-P.11 MON	CH-P.16 THU
Dutkiewicz, Michal IF-P.8 SUN	Elsmere, Stephen
Duval, Eugène	Emaury, Florian
	Embriana Valaria CL D 12 SUN
Dwir, Benjamin CB-8.5 THU	Embrione, Valerio CL-P.13 SUN Emery, Yves CL-5.2 TUE
Dzibrou, Dzmitry•CK-9.1 THU Eason, Robert CM-P.25 SUN,	Emery, rvesCL-5.2 TUE
Eason, Robert CM-P.25 SUN,	Emmenegger, Lukas PD-A.9 WED,
CM-P.28 SUN, CM-P.29 SUN,	CH-P.14 THU
CM-8.1 THU	Endo, AkiraCA-5.6 TUE
Eason, Robert WCJ-12.3 THU	Eng, Lukas MCK-P.9 MON Engel, PhilipIH-1.3 SUN
Ebrahim-Zadeh, MajidCD-P.12 TUE,	Engel Philip IH-1.3 SUN
CD-9.1 TUE, CD-9.3 TUE,	
	Engelbrecht. Martin
	Engelbrecht, Martin CJ-10.5 THU Engeldent Jun CI-5.2 WED
•SH-3.1 WED	Engelbrecht, Martin CJ-10.5 THU Enokidani, JunCJ-5.2 WED
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN	Engelbrecht, Martin CJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun CJ-5.2 WED Eppich, Bernd CB-P.11 MON Epping, Jörn
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun CJ-5.2 WED Eppich, Bernd CB-P.11 MON Epping, Jörn CK-2.5 SUN Enotici Bichard
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun CJ-5.2 WED Eppich, Bernd CB-P.11 MON Epping, Jörn
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED Eckstein, AndreasIA-2.4 MON,	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun CJ-5.2 WED Eppich, Bernd CB-P.11 MON Epping, Jörn CK-2.5 SUN Epstein, Richard CA-4.1 SUN Erbert, Goetz CB-P.1 MON Erbert, Götz CL-P.15 SUN,
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, Matthew•CA-9.1 WED Eckstein, Andreas•IA-2.4 MON, •CK-7.3 THU	Engelbrecht, MartinCJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON Epping, JörnCK-2.5 SUN Epstein, RichardCA-4.1 SUN Erbert, GotzCB-P.1 MON Erbert, GötzCL-P.15 SUN, CB-P.23 MON, CB-P.26 MON,
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED Eckstein, AndreasIA-2.4 MON, •CK-7.3 THU Eckstein, MartinIG-3.4 WED	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun CJ-5.2 WED Eppich, Bernd CB-P.11 MON Epping, Jörn CK-2.5 SUN Epstein, Richard CA-4.1 SUN Erbert, Goetz CB-P.1 MON Erbert, Götz CL-P.15 SUN,
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED Eckstein, AndreasIA-2.4 MON, •CK-7.3 THU Eckstein, MartinIG-3.4 WED	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED Eckstein, AndreasIA-2.4 MON, •CK-7.3 THU Eckstein, MartinIG-3.4 WED	Engelbrecht, MartinCJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON Epping, JörnCK-2.5 SUN Epstein, RichardCA-4.1 SUN Erbert, GotzCB-P.1 MON Erbert, GötzCL-P.15 SUN, CB-P.23 MON, CB-P.26 MON, CB-P.28 MON, CB-P.29 MON, CB-P.30 MON, CB-9.1 THU, CB-9.2 THU
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED Eckstein, AndreasIA-2.4 MON, •CK-7.3 THU Eckstein, MartinIG-3.4 WED	Engelbrecht, MartinCJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON Epping, JörnCK-2.5 SUN Epstein, RichardCA-4.1 SUN Erbert, GotzCB-P.1 MON Erbert, GötzCL-P.15 SUN, CB-P.23 MON, CB-P.26 MON, CB-P.28 MON, CB-P.29 MON, CB-P.30 MON, CB-9.1 THU, CB-9.2 THU
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, MatthewCA-9.1 WED Eckstein, AndreasIA-2.4 MON, •CK-7.3 THU Eckstein, MartinIG-3.4 WED Edamura, TadatakaCB-2.1 SUN Efimov, TimofejCH-P.2 THU Efremidis, Nikolaos K	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun
•SH-3.1 WED Ecker, Boris	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun
•SH-3.1 WED Ecker, Boris	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun
•SH-3.1 WED Ecker, Boris	Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, Matthew	Engelbrecht, MartinCJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON Epping, JörnCK-2.5 SUN Epstein, RichardCA-4.1 SUN Erbert, GotzCB-P.1 MON Erbert, GötzCI-P.15 SUN, CB-P.23 MON, CB-P.26 MON, CB-P.28 MON, CB-P.29 MON, CB-P.30 MON, CB-9.1 THU, CB-9.2 THU Ercolani, DanieleCI-6.3 WED Erick, BrambrinkCA-P.24 SUN Eriksson, GöranCH-P.6 THU Erkintalo, Miro IF-1.4 SUN, IF-2.2 SUN,
•SH-3.1 WED Ecker, BorisCF/IE-2.4 SUN Eckerskorn, NikoCL-P.12 SUN Eckl, Anna CarolineIA-4.2 WED Eckold, Matthew	Engelbrecht, Martin
•SH-3.1 WED Ecker, Boris	Engelbrecht, MartinCJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON Epping, JörnCK-2.5 SUN Epstein, RichardCK-2.5 SUN Erbert, GotzCL-P.15 SUN, CB-P.23 MON, CB-P.26 MON, CB-P.28 MON, CB-P.29 MON, CB-P.30 MON, CB-P.29 MON, CB-P.30 MON, CB-9.1 THU, CB-9.2 THU Ercolani, DanieleCJ-6.3 WED Erick, BrambrinkCJ-6.3 WED Erick, BrambrinkCH-P.6 THU Erkintalo, Miro •IF-1.4 SUN, IF-2.2 SUN, CD-2.2 SUN, •ID-2.1 MON, •CJ-P.6 WED, CD-12.5 WED,
•SH-3.1 WED Ecker, Boris	Engelbrecht, Martin
•SH-3.1 WED Ecker, Boris	Engelbrecht, MartinCJ-10.5 THU Enokidani, JunCJ-5.2 WED Eppich, BerndCB-P.11 MON Epping, JörnCK-2.5 SUN Epstein, RichardCK-2.5 SUN Erbert, GotzCL-P.15 SUN, CB-P.23 MON, CB-P.26 MON, CB-P.23 MON, CB-P.29 MON, CB-P.30 MON, CB-9.1 THU, CB-9.2 THU Ercolani, DanieleCC-2.3 SUN Erdogan, CihangirCJ-6.3 WED Erick, BrambrinkCA-P.24 SUN Erkinston, GöranCH-P.6 THU Erkintalo, Miro •IF-1.4 SUN, IF-2.2 SUN, CD-2.2 SUN, •ID-2.1 MON, •CJ-P.6 WED, CD-12.5 WED, JSIII-2.3 WED, PD-A.2 WED, PD-B.7 WED, CJ-9.4 THU, IG-4.1 THU Erkol, HakanCL-P.16 SUN

Fidam Tino •CI-31 MON CI-43 MON
Eidam, Tino •CJ-3.1 MON, CJ-4.3 MON, CJ-5.3 WED
CJ-5.5 WED
Eigenwillig, Christoph•CF/IE-8.1 WED Eikema, Kjeld ID-3.2 MON, CF/IE-10.6 THU
Eikema, Kjeld ID-3.2 MON,
CF/IE-10.6 THU Eikema, Kjeld S.ECF/IE-7.3 MON Eikema, Kjeld Sijbrand Eduard
Eikema, Kjeld S.ECF/IE-7.3 MON
Eikema, Kjeld Sijbrand Eduard
CA-8.3 WED
Eilanlou, AAmani CF/IE-10.1 THU Eilenberger, FalkIF-2.1 SUN, •IF-P.2 SUN, CF/IE-P.41 WED
Filenberger, Falk
Eineder, Ludwig CH-P.10 THU
Einkemmer, Lukas•IH-P.9 THU,
IH-P.10 THU
Eisele, MaxCF/IE-5.1 MON Eisermann, RCK-P.18 MON Eitel, FelixCH-P.16 THU
Eisermann, RĆK-P.18 MON
Fitel Felix CH-P 16 THU
El Amili Abdelkrim
El Amili, Abdelkrim•CA-10.6 WED El Bassri, Farid•CA-P.8 SUN,
CD D 10 TUE
•CD-P.18 TUE
El-Ganainy, RamyCK-4.5 SUN,
El-Ganainy, RamyCK-4.5 SUN, CI-2.5 TUE, IG-2.3 WED
El Hamzaoui, Hicham CJ-11.5 THU
El-Taher, Atalla•CJ-P.20 WED,
Eldeniz, BurakCM-P.20 SUN
Eldeniz, Yavuz Burak CL-P.16 SUN
Elahi, ParvizCJ-P.43 WED Eldeniz, BurakCM-P.26 SUN Eldeniz, Yavuz BurakCL-P.16 SUN Eldeniz, Yavuz BurakCL-P.16 SUN Ellafi, DalilaCB-8.2 THU
Ellis, David J. P
Elsaesser, Thomas•CF/IE-13.1 THU
Ellis, David J. P
CB-4.2 TUE, CB-5.6 TUE,
CD-4.2 TOE, CD-5.0 TOE,
CH-P.16 THU
Elsmere, Stephen •CG-P.20 THU Emaury, Florian CA-5.1 TUE Embrione, Valerio CL-P.13 SUN Emery, Yves CL-5.2 TUE Emmenegger, Lukas PD-A.9 WED,
Emaury, Florian CA-5.1 TUE
Embrione, Valerio CL-P.13 SUN
Emery, YvesCL-5.2 TUE
Emmenegger, Lukas PD-A.9 WED.
CH-P.14 THU
Endo, AkiraCA-5.6 TUE Eng, Lukas MCK-P.9 MON Engel, PhilipH-1.3 SUN Engely children and the construction of the construction
Eng, Lukas IVI CK-P.9 IVION
Engel, Philip IH-1.3 SUN
Engelbrecht, Martin CJ-10.5 THU Enokidani, Jun CJ-5.2 WED Eppich, Bernd CB-P.11 MON Epping, Jörn
Enokidani, JunCJ-5.2 WED
Eppich, Bernd
Epping Jörn •CK-2.5 SUN
Epstein Richard CA 4 1 SUN
Epstein, Richard CA-4.1 SUN Erbert, Goetz CB-P.1 MON Erbert, Götz CL-P.15 SUN, CB-P.23 MON, CB-P.26 MON, CB-P.28 MON, CB-P.29 MON, CB-P.30 MON, CB-9.1 THU, CB-9.3 THU
Erbert, Goetz CB-P.1 MON
Erbert, GotzCL-P.15 SUN,
CB-P.23 MON, CB-P.26 MON,
CB-P.28 MON, CB-P.29 MON,
CB-P.30 MON, CB-9.1 THU,
CB-9.2 THU
Ercolani Daniele CC-2.3 SUN
Erdogan Cibangir CL62 WED
CB-9.2 THU Ercolani, DanieleCJ-6.3 WED Erdogan, CihangirCJ-6.3 WED Erick, BrambrinkCJ-P.6 WED Eriksson, GöranCH-P.6 THU Erkintalo, Miro •IF-1.4 SUN, IF-2.2 SUN, CD-2.2 SUN, •ID-2.1 MON, •CJ-P.6 WED, CD-12.5 WED, JSIII-2.3 WED, PD-A.2 WED, PD-B 7 WED, CL-9.4 THU IG.4.1 THU
Eriksson, Goran CH-P.6 THU
Erkintalo, Miro •IF-1.4 SUN, IF-2.2 SUN,
CD-2.2 SUN, •ID-2.1 MON,
•CJ-P.6 WED, CD-12.5 WED,
JSIII-2.3 WED, PD-A.2 WED
PD-B.7 WED, CJ-9.4 THU, IG-4.1 THU
Erkol, Hakan
Ertel, Klaus CA-7.2 TUE, CA-7.3 TUE
Escalante Zarate Luis CIP 26 W/ED

Eschner, Jürgen IB-P.6 MON, IB-3.1 TUE
Esnal, Ixone CE-2.6 MON
Espeland, Brady CH-P.9 THU
Esquivias, Ignacio CB-P.32 MON
Esquivias, Ignacio CB-P.32 MON Esser, Dominik CJ-1.5 SUN
Esslinger, TilmanIC-1.3 TUE
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Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana CE-P.16 TUE Fernandez, Toney TeddyCJ-12.4 THU Fernando, H.N.J CK-P.18 MON Fernando, HarendraCH-1.6 MON Fernáe, Mark JohnH-6.1 THU Ferrand, Patrick IF-P.1 SUN, IF-4.4 SUN, CL-4.3 MON Ferrari, AndreaCJ-P.39 WED Ferrari, Andrea CCB-4.6 TUE, CF/IE-13.2 THU Ferraro, PietroCL-P.13 SUN, CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE, JSII-1.4 WED Ferreyrol, FranckIB-6.5 THU Ferrier, DavidCL-2/ECBO.2 SUN Ferrier, LydieIG-3.2 WED Ferrini, GiuliaIB-P.8 MON Feurger, Gilles
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana CE-P.16 TUE Fernandez, Toney TeddyCJ-12.4 THU Fernando, H.N.J CK-P.18 MON Fernando, HarendraCH-1.6 MON Fernándo, HarendraCH-1.6 MON Fernánd, Patrick IF-P.1 SUN, IF-4.4 SUN, CL-4.3 MON Ferrari, AndreaCB-4.6 TUE, CF/IE-13.2 THU Ferraro, PietroCL-P.13 SUN, CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE, JSII-1.4 WED Ferreyrol, FranckIB-6.5 THU Ferrier, DavidCL-2/ECBO.2 SUN Ferrier, LydieIB-6.5 THU Ferrier, CL-2/ECBO.2 SUN Ferrier, LydieIB-6.5 THU Ferreyrol, FranckIB-6.5 THU Ferrier, Lydie
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana CE-P.16 TUE Fernandez, Toney TeddyCJ-12.4 THU Fernando, H.N.J CK-P.18 MON Fernando, HarendraCH-1.6 MON Fernándo, HarendraCH-1.6 MON Fernánd, Patrick IF-P.1 SUN, IF-4.4 SUN, CL-4.3 MON Ferrari, AndreaCB-4.6 TUE, CF/IE-13.2 THU Ferraro, PietroCL-P.13 SUN, CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE, JSII-1.4 WED Ferreyrol, FranckIB-6.5 THU Ferrier, DavidCL-2/ECBO.2 SUN Ferrier, LydieIB-6.5 THU Ferrier, CL-2/ECBO.2 SUN Ferrier, LydieIB-6.5 THU Ferreyrol, FranckIB-6.5 THU Ferrier, Lydie
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana CE-P.16 TUE Fernandez, Toney TeddyCJ-12.4 THU Fernando, H.N.J CK-P.18 MON Fernando, HarendraCH-1.6 MON Fernándo, HarendraCH-1.6 MON Fernánd, Patrick IF-P.1 SUN, IF-4.4 SUN, CL-4.3 MON Ferrari, AndreaCB-4.6 TUE, CF/IE-13.2 THU Ferraro, PietroCL-P.13 SUN, CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE, JSII-1.4 WED Ferreyrol, FranckIB-6.5 THU Ferrier, DavidCL-2/ECBO.2 SUN Ferrier, LydieIB-6.5 THU Ferrier, CL-2/ECBO.2 SUN Ferrier, LydieIB-6.5 THU Ferreyrol, FranckIB-6.5 THU Ferrier, Lydie
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana CE-P.16 TUE Fernandez, Toney Teddy CJ-12.4 THU Fernando, H.N.J CK-P.18 MON Fernando, Harendra CH-1.6 MON Fernando, Harendra CH-1.6 MON Fernando, Harendra CJ-P.18 WDN Ferrari, Andrea CJ-P.39 WED Ferrari, Andrea C CJ-P.39 WED Ferrari, Andrea C CJ-P.39 WED Ferrari, Andrea C CJ-P.39 WED Ferrari, Andrea C CJ-P.13 SUN, CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE, JSII-1.4 WED Ferrer, Andrés CM-P.17 SUN, CJ-12.4 THU Ferreyrol, FranckIB-6.5 THU Ferrier, David CL-2/ECBO.2 SUN Ferrier, LydieIB-0.5 THU Ferrer, ThomasIB-7.2 WED Feurer, Thomas
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana
Fernández-Pradas, Juan Marcos CM-1.3 SUN Fernández, Susana CE-P.16 TUE Fernandez, Toney Teddy CJ-12.4 THU Fernando, H.N.J CK-P.18 MON Fernando, Harendra CH-1.6 MON Fernáe, Mark John IH-6.1 THU Ferrand, Patrick IF-P.1 SUN, IF-4.4 SUN, CL-4.3 MON Ferrari, Andrea CJ-P.39 WED Ferrari, Andrea C CB-4.6 TUE, CF/IE-13.2 THU Ferraro, Pietro CL-P.13 SUN, CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE, CL-6.6 TUE, JSII-1.4 WED Ferrer, Andrés CM-P.17 SUN, CJ-12.4 THU Ferreyrol, FranckIB-6.5 THU Ferrier, David CL-2/ECBO.2 SUN Ferrier, LydieIB-0.5 THU Ferrer, ThomasIB-7.2 WED Feurer, ThomasIB-8.5 THU Feurer, Thomas

Fieberg, Stephan•CE-8.6 WED Fiebig, Christian CB-9.2 THU Fiebrandt, Julia•CJ-1.4 SUN Figueiredo, Jose CI-P.8 TUE, CI-4.6 WED Figueroa, Eden IA-1.5 MON Filatova, Serafima CJ-P.33 WED Filip, Radim ... IA-2.3 MON, IB-3.5 TUE Filippov, ValeryCJ-P.33 WED Filloux, Pascal IA-2.4 MON Fils, Jerome CG-4.4 THU Fini, John PD-A.3 WED Finizio, Andrea CK-5.4 MON, JSII-1.4 WED Finley, Jonathan CE-3.5 MON Finot, Christophe CD-1.4 SUN, IF-P.7 SUN, CD-P.15 TUE. •CD-P.29 TUE, JSIII-P.2 WED, •CD-11.6 WED Fiore, Andrea PD-B.5 WED Fiore, Victor IA-7.1 THU Firth, William ... IF-3.2 SUN, IG-1.2 TUE Firth, William J CB-P.20 MON CF/IE-P.10 WED Fischer, Ingo CB-5.3 TUE, CB-5.5 TUE, CD-10.3 TUE, CB-7.5 THU Fischer, Jan CL-6.3 TUE Fischer, Joachim CK-7.1 THU Fischer, Martin IH-P.6 THU Fischer, Yvo IB-8.4 THU Fitzau, OliverCJ-P.14 WED Fiurášek, Jaromír IB-P.11 MON Flachenecker, Günter•CM-P.16 SUN Fläschner, Nick IC-2.1 TUE Flayac, HugoIG-3.2 WED •CH-4.5 THU Fleischer, Maximilian CH-2.5 TUE Fleischhaker, Robert •CF/IE-4.1 SUN Floery, Tobias CA-8.2 WED Flöry, Tobias CJ-6.4 WED, •CJ-P.21 WED, CG-5.2 THU Föger, Daniel IB-3.5 TUE Folman, RonIC-2.3 TUE Forchel, Alfred CK-7.2 THU, IB-5.1 THU, IH-P.10 THU Fordell, ThomasID-P.8 MON Foresiter, Benjamin CM-P.1 SUN Forget, NicolasCF/IE-5.1 MON, CF/IE-P.21 WED Formica, Nadia •CE-2.3 MON Fornaini, CarloCM-P.7 SUN Först, MichaelCF/IE-3.1 SUN Förster, Eckhart CH-4.4 THU Förster, Michael CG-7.1 THU Forstner, StefanCH-6.2 THU Fortier, Tara ID-2.2 MON Fotakis, CostasCM-2.2 SUN, CM-P.2 SUN Foteinopoulou, Stavroula . CK-P.24 MON Fotiadi, Andrei•CJ-7.1 WED Fouckhardt, HenningCE-1.3 MON Fox, Anna E.IB-1.1 MON Frackowiak, Woiciech CH-4.2 THU

Fraczek, Elizabeth CA-10.5 WED Frank, Alexander JSI-1.3 MON Frank, Felix CG-3.3 WED, CG-P.16 THU Franke-Arnold, Sonja IF-P.13 SUN Frasinski, Leszek CF/IE-10.2 THU Frassetto, Fabio CF/IE-1.4 SUN, CF/IE-5.5 MON. CG-2.2 TUE. CF/IE-P.16 WED, CG-P.1 THU Frasunkiewicz, Leszek•CB-P.40 MON Fratalocchi, Andrea CK-P.11 MON. •CD-12.3 WED, IG-P.4 THU Frazier, RyanCE-4.4 TUE Frede, Maik CH-6.5 THU Frederich, Hugo CK-6.5 WED Frederique, LouisCC-P.13 SUN Freeman, Mark CF/IE-12.5 THU Fremberg, Tino CK-P.16 MON Freude, Wolfgang CK-9.2 THU Frevert, Carlo•CB-P.28 MON Frey, Jeremy G. CG-P.10 THU, CH-P.11 THU Freyer, BenjaminCF/IE-13.1 THU Freysz, Eric . CJ-2.4 SUN, •CE-P.24 TUE Frick, StefanIB-5.1 THU Fricke, Jörg ... CL-P.15 SUN, CB-9.2 THU Friebel, FlorenceCA-10.4 WED Frigerio, JacopoCI-2.3 TUE Frimmer, Martin IH-3.1 THU Fritsch, Sarah CE-P.4 TUE Fritsche, H. TF-1/LIM.2 TUE Froehly, Luc . CL-P.6 SUN, CM-5.5 WED Fry, D. IA-2.1 MON Fuchs, FrankJSII-2.2 WED, •JSII-P.2 WED Fuerbach, Alexander CM-6.7 THU, CM-7.2 THU, CJ-12.6 THU Fuhrberg, Peter CA-3.4 SUN Fuhrmann, Daniel A. IH-6.6 THU Fuhrmann, Simon CF/IE-12.4 THU •CF/IE-12.3 THU Fujita, HisanoriCJ-P.34 WED Fujita, Kazuue CB-2.1 SUN Fujiwara, Akio IB-8.1 THU Fujiwara, TakehisaCF/IE-1.3 SUN Fujiwara, Yasufumi CE-1.4 MON Fulford, Benjamin•CA-8.4 WED Fülöp, József CC-4.6 SUN, CG-P.21 THU Fulop, Jozsef A.CG-4.1 THU Furfaro, Luca CL-P.6 SUN, IB-P.13 MON, CM-5.5 WED Fürst, Josef CE-9.3 WED Furukawa, Yusuke•CF/IE-10.1 THU Furusawa, Akira IB-P.1 MON, IB-4.4 TUE, IA-P.6 THU Fusco, SabatoCL-P.13 SUN Fusi, S.JSIV-2.3 MON Fuwa, Maria IB-4.4 TUE Gabris, AurélIB-2.3 TUE Gacheva, Ekaterina CA-P.1 SUN, **CD-9.5 TUE**

Gadomska, Bozena CF/IE-P.44 WED
Gadonas, RoaldasCM-P.15 SUN
Gadonas, RoaldasCH/H2-1-14 WED Gadonas, RoaldasCH/H2-1-14 WED Gadret, GrégoryCD-1.4 SUN
Gaggero Alessandro PD-B 5 WED
Gaggero, AlessandroPD-B.5 WED Gagliardi, GianlucaCH-2.1 TUE Gailevicius, DariusCK-P.13 MON,
Cailevicius Darius CK P13 MON
CK-P.19 MON
Gaižauskas, Eugenijus • JSIV-P.2 MON
Galagan, BorisCJ-12.1 THU
Galassi, MarcoIA-7.2 I HU
Galagan, Boris
Gallardo-Gonzalez, Isabel
CF/IE-P.40 WED
Gallet, Valentin•CF/IE-3.3 SUN
Galli, Iacopo CB-P.6 MON
Gallmann, Lukas CD-7.4 MON,
•CG-1.1 TUE, PD-A.1 WED,
CG-7.3 THU, CG-7.4 THU
Gallo, Katia . CK-P.2 MON, CD-7.3 MON
Colmes Bontiste IB P 13 MON
Galmes, BaptisteIB-P.13 MON Galopin, ElisabethIG-3.2 WED,
CK-7.3 THU, IH-5.1 THU
Galstyan, AleksandrCM-P.18 SUN
Galvanauskas, Almantas CJ-1.6 SUN,
CJ-6.4 WED
Galve, FernandoIB-4.3 TUE
Galzerano, Gianluca•CA-3.1 SUN,
CJ-9.5 THU
Gambetta, Alessio CA-3.1 SUN Gan, Yi CD-P.38 TUE Gandía, José Javier CM-P.23 SUN,
Gan, Yi CD-P.38 TUE
Gandía. José Javier CM-P.23 SUN.
Ganeev Rashid CG-3.3 WED
Ganija Miftar •CA-7.1 TUF
Gao ling CA P2 SUN
Gao Olang PD B 0 WED
Cao Waining CD 14 SUN CD P2 THE
Ganeev, RashidCG-3.3 WED Ganija, MiftarCA-7.1 TUE Gao, JingCA-P.2 SUN Gao, QiangPD-B.9 WED Gao, Weiqing CD-1.4 SUN, CD-P.3 TUE, •CD-P.4 TUE, CE-P.5 TUE,
CJ-P.41 WED
Gaponov, Dmitry•CJ-P.38 WED,
•CF/IE-8.2 WED Garavelli, Marco JSIV-2.4 MON Garbin, Bruno IG-P.11 THU, IG-5.3 THU
Garavelli, Marco JSIV-2.4 MON
Garbin, Bruno IG-P.11 THU, IG-5.3 THU
García-Ballesteros, Juan José
CM-P.23 SUN
García-Blanco, Sonia M CE-6.1 TUE,
PD-A.4 WED
Garcia, Dário CA-P.19 SUN
Garcia de Abajo, F. Javier II-1.4 WED,
Garcia, Dário CA-P.19 SUN Garcia de Abajo, F. JavierII-1.4 WED, CF/IE-11.4 THU, IH-P.11 THU
CE/IE_11.4 THU, IH_P.11 THU
CE/IE_11.4 THU, IH_P.11 THU
CE/IE_11.4 THU, IH_P.11 THU
CE/IE_11.4 THU, IH_P.11 THU
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN Garcia-Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN Garcia-Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar
CF/IE-11.4 THU, IH-P.11 THU García de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN Garcia-Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar CM-P.23 SUN Garcia-Parajo, Maria IH-3.5 THU García-Fipoll, Juan José IA-P.11 THU García-Sánchez, Daniel IA-7.4 THU,
CF/IE-11.4 THU, IH-P.11 THU García de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar CM-P.23 SUN García-Parajo, Maria IH-3.5 THU García-Ripoll, Juan José IA-P.11 THU García-Sánchez, Daniel IA-7.4 THU, IA-P.26 THU
CF/IE-11.4 THU, IH-P.11 THU García-de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar CM-P.23 SUN García-Parajo, Maria
CF/IE-11.4 THU, IH-P.11 THU García de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García-Oscar
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN Garcia-Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON Garcia-Parajo, Maria IH-3.5 THU García-Ripoll, Juan José IA-P.11 THU García-Ripoll, Juan José IA-P.11 THU García-Sánchez, Daniel IA-7.4 THU, IA-P.26 THU García-Tijero, José Manuel CB-P.32 MON Gardhouse, Rusty CH-P.9 THU Gardiner, Tom
CF/IE-11.4 THU, IH-P.11 THU García de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar IH-3.5 THU García-Ripoll, Juan José IA-P.21 SUN García-Sánchez, Daniel IA-7.4 THU, IA-P.26 THU García-Tijero, José Manuel CB-P.32 MON Gardhouse, Rusty OH-P.9 THU Garcíner, Tom
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN Garcia, Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García, Oscar CM-P.23 SUN García-Parajo, Maria IH-3.5 THU García-Ripoll, Juan José IA-7.4 THU, IA-P.26 THU García-Tijero, José Manuel CB-P.32 MON Gardhouse, Rusty
CF/IE-11.4 THU, IH-P.11 THU García de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García-Oscar CM-P.23 SUN García-Parajo, Maria IH-3.5 THU García-Ripoll, Juan José IA-P.11 THU García-Sánchez, Daniel IA-7.4 THU, IA-P.26 THU García-Tijero, José Manuel CB-P.32 MON Gardhouse, Rusty CH-P.9 THU Garcíanch, Arnaud PD-A.5 WED Garnache, Arnaud CB-P.18 MON, CB-10.3 THU
CF/IE-11.4 THU, IH-P.11 THU Garcia de Abajo, Javier F IH-1.4 SUN Garcia-Hernández, Mar CM-P.31 SUN Garcia, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García-Moreno, Inmaculada CE-2.6 MON García-Parajo, Maria IH-3.5 THU García-Ripoll, Juan José IA-P.11 THU García-Ripoll, Juan José IA-P.11 THU García-Sánchez, Daniel IA-7.4 THU, IA-P.26 THU García-Tijero, José Manuel CB-P.32 MON Gardhouse, Rusty CH-P.9 THU Garcíanch, Arnaud PD-A.5 WED Garnach, Arnaud CB-P.18 MON, CB-10.3 THU Garnier, Josselin IF-2.6 SUN
CF/IE-11.4 THU, IH-P.11 THU García de Abajo, Javier F IH-1.4 SUN García-Hernández, Mar CM-P.31 SUN García, Michel CB-9.5 THU García-Moreno, Inmaculada CE-2.6 MON García-Oscar CM-P.23 SUN García-Parajo, Maria IH-3.5 THU García-Ripoll, Juan José IA-P.11 THU García-Sánchez, Daniel IA-7.4 THU, IA-P.26 THU García-Tijero, José Manuel CB-P.32 MON Gardhouse, Rusty CH-P.9 THU Garcíanch, Arnaud PD-A.5 WED Garnache, Arnaud CB-P.18 MON, CB-10.3 THU

Garraway, Darry	IC-F.4 TUL
Gartaway, Barry Garthoff, Robert Gasecka, Paulina Gates, James •CK-P.33 MON, IB-2.4 TU	IB-3.2 I UE
Gasecka, Paulina	IF-4.4 SUN
Gates, James	CK-1.2 SUN,
•CK-P.33 MON, IB-2.4 TL	JE,
CI-P.16 TUE, CH-P.1 THU	J [′]
Gates, James C.) IB-1.1 MON,
CE-P.12 TUE	
Gatti, Davide	ID-1.5 MON
Gatti, Giancarlo	.CG-P.18 THU
Gatti, Giancarlo Gatto, Alberto	CI-P.9 TUE
Gatzemeier, Felix Gauthier, Daniel J. Gauthier, DavidCF Gauthier-Lafaye, Olivier	CA-3.4 SUN
Gauthier. Daniel J.	IG-1.3 TUE
Gauthier, David	/IE-P.16 WED
Gauthier-Lafave Olivier	CK-11 SUN
CB-P.16 MON	
CB-F.10 MON	
Gavrilin, Nikolajus	
Gavrilin, Nikolajus Gawlik, Wojciech	. IF-P.11 SUN,
IF-3.1 SUN	
Gaydardzhiev, Alexander	•CA-P.9 SUN,
CD-6.6 MON	
Gazzano, Olivier Gdula, Paweł CI-2.2 TUE Gebavi, Hrvoje Gebs, Raphael	IH-4.4 I HU
Gdula, Paweł . CI-2.2 TUE	, CE-P.29 TUE
Gebavi, Hrvoje	. CE-P.27 TUE
Gebs, Raphael	CF/IE-4.1 SUN
Geburt. Sebastian	CB-6.6 TUE
Geburt, Sebastian Gecevičius, Mindaugas• CM-4.3 WED, CM-5.3 WE	CM-P 24 SUN
Geim, Andre K.	F/IE-13.2 THU
Geiss, Reinhard	. CD-7.2 MON
Geim, Andrè KCl Geiss, Reinhard Geith, Tobias	IH-1.6 SUN
Gemmell, Nathan	. •CL-6.2 TUE,
JSII-1.2 WED	
Gennari, Oriella	•CE-P.14 TUE,
	·CL-1.14 TOL,
CL-6.6 TUE	
Genner Andreas	CB-2.3 SUN
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, GoeryIF-1.4 SU	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, GoeryIF-1.4 SU	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, GoeryIF-1.4 SU	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, GoeryIF-1.4 SU	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, GoeryIF-1.4 SU	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, GoeryIF-1.4 SU	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.6 SI	CB-2.3 SUN CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.6 SI	CB-2.3 SUN CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.4 SUN CA-4.4 SUN, CJ-4.4 MON	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, . CA-5.2 TUE.
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.4 SUN CA-4.4 SUN, CJ-4.4 MON	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, . CA-5.2 TUE.
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED	CB-2.3 SUN IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, , CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED	CB-2.3 SUN IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, , CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED	CB-2.3 SUN IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, , CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED	CB-2.3 SUN IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, , CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SI CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel	CB-2.3 SUN IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, UN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSII-2.2 W CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-2.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED F/IE-P.5 WED, THU
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Carlick Stefan	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, , , CA-5.2 TUE, , CB-2.7 SUN, /ED =/IE-P.5 WED, THU IA 11 MON
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Carlick Stefan	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, , , CA-5.2 TUE, , CB-2.7 SUN, /ED =/IE-P.5 WED, THU IA 11 MON
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SUN CA-P.25 SUN, CA-2.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Carlick Stefan	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, , , CA-5.2 TUE, , CB-2.7 SUN, /ED =/IE-P.5 WED, THU IA 11 MON
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE,
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 W CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SI CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Baan-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio Gholipour, Behrad Ghosh, Dhriti Sundar Giacobino, Elisabeth IA-6.2 WED, CE-9.6 WED	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED
Genner, Andreas Genov, Genko Gentilini, Silvia Genty, Goery CD-2.2 SUN, CD-P.43 TU JSIII-P.1 WED, JSIII-2.2 V CJ-9.6 THU, IG-5.2 THU, Georges, Patrick CA-1.5 SUN, CA-2.2 SUN CA-P.25 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-P.26 SU CF/IE-4.2 SUN, CA-4.2 SU CA-4.4 SUN, CJ-4.4 MON CE-P.9 TUE, CA-6.4 TUE CA-10.4 WED Georgiadi, Leoni Gerard, Bruno •JSII-1.5 WED, JSII-P.3 W Gérard, Jean-Michel CF/IE-11.1 THU, IH-5.6 T Gerlich, Stefan Gerome, Frederic Gerrits, Thomas JSV-1.1 TUE, IB-7.3 THU Geskus, Dimitri Ghasemkhani, Mohammad Ghiringhelli, Fabio	CB-2.3 SUN •IA-P.10 THU CD-8.5 TUE N, IF-1.5 SUN, E, VED, IG-5.5 THU CA-1.3 SUN, JN, JN, JN, JN, CA-5.2 TUE, CM-8.2 THU CB-2.7 SUN, /ED -/IE-P.5 WED, THU IA-1.1 MON CJ-11.2 THU CE-6.1 TUE CA-4.1 SUN CJ-5.4 WED CL-4 1 WED

Garraway, BarryIC-P.4 TUE

Giacomuzzi, Daniela Giakoumaki, Argyro	CI-P.11 TUE
Giakoumaki, Argyro	.•CM-8.4 THU
Giammanco, Francesco	CH-7.1 THU
Gianfrani, Livio	ID-1.5 MON
Giannetti, Ambra	. CK-P.10 MON
Giammanco, Francesco Giammanco, Francesco Giannetti, Ambra Giannetti, Sara	CL-P.1 SUN
Giannone, Domenico Gibbon, Paul Giesberts, Martin Giesen, Adolf	. CJ-P.28 WED
Gibbon, Paul	CC-1.2 SUN
Giesberts, Martin	. CJ-P.14 WED
Giesen, Adolf	. CA-P.28 SUN,
•PL-1.1 MON Giessen, Harald .II-2.1 WE II-P.11 WED, CF/IE-9.3 V II-3.4 THU, IH-P.4 THU,	
	.D, 11-2.4 VVED, MED
Cigli Ciuceppe IC 3.1 WE	
Gilaberte Marta	IB-1.2 MON
Gilchrist Alexei	IB-2.5 TUE
Gigli, Giuseppe IG-3.1 WE Gilaberte, Marta Gilchrist, Alexei Gill, Patrick	ID-1.3 MON
Gillespie. William Allan	CM-6.4 THU
Gillespie, William Allan Giner, Lambert	. IB-P.18 MON.
Ginis, Vincent Ginolas, Arnim Ginzburg, Pavel	•IH-6.4 THU
Ginolas, Arnim	CL-P.15 SUN
Ginzburg, Pavel	IH-5.2 THU
Gioannini, Mariangela	.•CB-3.2 MON
Gioannini, Mariangela Giordano, M.	II-P.9 WED
Giorgi, Gianluca	IB-4.3 IUE
Giorgini, Antonio	•CH-2.1 TUE
Giovannetti, Vittorio	IB-2.2 TUE
Giove, Dario	. CG-P.18 THU
Giovine, Ennio	II-1.2 WED
Girling, Mark	. CG-P.20 THU
Girones, Julie	
Giudici Massimo	CB-8 1 THU
Giorgini, Antonio Giovannetti, Vittorio Giovine, Ennio Girling, Mark Girones, Julie Gisin, Nicolas Giudici, Massimo IG-P.11 THU, IG-5.3 THU Giuliani, Guido •CB-P.13 MON, CB-6.1 T CB-6.4 TUE, CH-P.3 THU	J
Giuliani. Guido	•CL-P.11 SUN.
•CB-P.13 MON, CB-6.1 T	UE,
Giulietti Danilo	CG-P 18 THU
Giusfredi, Giovanni Giust, Remo . CL-P.6 SUN	CB-P.6 MON
Giust, Remo . CL-P.6 SUN	I, CM-5.5 WED
Giustina, Marissa	•IB-7.3 THU
Gizzi, Leonida	. CG-P.18 THU
Glasser, Ryan	. IB-P.16 MON
Glastre, WilfriedCF	/IE-P.43 WED,
Giust, Remo CL-PO SON Giustina, Marissa Gizzi, Leonida Glasser, Ryan Glastre, Wilfried •CH-P.22 THU, •CH-7.4 1 Clack Ivan	
Clidle Andrew	
Gloppe Arnoud	
Gleyzes, Sébastien Glidle, Andrew Gloppe, Arnaud •CH-7.2 THU	. 1 D-D.4 WED,
Glorieux Pierre	IG-P8 THU
Glorieux, Pierre Gobert, Olivier Gobet, Franck	F/IF-P7 WFD
Gobet, Franck	ISI-1.3 MON
Godard, Antoine	. CD-5.1 MON,
CD-5.4 MON	
Godbout, Nicolas	IA-5.5 WED
Godbout, Nicolas Godin, Thomas Gogol, Philippe	•JSIII-2.2 WED
Gogol, Philippe	II-P.2 WED
Golant, Konstantin	CJ-9.3 THU
Golling, Matthias	CB-4.6 TUE,
Golant, Konstantin Golling, Matthias CA-5.1 TUE, CA-6.5 TUE	
Gomes, Pedro IF-3.2 SU	JN. IG-1.2 I UE
Gomez Rivas, Jaime Gomila, Damia IG-4.2 TH	
Gomila, Damia IG-4.2 TH Goncharov, Andreï	

Goñi, Alejandro R	CE-3.3 MON	
González-Auseio lennifer	CM-P 21 SUN	
González-Herráez, Miguel	CE-P.22 TUE	
González-Herráez, Miguel González, José Pablo		
Gonzalez-Tudela, Alejandro Gonzalo, Jose CE-P.19 TUE, •CM-6.5 TI	IA-P.20 THU	
Gonzalo. Jose	. CK-P.4 MON.	
CE-P.19 TUE. •CM-6.5 T	HU	
Goodno, Gregory	•CJ-4.1 MON	
Goorden, Sebastianus A.	•CL-P.14 SUN.	
IA-3.6 MON		
Gopal, Amrutha Gorajek, Lukasz Gorbunov, Oleg Gorceix, Olivier Gori, Lorenzo Görlitz, Axel	•CC-1.2 SUN	
Goraiek. Lukasz	CA-P.14 SUN	
Gorbunov Oleg	CI-P10WFD	
Gorceix. Olivier	•IC-2.4 TUE	
Gori Lorenzo	IC-12 TUE	
Görlitz Axel	ID-1.3 MON	
Gorman, Phillip	C I-5 4 WFD	
Gorodetsky. Andrei	CC-P.14 SUN	
Gorodetsky, Andrei Gorodetsky, Michael	ID-P 4 MON	
ID-2.3 MON		
Gorza, Marie-Pascale	IH-2.4 WED	
Gosselin, Gilbert	ISI-1.3 MON	
Gottschall. Thomas	C.J-4.3 MON.	
Gottschall, Thomas •CJ-7.2 WED, CG-4.4 TH	U	
Götze, Sören	IC-2.1 TUE	
Götzinger, Stephan		
Goulam Houssen, Yannick	CL-5.5 TUE	
Goular, Didier	C I-8 1 WFD	
Gouldieff, Céline	•CE-9.2 WED	
Goulielmakis, Eleftherios		
Gouveia, Marcelo		
CK-P.14 MON		
Grabielle, Stephanie CF Graener, Heinrich Graf, Thomas	/IE-P.21 WED	
Graener, Heinrich	. CD-P.39 TUE	
Graf, Thomas	. CA-P.25 SUN,	
CA-4.2 SUN, CA-4.4 SUN	, CA-5.2 TUE,	
CA-4.2 SUN, CA-4.4 SUN	, CA-5.2 TUE,	
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CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, E, D .∙IA-P.13 THU,	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus •IA-P.24 THU Gräfe, Maximilian Gräfe, Stefanie CG-2.3 TUI	I, CA-5.2 TUE, , D .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus •IA-P.24 THU Gräfe, Maximilian Gräfe, Stefanie CG-2.3 TUI	I, CA-5.2 TUE, , D .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU	
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CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus •IA-P.24 THU Gräfe, Maximilian Gräfe, Stefanie CG-2.3 TUI Grahn, Patrick Granm, Fabian Granados Eduardo	I, CA-5.2 TUE, D A-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU •II-4.3 SUN CA-7 4 TUE	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus •IA-P.24 THU Gräfe, Maximilian Gräfe, Stefanie CG-2.3 TUI Grahn, Patrick Granm, Fabian Granados Eduardo	I, CA-5.2 TUE, D A-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU •II-4.3 SUN CA-7 4 TUE	
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CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus •IA-P.24 THU Gräfe, Stefanie CG-2.3 TUI Grahn, Patrick Grann, Fabian Granados, Eduardo Granados, Eduardo Grande, Marco Grande, Marco	I, CA-5.2 TUE, D 	
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CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, 	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, 	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J •IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CK-1.1 SUN F/IE-11.2 THU CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE,	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J •IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CK-1.1 SUN F/IE-11.2 THU CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, •CD-1.3 SUN	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CK-1.1 SUN F/IE-13.5 THU CD-7.2 MON CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, •CD-1.3 SUN CM-2 2 SUN	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, , D , CL-P.5 SUN E, CG-P.4 THU , II-4.3 THU , CB-2.6 SUN , CA-7.4 TUE F/IE-13.5 THU , CK-1.1 SUN F/IE-11.2 THU , CD-7.2 MON , CJ-P.38 WED , IA-1.4 MON, , CM-8.1 THU •CE-P.13 TUE, , CD-1.3 SUN , CM-2.2 SUN JSIII-P.3 WED	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, D ACL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CK-1.1 SUN F/IE-11.2 THU CJ-P.38 WED IA-1.4 MON, CM-8.1 THU • CE-P.13 TUE, • CD-1.3 SUN CM-2.2 SUN JSIII-P.3 WED =/IE-P.16 WED	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CC-1.1 SUN F/IE-11.2 THU CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, CD-1.3 SUN CM-2.2 SUN JSIII-P.3 WED JSIII-P.3 WED I-1.2 MON	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CC-1.1 SUN F/IE-11.2 THU CD-7.2 MON CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, CM-2.2 SUN JSIII-P.3 WED F/IE-P.16 WED IG-1.3 TUE	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CC-1.1 SUN F/IE-11.2 THU CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, CD-1.3 SUN CM-2.2 SUN JSIII-P.3 WED JSIII-P.3 WED I-1.2 MON	
CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, D IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CK-1.1 SUN F/IE-11.2 THU CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, •CD-1.3 SUN CM-2.2 SUN JSIII-P.36 WED •ID-1.2 MON IG-1.3 TUE •CA-7.2 TUE,	
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CA-4.2 SUN, CA-4.4 SUN CA-5.4 TUE, CA-5.5 TUE CA-9.2 WED, CA-9.3 WE Gräfe, Markus	I, CA-5.2 TUE, J .•IA-P.13 THU, •CL-P.5 SUN E, CG-P.4 THU •II-4.3 THU CB-2.6 SUN CA-7.4 TUE F/IE-13.5 THU CC-1.1 SUN F/IE-11.2 THU CD-7.2 MON CJ-P.38 WED IA-1.4 MON, CM-8.1 THU •CE-P.13 TUE, CD-1.3 SUN CM-2.2 SUN JSIII-P.3 WED JSIII-P.3 WED IG-1.3 TUE IG-1.3 TUE CA-7.2 TUE, CF/IE-1.4 SUN	

Grelu, PhilippeCJ-2.2 SUN.
Grelu, PhilippeCJ-2.2 SUN, JSIII-2.4 WED, IG-P.3 THU
Gresch, Tobias CC-P.15 SUN Griebner, Uwe CA-P.29 SUN, CA-3.5 SUN, CE-1.1 MON, CB-4.5 TUE,
Griebner Llwe CA P 20 SUN
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CE 6.1 THE
CE-6.1 TUE
Gries, W•TF-1/LIM.2 TUE Griffin, PaulIC-P.5 TUE, IA-4.6 WED
Griffin, Paul IC-P.5 TUE, IA-4.6 WED
Grigaitis, DariusCF/IE-P.4 WED
Grigaitis, Darius CF/IE-P.4 WED Grigis, Alain CK-7.4 THU
Grigore, Oana
Grigoriev, Fedor CE-P.21 TUE
Grillet, Christian
•CK-2.6 SUN_CE-3.2 MON
Grilli Simonetta CK-5.4 MON
Grilli, Simonetta CK-5.4 MON, CE-P.14 TUE, CE-P.26 TUE,
•CL-6.6 TUE
Grillot, Frédéric CB-2.5 SUN
Grimm, Stephan CE-4.3 TUE,
CF/IE-8.2 WED
Grinberg, Patricio CK-8.2 THU
Grisard, Arnaud CB-2.7 SUN
Grivas, ChristosCE-6.1 TUE,
PD-A.4 WED
Groh, KorbinianCF/IE-13.3 THU
Groio. David
Grojo, DavidCM-1.5 SUN, CK-P.26 MON, CM-4.2 WED
Groß Petra CD-4 2 SUN •IH-5 3 THU
Gross Andreas CA 5.4 THE
Cross Pudolf
Gronloh, BastianCD-9.2 TUE Groß, PetraCD-4.2 SUN, •IH-5.3 THU Gross, AndreasCA-5.4 TUE Gross, RudolfSV-1.4 TUE Gross, SimonCF/IE-P.42 WED, CM-6.7 THU, •CM-7.2 THU, CL 12 6 THU
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CJ-12.0 1110
Crease Dhilings CE 2.2 MON
Grosse, Philippe CE-3.2 MON Grossmann, Martin •CF/IE-12.2 THU Grossmann, Tobias CL-6.3 TUE Grote, Richard CD-12.1 WED Grüner-Nielsen, Lars CJ-2.5 SUN Grunwald, Ruediger •CF/IE-11.3 THU Grupn Michael •TE-2/IIM 1 TUE
Grosse, Philippe CE-3.2 MON Grossmann, Martin •CF/IE-12.2 THU Grossmann, Tobias CL-6.3 TUE Grote, Richard CD-12.1 WED Grüner-Nielsen, Lars CJ-2.5 SUN Grunwald, Ruediger •CF/IE-11.3 THU Grupn Michael •TE-2/IIM 1 TUE
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Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCL-6.3 TUE Grote, RichardCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gschösser, BenjaminIA-2.2 MON Gsell, StefanIH-P.6 THU Gstalter, MarionCG-P.22 THU
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCL-6.3 TUE Grote, RichardCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gschösser, BenjaminIA-2.2 MON Gsell, StefanIH-P.6 THU Gstalter, MarionCG-P.22 THU
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Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCI-12.1 WED Grüner-Nielsen, LarsCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gschösser, BenjaminIA-2.2 MON Gsell, StefanIH-P.6 THU Gstalter, MarionCG-P.22 THU Gu, MileCG-P.22 THU Gu, Mile
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Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCL-6.3 TUE Grote, RichardCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gschösser, BenjaminIA-2.2 MON Gsell, StefanIH-P.6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, Min
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Grosse, Philippe
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Grosse, Philippe
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCI-2.1 WED Grüner-Nielsen, LarsCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gstalter, MarionCG-2.2 MON Gsell, StefanIH-P6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, MinCG-4.3 THU Guasoni, MassimilianoCI-3.1 WED Guelachvili, GuyCH-5.2 THU Giueli, FrankCI-3.1 WED Guelachvili, Guy
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCI-2.1 WED Grüner-Nielsen, LarsCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gstalter, MarionCG-2.2 MON Gsell, StefanIH-P6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, MinCG-4.3 THU Guasoni, MassimilianoCI-3.1 WED Guelachvili, GuyCH-5.2 THU Giueli, FrankCI-3.1 WED Guelachvili, Guy
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCI-2.1 WED Grüner-Nielsen, LarsCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gstalter, MarionCG-2.2 MON Gsell, StefanIH-P6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, MinCG-4.3 THU Guasoni, MassimilianoCI-3.1 WED Guelachvili, GuyCH-5.2 THU Giueli, FrankCI-3.1 WED Guelachvili, Guy
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCI-2.1 WED Grüner-Nielsen, LarsCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gstalter, MarionCG-2.2 MON Gsell, StefanIH-P6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, MinCG-4.3 THU Guasoni, MassimilianoCI-3.1 WED Guelachvili, GuyCH-5.2 THU Giueli, FrankCI-3.1 WED Guelachvili, Guy
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCL-6.3 TUE Grote, RichardCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gsell, StefanIH-P.6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, MileBE-6.6 THU Gu, XinhuaPD-A.3 WED Gu, XunCI-3.1 WED, Guelachvili, GuyCI-3.1 WED, Guelachvili, Guy
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gstalter, Marion
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCI-2.2 SUN Gruner-Nielsen, LarsCJ-2.5 SUN Grunp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gschösser, BenjaminIA-2.2 MON Gsell, StefanIH-P.6 THU Gstalter, MarionCG-P.22 THU Gu, MileIB-6.6 THU Gu, MinIB-6.6 THU Gu, Min
Grosse, PhilippeCE-3.2 MON Grossmann, Martin•CF/IE-12.2 THU Grossmann, TobiasCI-6.3 TUE Grote, RichardCJ-2.5 SUN Grunwald, Ruediger•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Grupp, Michael•CF/IE-11.3 THU Gstalter, Marion

•CF/IE-P.32 WED Guina, Mircea CB-4.3 TUE, CB-10.2 T	
Guina, Mircea	CE-1.1 MON,
CB-4.3 TUE, CB-10.2 T	THU
Gulati, Gurpreet Kaur	IA-6.3 WED
Gulati, Gurpreet Kaur Gulevich, Alexey E Gunn-Moore, FrankC	CA-4.5 SUN
Gunn-Moore, Frank	L-2/ECBO.2 SUN
Günter, Peter Guo, Hairun•IF-P.9 S	CC-P.12 SUN
Guo, Hairun IF-P.9 S	UN, CD-3.2 SUN,
•CE-7.2 WED, CJ-P.11 •CD-11.3 WED	WED,
Guo, Jingkun Guo, Wei-Hua	CB-PQ MON
CB-P.10 MON, CB-P.3	5 MON
Gupta, Manisha	CE/IE-12 5 THU
Gurvanov Aleksei	C I-8 2 WFD
Guryanov, Aleksei Gusachenko, Ivan	CL-5.5 TUE
Gusev, Vitalyi	.CF/IE-12.2 THU
Gust, Devens	JSIV-P.1 MON
Gustavsson, Johan S	CB-7.1 THU
Gustavsson, Johan S Gutiérrez, José Manuel	IG-P.7 THU
Guvon. Olivier	CH-P.15 I HU
Guziewicz, Marek Haacke, S	CM-P.20 SUN
Haacke, S.	JSIV-2.3 MON
Haacke, Stefan	
Haakestad, Magnus	
Habel, Florian	CA-9.2 WED
Habert, Benjamin	
Habert, Rémi Habib, Jamil	
Habruseva Tatiana	CB-3.4 MON
Habruseva, Tatiana Haddadi, Samir	CK-P 32 MON
Hadden, J.	IA-2.1 MON
Hader, Jorg	•CB-9.3 THU
Hadfield. Robert	CL-6.2 TUE.
ISII-1.2 WED IA-6.6 V	/FD
Hadfield, Robert H Hädrich, Steffen CJ-4.3 MON, •CG-4.5	JSV-P.1 TUE
Hädrich, Steffen	CD-6.5 MON,
CJ-4.3 MON, •CG-4.5 1	ΓHU,
CG-6.2 THU	
Haeggström, Edward	
	CD-P.43 TUE
Haendel, Sylvi	IA-4.1 WED
Hage, BorisCL	IA-4.1 WED 1/ECBO.2 SUN,
Hage, BorisCL IA-5.1 WED, IA-5.3 WE	IA-4.1 WED -1/ECBO.2 SUN, ED
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens	IA-4.1 WED -1/ECBO.2 SUN, ED
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens	IA-4.1 WED -1/ECBO.2 SUN, ED
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Hagenmüller, David Haggren, Tuomas Harlund Erik	IA-4.1 WED 1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CE-3.4 MON
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Hagenmüller, David Haggren, Tuomas Harlund Erik	IA-4.1 WED 1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CE-3.4 MON
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Hagenmüller, David Haggren, Tuomas Harlund Erik	IA-4.1 WED 1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CE-3.4 MON
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Hagenmüller, David Haggren, Tuomas Harlund Erik	IA-4.1 WED 1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CE-3.4 MON
Hage, Boris CL IA-5.1 WED, IA-5.3 Hagen, Clemens Hagennüller, David Haggren, Tuomas Haglund, Erik Haïdar, Riad Haji, Bassam Halioua, Yacine	IA-4.1 WED 1/ECBO.2 SUN, ED CA-P.27 SUN CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Hagenmüller, David Haggren, Tuomas Haglund, Erik Hann, Carolin Haïdar, Riad Haïdar, Riad Halioua, Yacine •CB/CC-1.4 MON	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON,
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU CD-P.28 TUE CD-P.7 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU
Hage, BorisCL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Haggnen, Tuomas Haglund, Erik Hahn, Carolin Haidar, Riad Haiji, Bassam Halioua, Yacine •CB/CC-1.4 MON Halir, Robert Hall, Denis	IA-4.1 WED /ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED
Hage, Boris CL IA-5.1 WED, IA-5.3 WE Hagen, Clemens Hagenmüller, David Haggren, Tuomas Haglund, Erik Hahn, Carolin Haïdar, Riad Hajj, Bassam Halioua, Yacine •CB/CC-1.4 MON Halir, Robert Hall, Jenis Hallaji, Matin	IA-4.1 WED /ECBO.2 SUN, ED CA-P.27 SUN CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED IC-2.2 TUE
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CA-8.4 WED IC-2.2 TUE PD-A.3 WED
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED,
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED,
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED,
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED MON, IB-8.3 THU CJ-6.3 WED, IB-2.3 TUE CD-P.15 TUE
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CK-9.3 THU CA-8.4 WED MON, IB-8.3 THU CJ-6.3 WED, IB-2.3 TUE CD-P.15 TUE
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED, IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IA-4.2 WED CA-P.10 SUN
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED, IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IA-4.2 WED CA-P.10 SUN
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED, IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IA-4.2 WED CA-P.10 SUN
Hage, Boris	IA-4.1 WED -1/ECBO.2 SUN, ED CA-P.27 SUN II-1.2 WED CE-3.4 MON CB-7.1 THU IA-1.5 MON CD-P.28 TUE CD-P.7 TUE CB/CC-1.1 MON, CA-8.4 WED IC-2.2 TUE PD-A.3 WED MON, IB-8.3 THU CJ-6.3 WED, IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IB-2.3 TUE IA-4.2 WED IA-4.2 WED CA-P.10 SUN

Hand, Duncan PCE-4.1 TUE Hanna, Marc .CA-1.3 SUN, CJ-4.4 MON,
Hanna, Marc .CA-1.5 SUN, CJ-4.4 MON,
CA-10.4 WED
Hannachi, Fazia JSI-1.3 MON
Hänsch, Theodor ID-2.4 MON,
CH-5.2 THU
Hänsch, Theodor W ID-P.2 MON,
Hänsch, Theodor W ID-P.2 MON, CH-5.3 THU
Hansel Thomas CE/IE-9.2 W/ED
Hansen Mishael CP 27 SUN
Hansen, Michael CD-2.7 SUN
Hansel, Thomas•CF/IE-9.2 WEDHansen, Michael
Hansen, Nils-Owe CA-2.5 SUN
Hansen Ole II 1 1 WED
Hansinger Deter
Hansinger, Peter
Hanyecz, IstvánCM-P.19 SUN
Happe, AndreasIB-5.6 THU
Hara Keiichi CIP 40 W/ED
Hara, KeiichiCJ-P.40 WED Hara, KenjiroCE-6.4 TUE
Hara, KenjiroCE-0.4 TUE
Hara, Toru CF/IE-5.4 MON
Harada, Shin-ichiCF/IE-P.20 WED
Harder, Georg
Hargart, Fabian
Härkönen, AnttiCE-1.1 MON,
•CB-4.3 TUE
Harlander, Maximilian CA-P.27 SUN
Harmsma, Peter CH-3.4 WED Haroche, Serge IA-1.1 MON
Harper, Paul CI-P.3 TUE, CJ-P.20 WED,
Harper, Paul CI-P.3 TUE, CJ-P.20 WED, CI-5.6 WED
Harren, FransCH-1.1 MON,
•CD-5.6 MON, CH-P.13 THU
•CD-5.0 MON, CH-P.13 THU
Harris, Glen I. •ID-P.5 MON, IA-7.5 THU
Harris, Glen I. •ID-P.5 MON, IA-7.5 THU Harth, Anne ······•CF/IE-P.1 WED,
CF/IE-9.4 WED
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON
Hartl, Ingmar .CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael ISV-1.4 TUE
Hartl, Ingmar .CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael ISV-1.4 TUE
Hartl, Ingmar CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael J. JSV-1.4 TUE Hartmann, Michael J. IA-6.5 WED,
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU
Hartl, Ingmar CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael J. JSV-1.4 TUE Hartmann, Michael J. IA-6.5 WED,
Hartl, Ingmar .CD-1.3 SUN, ID-1.5 MON Härtling, ThomasCK-P.9 MON Hartmann, AlexanderCH-2.5 TUE Hartmann, MichaelISV-1.4 TUE Hartmann, Michael JIA-6.5 WED, IA-P.20 THU Hartmann, SébastienCB-P.4 MON, •CB-5.6 TUE
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU Hartmann, Sébastien CB-P.4 MON, •CB-5.6 TUE Hartsuiker, Alex IH-5.6 THU
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU Hartmann, Sébastien CB-P.4 MON, •CB-5.6 TUE Hartsuiker, Alex IH-5.6 THU
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU Hartmann, Sébastien CB-P.4 MON, •CB-5.6 TUE Hartsuiker, Alex IH-5.6 THU Hartwig, Haldor CI-4.3 WED Harvey, Alex CG-P.14 THU
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU Hartmann, Sébastien CB-P.4 MON, •CB-5.6 TUE Hartsuiker, Alex IH-5.6 THU Hartwig, Haldor CI-4.3 WED Harvey, Alex CG-P.14 THU Harvey, Ewan CG-P.20 THU Hasan, Tawfique CJ-P.39 WED Hasler, Karl-Heinz CB-9.1 THU
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael J IA-6.5 WED, IA-P.20 THU Hartmann, Sébastien CB-P.4 MON, •CB-5.6 TUE Hartsuiker, Alex IH-5.6 THU Hartwig, Haldor CI-4.3 WED Harvey, Alex CG-P.14 THU Harvey, Ewan CG-P.20 THU Hasan, Tawfique CJ-P.39 WED Hasler, Karl-Heinz CB-9.1 THU
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar .CD-1.3 SUN, ID-1.5 MON Härtling, Thomas .CK-P.9 MON Hartmann, Alexander .CH-2.5 TUE Hartmann, Michael .SV-1.4 TUE Hartmann, Michael JSV-1.4 TUE Hartmann, Michael
Hartl, Ingmar .CD-1.3 SUN, ID-1.5 MON Härtling, Thomas .CK-P.9 MON Hartmann, Alexander .CH-2.5 TUE Hartmann, Michael .JSV-1.4 TUE Hartmann, Michael .JSV-1.4 TUE Hartmann, Michael
Hartl, Ingmar .CD-1.3 SUN, ID-1.5 MON Härtling, Thomas .CK-P.9 MON Hartmann, Alexander .CH-2.5 TUE Hartmann, Michael
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander CH-2.5 TUE Hartmann, Michael
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Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander
Hartl, Ingmar . CD-1.3 SUN, ID-1.5 MON Härtling, Thomas CK-P.9 MON Hartmann, Alexander

He, ChuanCF/IE-12.2 THU He, JiakunIB-1.3 MON
Ha liakun ID 12 MON
He, ZhanbingCM-P.1 SUN
Head, Christopher Robin •CB-P.25 MON
Headley, Clifford PD-A.3 WED Healy, Noel CD-P.30 TUE, •CM-8.6 THU
Healy Noel CD-P 30 THE •CM-8.6 THU
Heath, Robert M•JSV-P.1 TUE
Hebling, JánosCC-4.6 SUN,
•CG-P.21 THU
Heck, Martijn•CB-7.3 THU Hedler, HarryCK-P.20 MON
Hegarty, Stephen P CB-3.4 MON,
Hegenbarth, Robin CF/IE-9.3 WED
Hegenbarth, Robin CF/IE-9.3 WED Hegmann, Frank CF/IE-12.5 THU Heideman, Rene
Heideman, Rene
Heidmann, AntoineIA-7.4 THU,
IA-P.26 THU
Heidt, AlexanderCJ-10.4 THU Heidt, Alexander M•CJ-10.6 THU
Heidt Alexander M
Heiliö, MiikaJSII-1.3 WED
Heilmann, René CD-8.4 TUE,
Heilmann, René CD-8.4 TUE, •CI-P.10 TUE, IA-P.24 THU
Hein Alexander CB P 10 MON
Hein, Alexander•CB-P.19 MON,
CB-8.6 THU Hein, JoachimCG-4.4 THU Heindel, TobiasIB-5.1 THU Heinemann, STF-1/LIM.2 TUE Heinrich, ArneCA-P.27 SUN
Hein, JoachimCG-4.4 THU
Heindel, TobiasIB-5.1 THU
Heinemann S TE-1/LIM 2 THE
Heinrich, Arne
Heinrich, MatthiasCK-4.5 SUN,
Heinrich, MatthiasCK-4.5 SUN, •CI-2.5 TUE, JSIII-P.5 WED,
IA-P.24 THU
Heinrich, Sebastian
Heinze, Jannes•IC-2.1 TUE
Heinzmann, Ulrich CF/IE-13.3 THU Hell, Stefan CL-3.3 MON
Hell, Stefan
Hell Stefan W/
Hell, Stefan W
Hell, Stefan W
Hell, Stefan W
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE,
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE,
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE,
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, Michaël
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, Michaël
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, Michaël
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, CIB-3.3 TUE Hengesbach, StefanIB-7.7 TUE
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, CIB-3.3 TUE Hengesbach, StefanIB-7.7 TUE
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, CIB-3.3 TUE Hengesbach, StefanIB-7.7 TUE
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, CIB-3.3 TUE Hengesbach, Stefan•CI-P.7 TUE Hengsberger, MatthiasPD-A.1 WED Henkel, Jost
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, CIB-3.3 TUE Hengesbach, Stefan•CI-P.7 TUE Hengsberger, MatthiasPD-A.1 WED Henkel, Jost
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, C
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, C
Heller, IddoCL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, MichaëlIF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, AlexanderCJ-10.3 THU Hempel, C
Heller, Iddo
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED IF-1.2 SUN, GG-1.4 TUE, CF/IE-9.6 WED IF-1.2 SUN, Hemmer, Michaël IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED IB-3.3 TUE Hengesbach, Stefan CI-P.7 TUE Hengsberger, Matthias PD-A.1 WED Henkel, Jost CG-P.16 THU Hennrich, Markus II-2.1 WED Henze, Rico CK-7.1 THU Hepp, Christian II-2.1 WED Herke, Jennifer CF/IE-10.4 THU Hermier, Jean-Pierre II-P.8 WED, IH-6.2 THU Hernández-García, Emilio Hernández-Gorcía, Cristina CA-7.2 TUE,
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, Michaël Hemming, Alexander •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Hengesbach, Stefan •CI-9.7 TUE Hengsberger, Matthias PD-A.1 WED Hennich, Markus IA-P.4 THU Henriet, Rémi IF-P.5 SUN, IG-4.6 THU Henze, Rico IA-P.4 THU Herna, Christian IA-3.5 MON Herek, Jennifer CF/IE-10.4 THU Herman, Peter R •CM-6.2 THU, CM-7.4 THU Hermine, Jean-Pierre IH-6.2 THU Hernández-García, Emilio Hernández-García, Emilio IB-4.3 TUE Hernández-García, Emilio CA-7.2 TUE, CA-7.3 TUE CA-7.3 TUE
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED Hemmer, Michaël Hemmer, Michaël CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Hengesbach, Stefan
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Hemgel, C.
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Hengsbach, Stefan ·IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemgesbach, Stefan Hengsberger, Matthias .PD-A.1 WED Hengsberger, Matthias .PD-A.1 WED Henrich, Markus .IA-P.4 THU Henrich, Markus .IA-P.4 THU Henrich, Mario .II-2.1 WED Henze, Rico .CK-7.1 THU Hepp, Christian .IA-3.5 MON Herek, Jennifer .CK-7.1 THU Herman, Peter R .CM-6.2 THU, CM-7.4 THU Hernández-García, Emilio Hernández-García, Emilio IB-4.3 TUE Hernandez-Gomez, Cristina .CA-7.2 TUE, CA-7.3 TUE CJ-P.28 WED Herr, Tobias ID-P.3 MON, +ID-P.4 MON, -ID-2.3 MON, ID-2.4 MON
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Hengsbach, Stefan ·IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemgesbach, Stefan Hengsberger, Matthias .PD-A.1 WED Hengsberger, Matthias .PD-A.1 WED Henrich, Markus .IA-P.4 THU Henrich, Markus .IA-P.4 THU Henrich, Mario .II-2.1 WED Henze, Rico .CK-7.1 THU Hepp, Christian .IA-3.5 MON Herek, Jennifer .CK-7.1 THU Herman, Peter R .CM-6.2 THU, CM-7.4 THU Hernández-García, Emilio Hernández-García, Emilio IB-4.3 TUE Hernandez-Gomez, Cristina .CA-7.2 TUE, CA-7.3 TUE CJ-P.28 WED Herr, Tobias ID-P.3 MON, +ID-P.4 MON, -ID-2.3 MON, ID-2.4 MON
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Hengsbach, Stefan ·IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemgesbach, Stefan Hengsberger, Matthias .PD-A.1 WED Hengsberger, Matthias .PD-A.1 WED Henrich, Markus .IA-P.4 THU Henrich, Markus .IA-P.4 THU Henrich, Mario .II-2.1 WED Henze, Rico .CK-7.1 THU Hepp, Christian .IA-3.5 MON Herek, Jennifer .CK-7.1 THU Herman, Peter R .CM-6.2 THU, CM-7.4 THU Hernández-García, Emilio Hernández-García, Emilio IB-4.3 TUE Hernandez-Gomez, Cristina .CA-7.2 TUE, CA-7.3 TUE CJ-P.28 WED Herr, Tobias ID-P.3 MON, +ID-P.4 MON, -ID-2.3 MON, ID-2.4 MON
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Henge, Alexander
Heller, Iddo
Heller, Iddo CL-3.3 MON Hellwig, Tim CD-P.1 TUE, CD-P.2 TUE, •CJ-8.3 WED •IF-1.2 SUN, CG-1.4 TUE, CF/IE-9.6 WED Hemming, Alexander Henge, Alexander

•IG-2.4 WED	
Herrmann, Daniel	CG-4.3 THU
Herrmann, Harald	IB-1.4 MON
•IG-2.4 WED Herrmann, Daniel Herrmann, Harald Herrmann, Jens CG-7.4 THU	•CG-7.3 THU,
CG-7.4 THU	
Herrmann, Joachim•CF	/IE-P.28 WED
Herzer, Sven	CC-1.2 SUN
Hesketh, Graham Hessler, Christoph	
Hettich, Mike	CE 1.2 MON
CF/IE-12.2 THU	. CL-1.2 WON,
Heuer, Axel . CL-P.3 SUN,	•IA-P 22 THU
Heugel, Simon	IA-1.2 MON
Heuser, Sebastian	CG-1.1 TUE
Heuser, Sebastian Hewak, Daniel W	CI-4.1 WED
Hideur, Ammar	•CJ-2.1 SUN
Hieta, Tuomas	ID-P.8 MON
Hideur, Ammar Hideur, Ammar Higgins, Gerard Higuchi, Takuya	IA-P.4 THU
Higuchi, Takuya	CC-P.6 SUN,
•CC-4.2 SUN	
Hilbert, Vinzenz	CH-4.4 THU
Hild, Konstanze	CB-10.0 THU
Higuchi, Takuya •CC-4.2 SUN Hilbert, Vinzenz Hild, Konstanze Hildner, Richard Hilliard, Andrew J.	
Hillier, David	CG_P 20 THU
Hinarejos Margarida	IB-P 20 MON
Hinarejos, Margarida Hinds, E.A.	. •ID-3.1 MON
Hinds. Edward	IA-4.6 WED
Hinds, Edward Hingerl, Kurt	. CD-P.19 TUE
Hinkov, Borislav	. •CB-1.3 SUN,
CC-P15 SUN	
Hipke, Arthur	CH-5.3 THU
Hirosawa, Kenichi	CA-2.4 SUN,
IA-P.28 THU	
Hirose, Tetsuya Ho, Chao-Ching	
Ho Daniel	CK-P 28 MON
Ho, Daniel Ho, Melvyn	IB-7.2 THU
Ho, S.	
Hoarty Dave	CG-P 20 THU
Hochlaf. Maidi	CG-2.2 TUE
Hochreiner, Astrid	. CB-10.4 THU
Hochreiner, Astrid Hodgson, Norman•TF	-2/LIM.3 TUE
Hoff, Ulrich B	•IA-7.5 THU
Hoffmann, Andreas Hoffmann, Claudia	CL-P.5 SUN
CF/IE-P.1 WED	CD-P.40 TUE,
Hoffmann, Dieter	
Hoffmann, Hans-Dieter	CI-1 5 SUN
CD-9.2 THE CLP14 WE	П
Höflich, Katja	CE-P.4 TUE
Höflich, Katja Höfling, Sven CK-7.2 THU, IB-5.1 THU,	.PD-B.5 WED,
CK-7.2 THU, IB-5.1 THU,	, IH-P.10 THU
Hofmann, Julian	.IB-P.12 MON,
IB-3.2 TUE	
Hofmann, Martin	CB-P.26 MON
Hofmann, Martin R	CB-P.23 MON
Hofmann, Werner	
Hofmeister, Paul-Gerke Hofstetter, Daniel	CC-P.15 SUN,
PD-A.9 WED	CC-1.13 JUN,
	IH-5.4 THU
	CH-P.8 THU
Holdynski, Zbyszek	
Holdynski, Zbyszek Holleczek, Annemarie	•IB-4.2 TUE
Hollink, Anton J.F	CL-P.9 SUN
Holloway, Catherine	IA-3.1 MON

Holly, Carlo	CI-P.7 TUE
Holly, Carlo Holmes, Barry M. Holmes, Chris	CB-1.5 SUN CK-P.33 MON,
CI-P.10 I UE	
Holmes, Christopher CE-P.12 TUE, •CH-P.1 TH Hölscher, Hendrik	CE-P 20 THE
CE-P.12 TUE, •CH-P.1 TH Hölscher, Hendrik Hölzer, Philipp•Cl Holzner, Simon Holzwarth, Ronald ID-1.3 MON, ID-P.2 MON	IC-P.1 TUE
Holzer, Philipp•C	. CH-5.2 THU
Holzwarth, Ronald	CM-P.26 SUN, D-2.4 MON.
CJ-10.5 THU Hammalhoff Batar	
Hommelhoff, PeterC ID-P.2 MON, CG-7.1 THU	
Homola, Jiří	CH-2.1 TUE CA-7.4 TUE
Hong, Kyung-Han Hong, Peilong	•IA-P.29 THU
Honkanen, Seppo	. CE-3.4 MON
Hong, Pellong Hong, Phan Ngoc Honkanen, Seppo Hönninger, Clemens CJ-4.4 MON, CA-5.2 TUE Honzátko, Pavel Hoogland, Heinar	F/IE-4.2 SUN,
Honzátko, Pavel	. CJ-P.5 WED
• U I- I U S I H U	
Hooker, Simon	F/IE-3.4 SUN,
Hopfmann, Caspar	. CK-7.2 THU
Hopp, Bela	CG-P 20 THU
Horak, Peter CM-P.29 SUN	, CI-3.3 WED,
CI-4.2 WED, CG-P.10 THU	ј ПИ БИ ТИП
Horn, Wolfgang	. CM-P.6 SUN,
Horn, Wolfgang CD-7.1 MON, CM-7.3 THI	CM-P.6 SUN,
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper. Heiko	. CM-P.6 SUN, U . IA-P.15 THU CB-P.26 MON
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel	. CM-P.6 SUN, U . IA-P.15 THU CB-P.26 MON IA-3.6 MON
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel Horton, Nicholas	. CM-P.6 SUN, J . IA-P.15 THU CB-P.26 MON . IA-3.6 MON • CL-4.1 MON
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel Horton, Nicholas Hosako, Iwao	.CM-P.6 SUN, J .IA-P.15 THU CB-P.26 MON IA-3.6 MON •CL-4.1 MON CJ-P.40 WED
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel Horton, Nicholas Hosako, Iwao Hosaseini, Sarah Houard Aurálian	.CM-P.6 SUN, J .IA-P.15 THU CB-P.26 MON .IA-3.6 MON .IA-3.6 MON CJ-P.40 WED .IB-P.3 MON CM-P 1 SUN
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel Horton, Nicholas Hosako, Iwao Hosseini, Sarah Houard, Aurélien CC-4.5 SUN, •CD-P.16 TU	.CM-P.6 SUN, J. IA-P.15 THU CB-P.26 MON .IA-3.6 MON .CL-4.1 MON CJ-P.40 WED .IB-P.3 MON .CM-P.1 SUN, E,
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel Horton, Nicholas Hosako, Iwao Hosseini, Sarah Houard, Aurélien CC-4.5 SUN, •CD-P.16 TU CD-10.1 TUE, CF/IE-P.25	.CM-P.6 SUN, J .IA-P.15 THU CB-P.26 MON IA-3.6 MON •CL-4.1 MON CJ-P.40 WED IB-P.3 MON .CM-P.1 SUN, E, WED,
CF/IE-7.4 MON Hopfmann, Caspar Hopp, Béla Hops, Nick Horak, Peter CM-P.29 SUN CI-4.2 WED, CG-P.10 THU Hörl, Anton CD-7.1 MON, CM-7.3 THI Horoshko, Dmitri Horstkemper, Heiko Horstkemper, Heiko Horstkan, Marcel Horton, Nicholas Hosako, Iwao Hosseini, Sarah Houard, Aurélien CC-4.5 SUN, •CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.5	.CM-P.6 SUN, J. IA-P.15 THU CB-P.26 MON .IA-3.6 MON .CL-4.1 MON CJ-P.40 WED .IB-P.3 MON .CM-P.1 SUN, E, WED, 5 WED
Horn, Wolfgang CD-7.1 MON, CM-7.3 TH Horoshko, Dmitri Horstkemper, Heiko Horstmann, Marcel Horton, Nicholas Hosako, Iwao Hosseini, Sarah Houard, Aurélien CC-4.5 SUN, •CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.5 Houdré, Romuald IG-3 6 WED IH-6 5 THU	CM-P.6 SUN, J. IA-P.15 THU CB-P.26 MON IA-3.6 MON IA-3.6 MON .CL-4.1 MON CJ-P.40 WED IB-P.3 MON .CM-P.1 SUN, E, WED, 5 WED /CC-1.5 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin	5 WED /CC-1.5 MON, •CK-P.1 MON,
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng	5 WED /CC-1.5 MON, .CK-P.1 MON, .CM-P.9 SUN D, +II-3.3 THU JSII-P.1 WED CM-P.11 SUN B-5.2 THU CC-2.5 SUN .CK-P.8 MON /IE-P.20 WED CJ-8.4 WED
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng Hu, Jungao	6 WED /CC-1.5 MON, .CK-P.1 MON, .CM-P.9 SUN .JSII-P.1 WED CM-P.11 SUN IB-5.2 THU CC-2.5 SUN CK-P.8 MON /IE-P.20 WED CJ-8.4 WED CJ-P.11 WED
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng Hu, Jungao	6 WED /CC-1.5 MON, .CK-P.1 MON, .CM-P.9 SUN .JSII-P.1 WED CM-P.11 SUN IB-5.2 THU CC-2.5 SUN .CK-P.8 MON /IE-P.20 WED CJ-8.4 WED CJ-P.11 WED
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng Hu, Jungao	6 WED /CC-1.5 MON, .CK-P.1 MON, .CM-P.9 SUN .JSII-P.1 WED CM-P.11 SUN IB-5.2 THU CC-2.5 SUN .CK-P.8 MON /IE-P.20 WED CJ-8.4 WED CJ-P.11 WED
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng Hu, Jungao	6 WED /CC-1.5 MON, .CK-P.1 MON, .CM-P.9 SUN .JSII-P.1 WED CM-P.11 SUN IB-5.2 THU CC-2.5 SUN .CK-P.8 MON /IE-P.20 WED CJ-8.4 WED CJ-P.11 WED
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng Hu, Jungao	6 WED /CC-1.5 MON, .CK-P.1 MON, .CM-P.9 SUN .JSII-P.1 WED CM-P.11 SUN IB-5.2 THU CC-2.5 SUN .CK-P.8 MON /IE-P.20 WED CJ-8.4 WED CJ-P.11 WED
CF/IE-P.26 WED, CD-11.5 Houdré, RomualdCB, IG-3.6 WED, IH-6.5 THU Hourahine, Benjamin •CK-P.3 MON Hourd, Andrew Hrelescu, CalinII-P.7 WEI Hrnecek, Erich Hsu, Jin-Chen Hu, Chengyong Hu, Dan Hu, Hui Hu, JianboCF Hu, Jinmeng	Generation of the second state of the second s

Huber, Robert CF/IE-8.1 WED, PD-A.8 WED Huber, Rupert CF/IE-5.1 MON, IH-5.1 THU, CF/IE-13.3 THU Huber, Tobias .IA-2.3 MON. •IB-3.5 TUE Hubka, ZbyněkCA-P.17 SUN Hübner, Wolfgang CL-3.1 MON Hudson, Darren CK-2.6 SUN Hudson, Darren Duane CD-P.46 TUE Huet, Landry IC-P.6 TUE Hugger, StefanJSII-2.2 WED, JSII-P.2 WED Hugi, Andreas CB-1.1 SUN, CB-1.3 SUN, ČH-1.2 MON Hugon, Olivier CF/IE-P.43 WED, ČH-P.22 THU, CH-7.4 THU Hugonnot, Emmanuel CJ-11.3 THU Huhtinen, Hannu CE-P.7 TUE Huijser, Annemarie CF/IE-10.4 THU Huisman, Simon R. •IA-P.3 THU Huisman, Thomas J.IA-P.3 THU Hulst, Niek F. van II-2.2 WED Humphreys, Peter IB-2.4 TUE Humphries, PeterIB-1.1 MON Hundt, BastianIC-2.1 TUE Huntemann, Nils ID-1.1 MON, ID-1.2 MON Huser, Thomas CL-3.1 MON, CL-3.2 MON Hussey, Dianne CG-P.20 THU Husu, Hannu IH-P.14 THU Hutchings, David C. CB-1.5 SUN Hutchinson, Christopher ... CG-3.3 WED Hütten, AndreasCK-P.5 MON CL-4.5 MON, CE-7.6 WED, •CK-6.2 WED Hutzler, Daniel CF/IE-12.4 THU Huwer, Jan IB-P.6 MON, IB-3.1 TUE Huyet, Guillaume CB-3.4 MON, ČF/IE-P.27 WED, CF/IE-P.37 WED lakovlev. Vladimir CB-P.34 MON. CB-8.2 THU, CB-8.5 THU Ibrahim, HeideCF/IE-9.5 WED Ibsen, Morten CJ-10.6 THU Idris, Siti CI-P.15 TUE lefuji, MinakoIB-8.1 THU Igarashi, Hironori CF/IE-1.3 SUN Igarashi, Kyushiro CF/IE-P.33 WED Iglev, Hristo CF/IE-12.4 THU Ihantola, SakariJSII-P.1 WED IJzerman, Wilbert L. CE-9.4 WED Ikeda, Kazuhiro CF/IE-P.31 WED Ikeda, NaokiČK-P.23 MON Ikonen, Elina CL-4.5 MON Ikyo, Barnabas A. CB-10.6 THU CM-P.26 SUN, CJ-6.5 WED, CJ-P.37 WED, CJ-P.39 WED Ilday, OmerCJ-6.3 WED Iliev. Hristo CA-P.7 SUN. •CA-P.11 SUN

CE-P.1 TUE, CA-6.3 TUE, CJ-P.3 WED,

CJ-P.32 WED, CJ-12.5 THU

Imai, Hiroshi	.IB-8.1 THU
Imai, Ryo	CC-P6 SUN
Imasaka, Totaro	
Imasaka, Iotaro	D-2.3 SUN,
•CF/IE-P.12 WED	
Imbrock, Joerg	F-P.15 SUN,
Imbrock, JoergI CM-7.3 THU	
Imbrock, Jörg	
Imbrock, Jorg	
Infante, DanielC	.E-2.1 MON,
•CE-2.2 MON	
Inguscio, Massimo	.IC-1.2 TUE
Inque Masahiro	A-P 15 SUN
Inoue, MasahiroC. CA-8.6 WED	4-1.15 JON,
CA-8.0 WED	
lodice, Mario	CH-2.1 TUE
Ironside. Charles	CI-P.8 TUE.
IA-4.6 WED, CI-4.6 WED	/
Increase Charles N	
Ironside, Charles N	CD-1.2 30N,
•CB-1.5 SUN	
Isabelle, Robert-Philip	. IA-7.3 THU
Isella, Giovanni Ishida, K.	CI-2.3 TUE
lehida K	
	CC-3.4 30N
Ishii, Nobuhisa	CG-6.3 THU
Ishii, Nobuhisa Ishii, YasuyukiCl Ishikawa, Kaho	K-P.29 MON
Ishikawa, Kaho	K-P.7 MON
Ishikawa, Masahiro C Ishikawa, Takuya Ishikawa, Takuya Ishikawa, Tetsuya CF/ Ishizuki, Hideki CF/ Isic, Goran	
Ishikawa, Takuya	CE-0.4 TUE
Ishikawa, TetsuyaCF/	IE-5.4 MON
Ishizuki, Hideki	/IE-9.6 WED
Isia Coron	
Iskhakov, Limur•I	A-P.17 THU
Ismaeel, Rand	CK-4.6 SUN,
Iskhakov, Timur	
Ismail, Nur	
Isobe, Keisuke	CL-4.4 MON
Isobe, Keisuke	CG-6.3 THU
Itin, Alexander	. IC-2.1 TUE
Ito Akio	CB-21 SUN
Itin, Alexander Ito, Akio Ito, Kazuma	
Ito, Kazuma	CE-7.4 VVED
Ivakin Filgeni	
Ivanenko, Alexey	CJ-P.8 WED
Ivanov Misha CO	G-P 13 THU
Ivanenko, Alexey	51.15 1110,
Ivanov, Misha Yu	CG-1.3 IUE
Ivanov, RosenCF/I	E-P.16 WED
lyleva Liudmila ,	CE-P6 TUE
lwoi Techiaki	
Ivleva, Liudmila	
Iwasaki, AtsushiCF/I	E-5.4 MON,
CG-P.4 THU	
Iwasaki, MasahikoC	D-P.13 TUE
labozvnski lan	Δ_P 14 SUN
Jabczynski, Jan•C Jacak, JaroslawC	
Jacak, Jaroslaw	.IVI-4.6 VVED
Jacques, VincentCF/IE Jacquin, OlivierCF/IE	D-B.4 WED
Jacquin, Olivier	-P.43 WED.
CH-P.22 THU, CH-7.4 THU	,
Jacquot, Maxime	CL-P.6 SUN,
CD-10.4 TUE, CD-10.5 TUE	,
CM-5.5 WED	
Jaeck, Julien	D-P.28 TUE
Jaeck, JulienC Jaffres, Anaël CA-5.2 TUE, •(
Janres, Anael CA-5.2 TUE, •0	CE-P.9 IUE,
•CE-6.2 TUE	
leffuer lienel	
Janres, Lionei	CA-P.8 SUN
Jaffres, Lionel	CA-P.8 SUN D-B 9 WED
Jagadish, ChennupatiP	CA-P.8 SUN PD-B.9 WED
Jagadish, ChennupatiP Jäger, Matthias	CA-P.8 SUN PD-B.9 WED CJ-1.4 SUN,
Jagadish, ChennupatiF Jäger, Matthias •CH-1.4 MON, CE-4.3 TUE	CA-P.8 SUN PD-B.9 WED CJ-1.4 SUN,
Jagadish, ChennupatiF Jäger, Matthias •CH-1.4 MON, CE-4.3 TUE Jágerská, Jana•C	2D-B.9 WED CJ-1.4 SUN, H-P.14 THU
Jagadish, ChennupatiF Jäger, Matthias •CH-1.4 MON, CE-4.3 TUE Jágerská, Jana•C	2D-B.9 WED CJ-1.4 SUN, H-P.14 THU
Jagadish, ChennupatiF Jäger, Matthias •CH-1.4 MON, CE-4.3 TUE Jágerská, Jana•C	2D-B.9 WED CJ-1.4 SUN, H-P.14 THU
Jagadish, Chennupati	2D-B.9 WED CJ-1.4 SUN, H-P.14 THU 2D-B.5 WED CB-7.3 THU

Jalocha, AlainCA-P.8 SUN
Jambunathan Vankatasan CA P 20 SUN
Jambunathan, Venkatesan CA-P.29 SUN Jamier, RaphaelCJ-P.38 WED,
CF/IE-8.2 WED
Jammot, Antoine
Jang, Jae K•PD-B.7 WED
Jang, Jae Kyung•CD-12.5 WED,
•IG-4.1 THU
Janicot, SylvieCA-4.2 SUN Janousek, JiriCL-1/ECBO.2 SUN,
Janousek Jiri CL-1/ECBO 2 SUN
•IB-P.3 MON, IA-5.1 WED, •IA-5.3 WED
Jansen, Florian
CJ-3.2 MON, •CJ-3.3 MON,
CJ-3.4 MON, CJ-10.1 THU
Janz, SiegfriedCK-9.3 THU
Japha, YonathanIC-2.3 TUE
Japha, YonathanIC-2.3 TUE Jarnac, Amélie•CF/IE-P.25 WED,
•CD-11.5 WED
Jaroszewicz, LeszekCH-2.3 TUE,
CJ-P.44 WED, CH-P.8 THU,
CH-7.3 THU
Jarvis, JanJSII-P.2 WED
Jau, Hung-Chang CE-P.23 TUE
Jauregui, CesarCJ-3.1 MON,
Jau, Hung-Chang CE-P.23 TUE Jauregui, CesarCJ-3.1 MON, •CJ-3.2 MON, CJ-3.3 MON,
CJ-3.4 MON, CJ-5.3 WED, CJ-9.1 THU,
CJ-10.1 THU
Jauslin, Hans-RudolfCl-3.1 WED
lavaloves Julien CB-P7 MON
Javaloyes, JulienCB-P.7 MON, •CB-P.8 MON, CB-P.32 MON,
CB-P.36 MON, CI-4.6 WED,
CB-7.4 THU, CB-8.1 THU Javaux, ClémentineII-P.8 WED,
IH-P.12 THU, IH-6.2 THU
IH-P.12 THU, IH-6.2 THU
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski, Piotr CE-4.1 TUE Jayakumar, HarishankarIA-2.3 MON Jazayerifar, Mahmoud •CD-P.24 TUE Jazbinsek, Mojca •CL-P.3 SUN, •IA-4 1 WFD
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Jaworski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Jaworski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Jaworski, Piotr CE-4.1 TUE Jayakumar, HarishankarIA-2.3 MON Jazayerifar, Mahmoud CD-P.24 TUE Jazbinsek, Mojca CD-P.24 TUE Jazbinsek, Mojca CC-P.12 SUN Jechow, Andreas CC-P.12 SUN Jechow, Andreas CC-P.3 SUN, •IA-4.1 WED Jee, Hong Sub CK-6.1 WED Jelic, Vedran CF/IE-12.5 THU Jelinek, Michal CA-P.30 SUN,
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Jaworski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine IH-3.4 THU Jaworski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Javorski, PiotrCE-4.1 TUE Jayakumar, HarishankarIA-2.3 MON Jazayerifar, MahmoudCD-P.24 TUE Jazbinsek, MojcaCD-P.24 TUE Jazbinsek, MojcaCC-P.12 SUN Jechow, AndreasCC-P.13 SUN, •IA-4.1 WED Jee, Hong SubCK-6.1 WED Jelic, VedranCF/IE-12.5 THU Jelinek, MichalCA-P.30 SUN, •CJ-P.7 WED Jelinková, HelenaCA-P.30 SUN, CJ-P.7 WED Jenkins, Richard MichaelCH-P.25 THU Jenkins, StewartIB-1.2 MON, IA-3.1 MON, IA-P.14 THU, IB-8.3 THU
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, ClémentineIH-3.4 THU Javorski, Piotr
IH-P.12 THU, IH-6.2 THU Javeaux, Clémentine

Jian, Pu
Jian, Pu
liang Pisu PD-B 5 WED
Jiang, WeitaoJSV-P.1 TUE
Jiang, WeitaoJSV-P.1 TUE Jiang, XinCL-2/ECBO.3 SUN
liao Yuging •CB-P5 MON
Jimenez Garcia, Jesus•IG-4.2 THU Jin, Ruibo•IB-P.10 MON
Jin, Ruibo
Jin. Xian-Min IB-2.4 TUE. IA-5.4 WED.
IA-P.27 THU
Jin, Yuwei CH-1.1 MON, CD-5.6 MON,
•CH-P.13 THU
Jirauschek, Christian CF/IE-8.1 WED
Joao, Celso PaivaCG-4.4 THU Jocher, ChristophCJ-9.1 THU
Jocher, Christoph•CJ-9.1 THU
Joel, Andrew
Johansson, AndreasCE-7.6 WED Johansson, GöranJSV-1.3 TUE
John Wilfred CB P 17 MON
John, WilfredCB-P.17 MON Johnsen, Kelsey IA-3.1 MON, IB-8.3 THU
Johnson Patrick M IH-P 20 THU
Johnson, Patrick M IH-P.20 THU Joly, Nicolas CD-3.6 SUN
Joly, Nicolas YIG-P.13 THU
Jones, CaseyJSII-2.3 WED
Jones, Matthew
Jones, MatthewIB-P.15 MON Jørgensen, MetteCJ-P.2 WED
Jørgensen, Mette M CJ-3.5 MON
Jost, John ID-P.3 MON, ID-P.4 MON,
ID-2.3 MON
Jougla, PaulCF/IE-P.9 WED Jouguet, PaulIB-5.3 THU
Jouguet, Paul•IB-5.3 THU
Jouy, PierreCB-1.3 SUN
Jovanovic, NemanjaCH-1.6 MON,
Jovanovic, NemanjaCH-1.6 MON, •CF/IE-P.42 WED, CM-6.7 THU,
•CH-P.15 THU
•CH-P.15 THU Joyce, AdamPD-B.9 WED
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, Adrian•Cl-P.13 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, Adrian•Cl-P.13 TUE Jukna, VytautasCM-5.5 WED
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, Adrian•CI-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCD-1.4 SUN
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, Adrian•Cl-P.13 TUE Jukna, VytautasCH-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Jullien, Aurelie•CF/IE-2.1 SUN
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, Adrian•CL-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Jullien, Aurelie•CF/IE-2.1 SUN Jung, PawełCD-P.27 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCP.14 SUN Jullien, AurelieCP/IE-2.1 SUN Jung, PawełCP-P.27 TUE Junge, ChristianIA-1.3 MON
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCH-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Jullien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU,
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianOL-P.13 TUE Jukna, VytautasCD-1.3 TUE Jules, Jean-CharlesCD-1.4 SUN Jullien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianOL-P.13 TUE Jukna, VytautasCD-1.3 TUE Jules, Jean-CharlesCD-1.4 SUN Jullien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianPL-B.9 WED Juka, VytautasCH-P.13 TUE Juka, VytautasCH-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Julein, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-4.3 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianPL-B.9 WED Juka, VytautasCH-P.13 TUE Juka, VytautasCH-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Julein, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-4.3 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianPL-B.9 WED Juka, VytautasCH-P.13 TUE Juka, VytautasCH-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Julein, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-4.3 TUE
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•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Jullien, AurelieCF/IE-2.1 SUN Jung, PawełCP-27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Kääriäinen, Teemu JSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Jullien, AurelieCF/IE-2.1 SUN Jung, PawełCP-27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Kääriäinen, Teemu JSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianOL-P.13 TUE Jukna, VytautasCM-5.5 WED Jules, Jean-CharlesCD-1.4 SUN Jullien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Kääriäinen, TeemuJSII-1.3 WED Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-P.10 WED, CJ-7.1 WED,
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianPD-B.9 WED Juka, VytautasCH-P.13 TUE Juka, VytautasCH-P.13 TUE Jukes, Jean-CharlesCD-1.4 SUN Julien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Jusz, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Käbräinen, TeemuJSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-P.10 WED, CJ-7.1 WED, CJ-7.4 WED
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCh-9.13 TUE Jules, Jean-CharlesCD-1.4 SUN Jules, Jean-CharlesCD-1.4 SUN Julien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianCH-7.5 THU, CM-8.3 THU Jurcevic, PB-3.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCL-2.2 TUE, •CE-P.25 TUE Juvé, Vincent
• CH-P.15 THU Joyce, Adam
• CH-P.15 THU Joyce, Adam
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCK-3.4 SUN Jularez, AdrianCL-P.13 TUE Jukna, VytautasCD-1.4 SUN Julien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Jusz, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Käbächnik, NikolayCG-1.2 TUE Kabachnik, NikolayCG-1.2 TUE Kabachnik, NikolayCG-1.2 TUE Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-7.4 WED Kabouraki, ElminaCK-P.29 MON Kadowaki, KCC-3.4 SUN
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCH-21 SUN Julies, Jean-CharlesCD-1.4 SUN Julien, AurelieCF/IE-21 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-2.6 SUN Kääriäinen, TeemuJSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-7.4 WED Kabouraki, ElminaCH-8.4 THU Kaczmarek, MalgosiaCE-3.1 TUE Kada, WataruCH-2.9 MON Kadowaki, KCC-3.4 SUN Kaenders, WilhelmID-1.3 MON
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCD-1.4 SUN Julien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Jusz, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Kääriäinen, TeemuJSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-7.4 WED Kabouraki, ElminaCK-P.29 MON Kadowaki, KCC-3.4 SUN Kaenders, WilhelmCA-4.3 SUN Kaertner, Franz XCA-4.3 SUN
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCK-3.4 SUN Juarez, AdrianCL-P.13 TUE Jukna, VytautasCD-1.4 SUN Julien, AurelieCF/IE-2.1 SUN Jung, PawełCD-P.27 TUE Junge, ChristianIA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PIB-3.3 TUE Jusz, FlorianCE-4.3 TUE Jusza, Anna .CI-2.2 TUE, •CE-P.25 TUE Juvé, VincentIH-P.15 THU Juwiler, IritCD-2.6 SUN Kääriäinen, TeemuJSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-7.4 WED Kabouraki, ElminaCK-P.29 MON Kadowaki, KCC-3.4 SUN Kaenders, WilhelmCA-4.3 SUN Kaertner, Franz XCA-4.3 SUN
•CH-P.15 THU Joyce, AdamPD-B.9 WED Juan, Mathieu LCK-3.4 SUN Juarez, AdrianCK-3.4 SUN Jules, Jean-CharlesCh-1.4 SUN Julies, Jean-CharlesCh-1.4 SUN Julien, AurelieCF/IE-2.1 SUN Jung, PawełCP-27 TUE Junge, ChristianA-1.3 MON Juodkazis, SauliusCM-7.5 THU, CM-8.3 THU Jurcevic, PB-3.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-4.3 TUE Just, FlorianCE-2.2 TUE, •CE-P.25 TUE Juvé, VincentHI-P.15 THU Juwiler, IritCD-2.6 SUN Kääriäinen, Teemu JSII-1.3 WED Kabachnik, NikolayCG-1.2 TUE Kabakova, Irina Vladimirovna CD-P.46 TUE Kablukov, SergeyCJ-P.9 WED, CJ-P.10 WED, CJ-7.1 WED, CJ-P.10 WED Kabouraki, ElminaCM-8.4 THU Kaczmarek, MalgosiaCE-5.1 TUE Kada, WataruCA-2.9 MON Kaenders, WilhelmID-1.3 MON Kaerner, Franz XCA-4.3 SUN

Kaiman, Michael TF-1/LIM.1 TUE Kaiser, RobinIF-3.2 SUN, •IG-1.1 TUE, IG-1.2 TUE, JSIII-1.2 WED Kaivola, Matti
Kaiser, Robin IF-3.2 SUN, •IG-1.1 TUE,
IG-1.2 TUE, JSIII-1.2 WED
Kaivola Matti II / 3 THU
Kaji, ToshiyukiIA-P.6 THU
Kalashnikov, Mikhail •CF/IE-4.5 SUN,
CG-4.1 THU
Kalashnikov, Vladimir CF/IE-2.2 SUN,
Kalashnikov, VladimirCF/IE-2.2 SUN, CJ-2.5 SUN, CF/IE-P.8 WED
Kalaycioglu, Hamit CM-P.26 SUN Kalinowski, KsaweryIF-4.2 SUN Kalkandjiev, Todor K CE-P.28 TUE,
Kalinowski, KsaweryIF-4.2 SUN
Kalkandjiev, Todor K CE-P.28 TUE,
CI-P.4 TUE
Kallepalli, Lakshmi Narayana Deepak
•CK-P.26 MON
• CK-P.26 MON Kalli, Kyriacos Kalli, Kyriacos Kamba, Yasuhiro CL-6.3 TUE Kamba, Yasuhiro CK-P.29 MON Kamp, Martin CK-7.2 THU, IB-5.1 THU, IH-P.10 THU Kampschulte Tobias LA-4 WED
Kalt Heinz CL 63 THE
Kamba, Yasuhiro•CJ-5.2 WED
Kamiya, Tomihiro CK-P.29 MON
Kamp Martin PD-B 5 WED
CK-7.2 THU, IB-5.1 THU, IH-P.10 THU
Kampschulte, Tobias IA-4.4 WED
Kampschulte, Tobias IA-4.4 WED Kamynin, Vladimir CJ-P.9 WED,
•CJ-7.6 WED, CJ-12.1 THU
•CJ-7.0 WED, CJ-12.1 THU
Kanai, TerutoCG-6.3 THU Kanai, Tsuneto•CG-P.7 THU,
Kanai Tsuneto •CG-P 7 THU
CG-P.17 THU
Kanda, NatsukiCC-2.2 SUN, •CC-P.6 SUN, CC-P.7 SUN, CC-4.2 SUN Kandyla, Maria•CM-P.20 SUN, •CM-P.27 SUN
 CC-P.6 SUN, CC-P.7 SUN, CC-4.2 SUN
Kandyla, Maria
•CIVI-1.27 30IN
Kane, Deb PD-B.9 WED, CH-P.12 THU,
CH-P.23 THU
Kana Daharah CR R 20 MON
Kane, DeborahCB-P.39 MON
Kanerva, Kristiina CL-4.5 WON
Kaneshima, Keisuke
Kanerva, Kristilna CL-4.5 MON Kaneshima, Keisuke CG-6.3 THU Kanepan Pradeesh
Kanerva, Kristilina
Kanerva, Kristina CL-4.5 MON Kaneshima, Keisuke CG-6.3 THU Kannan, Pradeesh CE-7.1 WED, CF/IE-8.3 WED, CJ-12.2 THU
Kanerva, Kristiina CL-4.5 MON Kaneshima, Keisuke CG-6.3 THU Kannan, Pradeesh CE-7.1 WED, CF/IE-8.3 WED, CJ-12.2 THU Kannari, Fumihiko CA-2.4 SUN,
Kannari, FuminikoCA-2.4 SUN,
IA-P.28 THU
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar
IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar IA-P.17 THU Kantola, Emmi •CB-10.2 THU Kapfinger, Stephan S. •IH-6.6 THU Kaplas, Tommi CF/IE-5.1 MON Kaplas, Tommi CB-P.12 MON, CB-P.34 MON, CB-8.5 THU CB-P.12 MON, CB-P.34 MON, CB-8.5 THU Kapon, Eliyahou Kapon, Att Mongalis, Alexandros CB-4.1 TUE,
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar•CB-10.2 THU Kantola, Emmi•CB-10.2 THU Kapfinger, Stephan S•IH-6.6 THU Kaplan, DanielCF/IE-5.1 MON Kaplas, TommiPD-B.6 WED Kapon, EliCB-P.12 MON, CB-P.34 MON, CB-8.5 THU Kapon, ElyahouCB-8.2 THU Kapsalis, AlexandrosCB-4.1 TUE, CD-P.33 TUE
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar•CB-10.2 THU Kantola, Emmi•CB-10.2 THU Kapfinger, Stephan S•IH-6.6 THU Kaplan, DanielCF/IE-5.1 MON Kaplas, TommiPD-B.6 WED Kapon, EliCB-P.12 MON, CB-P.34 MON, CB-8.5 THU Kapon, ElyahouCB-8.2 THU Kapsalis, AlexandrosCB-4.1 TUE, CD-P.33 TUE
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar•CB-10.2 THU Kantola, Emmi•CB-10.2 THU Kapfinger, Stephan S•IH-6.6 THU Kaplan, DanielCF/IE-5.1 MON Kaplas, TommiPD-B.6 WED Kapon, EliCB-P.12 MON, CB-P.34 MON, CB-8.5 THU Kapon, ElyahouCB-8.2 THU Kapsalis, AlexandrosCB-4.1 TUE, CD-P.33 TUE
Kannari, Fuminiko CA-2.4 SON, IA-P.28 THU Kanno, Atsushi Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar
Kannari, Fuminiko CA-2.4 SON, IA-P.28 THU Kanno, Atsushi Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar
Kannari, Fuminiko CA-2.4 SON, IA-P.28 THU Kanno, Atsushi Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar
Kannari, Fuminiko CA-2.4 SON, IA-P.28 THU Kanno, Atsushi Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar
Kannari, Fuminiko CA-2.4 SON, IA-P.28 THU Kanno, Atsushi Kanno, Atsushi Cl-2.1 TUE, •Cl-5.4 WED Kanseri, Bhaskar
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar IA-P.17 THU Kantola, Emmi •CB-10.2 THU Kapfinger, Stephan S. •IH-6.6 THU Kaplas, Tommi
Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar IA-P.17 THU Kantola, Emmi •CB-10.2 THU Kapfinger, Stephan S. •IH-6.6 THU Kaplas, Tommi
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Kannari, Puminiko IA-P.28 THU Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar IA-P.17 THU Kantola, Emmi •CB-10.2 THU Kapfinger, Stephan S. •IH-6.6 THU Kaplas, Tommi
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Kannari, Fuminiko CA-2.4 SON, IA-P.28 THU Kanno, Atsushi Kanno, Atsushi CI-2.1 TUE, •CI-5.4 WED Kanseri, Bhaskar

Kaur Kaur CL CE IH Kaus Kaut IA Kawa CI Kawa Kawa CI CI Kawa Kawa CE Kawa Kawa CA Kawa Kay, Kaya Kaza Kaza C Kazi Keil • IA Keil Kell •(Kell Kell Kell C P CC Kelle Karpowicz, NicholasCF/IE-P.3 WED, Kelly пy

CG-5.3 THU	Ke
Karsch, StefanCG-3.2 WED	Ke
Kartashov, Daniil	Ke
CF/IE-6.2 MON, CF/IE-6.3 MON,	Ke
CG-1.5 TUE, CG-2.3 TUE, CG-P.4 THU	Ke
Kartashov, Yaroslav IF-P.6 SUN Kärtner, Franz CF/IE-5.3 MON	Ke
Kärtner, Franz	
Kärtner, Franz XCA-7.4 TUE,	Ke
CG-4.6 THU	1.0
	K.
Karuza, MarinIA-7.2 THU	Ke
Karvonen, Lasse CE-2.4 MON,	Ke
•CE-3.4 MON	Ke
Kaschke, JohannesCK-7.1 THU	Ke
Kashiwagi, T CC-3.4 SUN	Ke
Kashyap, Raman	Ke
Kašík, Ivan CJ-P.5 WED, CJ-P.7 WED	Kł
Kaskow, Mateusz CA-P.14 SUN	Kł
Kaskow, Mateusz CA-P.14 SUN Kaspar, SebastianCB-4.5 TUE,	Kł
JSII-2.2 WED, •CB-10.5 THU	
Kasparian Jerome CD-1.1 SUN	Kł
Kasparian, Jerome CD-1.1 SUN Kassamakov, Ivan CD-P.43 TUE	Kł
Kästner, Markus CH-4.2 THU Katayama, Takeo•CI-5.1 WED	Kł
Katayama, Takeo•CI-5.1 WED	Kł
Katis, Ioannis CM-P.25 SUN Kato, Kiyoshi CE-P.8 TUE	Ki
Kato, Kivoshi	Ki
Katzschmann, Fabian•IB-2.3 TUE	
Kaus Kamalawat	
Kaur, Kamaipreet•Civi-P.22 50iv	
Kaur, KamalpreetCM-P.22 SUN Kauranen, MarttiCL-P.8 SUN, CL-4.5 MON, CE-7.5 WED,	Ki
CL-4.5 MON, CE-7.5 WED,	Ki
CE-7.6 WED, CK-6.2 WED,	Ki
IH-P.14 THU	Ki
Kaushal, Jivesh•CF/IE-P.39 WED	Ki
Kauten, Thomas•IA-2.2 MON,	Ki
IA-2.3 MON	Ki
Kawaguchi, Hitoshi CF/IE-P.31 WED,	Ki
CL51WED	Ki
Kawai, Tsuyoshi CE-2.5 MON	Ki
Kawanishi. Tetsuva	Ki
CI-1.4 MON, CI-2.1 TUE, CJ-P.40 WED,	Ki
CI-5.4 WED	Ki
Kawano, HiroyukiCL-4.4 MON	Ki
Kawashima, Hiroyasu CD-1.4 SUN,	Ki
CD-P.4 TUE	
Kawata, Yoshimasa CE-7.4 WED	Ki
Kawato, Sakae CA-P.15 SUN,	Ki
CA-8.6 WED	Ki
Kawauchi, HikaruIA-P.28 THU	Ki
Kawauchi, Hikaru	N
Kay, Alastair . IB-P.17 MON, IB-3.4 TUE	
Kayanuma, Yosuke•CF/IE-P.24 WED	Ki
Kayanuma, Yosuke•CF/IE-P.24 WED Kazanskii, Andrey CM-P.24 SUN	Ki
Kazansky, Peter	
Kazansky, Peter CM-P.24 SUN, CM-4.3 WED, CM-5.3 WED	
Kazin Paval CE D 21 THE CE D 21 THE	Ki
Kazin, Pavel CE-P.21 TUE, CE-P.31 TUE Keil, Robert IB-P.17 MON, CI-P.10 TUE,	
Keil, Robert IB-P.17 MON, CI-P.10 TUE,	Ki
•IB-3.4 TUE, •JSIII-P.5 WED,	Ki
IA-P.13 THU, IA-P.24 THU	Ki
Keilmann, Fritz CC-P.2 SUN, IH-1.6 SUN	Ki
Kelleher, Bryan	Ki
•CF/IE-P.27 WED	Ki
Keller, Arne IA-2.4 MON	Ki
Keller, Jonas CM-2.3 SUN	Ki
Keller, Ursula CB-4.6 TUE, CA-5.1 TUE,	
CA-6.5 TUE, CG-1.1 TUE,	Ki
PD-A.1 WED, CG-7.3 THU,	
CG-7.4 THU	Ki
	Ki
Kellert, Martin•CA-P.23 SUN	
Kelly, Anthony . CI-P.8 TUE, CI-4.6 WED	Ki

Kelly, BrianCB-7.2 THU, CJ-10.6 THU Kemp, Alan .CA-1.2 SUN, CA-10.5 WED Kennard, JIA-2.1 MON Kennis, JohnJSIV-1.2 MON Kerdoncuff, HugoIA-7.5 THU
Kermène, Vincent CJ-4.2 MON, CJ-6.2 WED Kern, Christian CG-P.5 THU,
•CG-7.5 THU Kerse, Can•CM-P.26 SUN Kertulla, JuhoCJ-P.33 WED Keßler, ChristianCB-P.21 MON Kessler, ChristianCB-P.21 MON Kettler, JanIA-3.5 MON Kevin, MaklesIA-3.5 MON Kevin, MaklesIA-3.5 MON Khanna, Suraj PCB/CC-1.1 MON Kharenko, DenisCF/IE-P.8 WED Khazanov, EfimCA-P.1 SUN, CA-7.5 TUE
Kherani, Nazir
Kicas, SimonasCK-P.25 MON Kieffer, Jean-ClaudeCF/IE-9.5 WED Kielpinski, DavidIA-4.1 WED Kienberger, ReinhardCF/IE-12.4 THU Kienel, Marco CJ-4.3 MON, •CJ-5.3 WED Kieu, KhahnCE-3.4 MON Kieu, KhahnCE-3.4 MON Kieu, KhanhCE-2.4 MON Kim, HyochulIH-6.6 THU Kim, HyunjooCH-6.5 THU Kim, Won JinCK-6.1 WED Kim, Won JinCE-2.4 MON Kim, WonjaeCJ-P.13 WED Kim, YoungjaeCJ-P.13 WED Kimble, H. JeffBe-4.1 TUE Kimura, DaisukeCA-P.15 SUN,
•CA-8.6 WED Kinet, DamienCJ-7.1 WED King, PeterCH-6.5 THU Kinzel, JörgCE-3.5 MON Kip, DetlefCK-P.8 MON, CE-P.3 TUE, •CJ-P.17 WED Kipergil, Esra AytaçCL-P.16 SUN Kippenberg, TobiasID-P.3 MON, ID-P.4 MON, ID-2.3 MON, •ID-2.4 MON, CK-10.1 THU Kirchner, Silke RPD-A.6 WED Kirian, RichardCL-P.12 SUN Kir'yanov, AlexanderCJ-P.26 WED Kiryu, HiromuCK-P.29 MON Kisel, Viktor ECA-4.5 SUN Kitamura, KenjiIF-4.3 SUN Kitamura, KentaCG-3.5 TUE, •CG-2.3 TUE, •CG-P.4 THU
•CG-2.3 TUE, •CG-P.4 THU Kitzler, Ondrej CA-1.4 SUN, •CD-P.37 TUE Kivshar, Yuri S. II-4.2 THU, IA-P.13 THU Kiyan, Roman CM-2.3 SUN

Klar. Thomas A.	•CM-4.6 WED.
Klar, Thomas A II-P.7 WED, II-3.3 THU	1 ,
Klehr Andreas	
Klehr, Andreas CB-P.26 MON, •CB-P.2	
	29 101010,
•CB-P.30 MON	
Klein, Thomas	. CF/IE-8.1 WED,
Kleinbauer, Jochen	CE/IE-4.1 SUN
Klenke, Arno •CJ-4.3 M	ION CL53 WED
Klenner Alexender	
Klenner, Alexander	•CA-0.5 TUE
Klenner, Alexander Kley, Ernst-Bernhard	CD-7.2 MON
Klimczak, Mariusz	CJ-P.30 WED
Klimentov, Sergey Kling, Matthias F	CM-3/LIM.2 TUE
Kling, Matthias F.	CD-9.2 TUE
Kling, Rainer	C I-11 2 THU
Klinkhammer, Sönke	CB-65 THE
Klas Massley	
Kloz, Iviiroslav	•JSIV-1.2 MON
Kloz, Miroslav Knabe, Bastian	•CD-P.35 TUE
Knappe, Ralt	TF-2/LIM.3 TUE
Knauer, S	IA-2.1 MON
Knigge, Steffen	CB-P.28 MON.
CB-9.1 THU	
Knight, Jonathan C	CE-4 1 TUF
Knight, Jonathan C Knittel, JoachimCl	-1/FCBO 2 SUN
CL-6.4 TUE, IA-5.1 WI	
Knittel Veneses	
Knittel, Vanessa Ko, Do-Kyeong Kobelke, Jens	
Ko, Do-Kyeong	CE-0.2 WED
Kobelke, Jens	IF-2.1 SUN
Kobimuller, Gregor	CE-3.5 MON
Kobtsev, Sergey	CJ-P.8 WED
Koch, Juergen	CM-1.2 SUN
Kobtsev, Sergey Koch, Juergen Koch, Karl	CE-4.4 TUE
Koch, Karl W.	CE-2.2 MON
Koch, Karl W Koch, Martin	•CC-3.1 SUN
Koch, Stephan	CB-93 THU
Koch, Stephan W.	CC-3 1 SUN
Kochanowicz, Marcin	
Kochetov, Igor	
Kochelov, Igor	
Koehler, Christian	CF/IE-P.26 WED
Koenderink, A. Femius	IH-3.1 THU
Kofler, Johannes	IB-7.3 THU
Köhler, Christian Köhler, Klaus	•CF/IE-P.23 WED
Köhler, Klaus	CB-10.5 THU
Köhler, Wolfgang	CF/IE-9.2 WED
Kohno, Kenta	
Nonno, Nenta	CJ-8.6 WED
Kohoutek. Thomas	CJ-8.6 WED
Kohoutek, Thomas Köhring Michael	CJ-8.6 WED CD-1.4 SUN
Kohoutek, Thomas Köhring, Michael	CJ-8.6 WED CD-1.4 SUN CM-P.16 SUN
Kohoutek, Thomas Köhring, Michael Köjou, Junichiro	CJ-8.6 WED CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas	CD-1.4 SUN CA-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU CD-P.6 TUE
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr	CD-1.4 SUN CA-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU CD-P.6 TUE •IA-3.1 MON,
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU O-P.6 TUE •IA-3.1 MON, THU
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU O-P.6 TUE •IA-3.1 MON, THU
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU OD-P.6 TUE IA-3.1 MON, THU II-1.5 WED
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU CD-P.6 TUE II-6.3.1 MON, THU II-1.5 WED II-1.5 THU
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU CD-P.6 TUE II-6.3.1 MON, THU II-1.5 WED II-1.5 THU
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU IH-6.3 THU IH-6.3 THU II-1.5 WED II-1.5 WED II-1.5 WED II-2.6 WED II-2.4 TUE
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU OL-P.6 TUE IA-3.1 MON, THU II-1.5 WED II-1.5 WED IB-2.4 TUE IB-1.1 MON
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompanets, Viktor	CD-1.4 SUN CA-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU CD-P.6 TUE IA-3.1 MON, THU II-1.5 WED IA-P.15 THU IB-2.4 TUE IB-1.1 MON CK-P.21 MON
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompanets, Viktor Kompitsas, Michael	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON CC-P.6 TUE IH-6.3 THU CD-P.6 TUE IA-3.1 MON, THU II-1.5 WED IB-1.5 THU IB-2.4 TUE IB-2.4 TUE IB-2.1 MON CM-P.20 SUN,
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompanets, Viktor Kompitsas, Michael	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON CC-P.6 TUE IH-6.3 THU CD-P.6 TUE IA-3.1 MON, THU II-1.5 WED IB-1.5 THU IB-2.4 TUE IB-2.4 TUE IB-2.1 MON CM-P.20 SUN,
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompates, Viktor Kompitsas, Michael CM-P.27 SUN Konar, Arkaprabha	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU IH-6.3 THU II-1.5 WED II-1.5 WED II-1.5 WED IB-2.4 TUE IB-2.1 MON CK-P.21 MON CK-P.21 MON CM-P.20 SUN, •CF/IE-P.15 WED
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompanets, Viktor Kompitsas, Michael CM-P.27 SUN Konar, Arkaprabha Kondratiev, Nikita	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON CK-P.29 MON CD-P.6 TUE IA-3.1 MON, THU II-1.5 WED IB-2.4 TUE IB-2.4 TUE IB-2.4 TUE IB-2.1 MON CK-P.21 MON CF/IE-P.15 WED ID-P.4 MON
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompanets, Viktor Kompitsas, Michael CM-P.27 SUN Konar, Arkaprabha Kondratiev, Nikita	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CK-P.29 MON CK-P.29 MON CD-P.6 TUE IA-3.1 MON, THU II-1.5 WED IB-2.4 TUE IB-2.4 TUE IB-2.4 TUE IB-2.1 MON CK-P.21 MON CF/IE-P.15 WED ID-P.4 MON
Kohoutek, Thomas Köhring, Michael Kojau, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kompanets, Viktor Kompanets, Viktor Kompatss, Michael CM-P.27 SUN Konar, Arkaprabha Kondratiev, Nikita Kondratiev, Nikita	CD-1.4 SUN CM-P.16 SUN CA-2.4 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU ICP-P.6 TUE IA-9.15 THU II-1.5 WED IB-2.1 THU IB-2.4 TUE IB-2.1 MON CK-P.21 MON CM-P.20 SUN, •CF/IE-P.15 WED ID-P.4 MON CA-4.5 SUN CF/IE-11.3 THU
Kohoutek, Thomas Köhring, Michael Kojou, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kolthammer, W. Steven Kompitsas, Michael CM-P.27 SUN Konar, Arkaprabha Kondrtyuk, Nikolay V. König, Stefan Konishi, Kuniaki	CD-1.4 SUN CA-2.4 SUN CA-2.4 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU I-6.3 THU IA-9.15 THU II-1.5 WED IB-2.4 TUE IB-2.4 TUE IB-2.1 MON CK-P.21 MON CK-P.21 MON CF/IE-P.15 WED ID-P.4 MON CA-4.5 SUN .CF/IE-11.3 THU CC-2.2 SUN,
Kohoutek, Thomas Köhring, Michael Kojau, Junichiro Koka, Masashi Kolarczik, Mirco Kolenda, Jonas Kolenderski, Piotr IA-P.14 THU, •IB-8.3 T Kolkowski, Radoslaw Kolobov, Mikhail Kolpakov, Stanislav Kolthammer, Steven Kompanets, Viktor Kompanets, Viktor Kompatss, Michael CM-P.27 SUN Konar, Arkaprabha Kondratiev, Nikita Kondratiev, Nikita	CD-1.4 SUN CA-2.4 SUN CA-2.4 SUN CA-2.4 SUN CK-P.29 MON IH-6.3 THU I-6.3 THU IA-9.15 THU II-1.5 WED IB-2.4 TUE IB-2.4 TUE IB-2.1 MON CK-P.21 MON CK-P.21 MON CF/IE-P.15 WED ID-P.4 MON CA-4.5 SUN .CF/IE-11.3 THU CC-2.2 SUN,

Kononenko, VitaliCM-3/LIM.2 TUE
Kononenko, VitaliCM-3/LIM.2 TUE Konov, Vitaly•CM-3/LIM.2 TUE
Konstantaki, Maria CL-P.1 SUN
Konyashkin, Aleksey •CE-P.18 TUE,
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Konvushin Alexander CM-P 8 SUN
Koopmann, Philipp CA-3.4 SUN,
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Kopczynski, Krzysztof CA-P.14 SUN
Koppiczky ludit CM-P10 SUN
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Korchak, Vladimir CE-P.21 TUE,
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Korn Dietmar •CK-9.2 THU
Korn Georg •CG-4.2 THU
Korn Julian IH-6.3 THU
Korn, Dietmar•CK-9.2 THU Korn, Georg•CG-4.2 THU Korn, JulianIH-6.3 THU Körner, JörgCG-4.4 THU
Koroknay, Elisabeth CB-P.21 MON
Kosina, HansCB-1.4 SUN
Kosma Kyriaki •CK-44 SUN
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Koukharenko Elena CM-P 28 SUN
Koulouklidis, Anastasios •CC-P.14 SUN Kovacev, Milutin CK-P.5 MON
Kovacev, Milutin CK-P.5 MON
Kovács, Attila CG-P.22 THU
Kovanis, Vassilios CB-2.5 SUN
Kovama Mio CL66 WED
Koynov, Kaloian IF-P.15 SUN Kozlov, Victor
Kozlov, VictorCl-3.1 WED
Kraack, Jan PhilipJSIV-1.1 MON
Krachmalnicoff, Valentina•IH-1.2 SUN Kracht, Dietmar
Kracht, Dietmar CJ-1.2 SUN,
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Kraenkel, Christian CA-8.5 WED Krafft, Christoph•CL-2/ECBO.4 SUN Kragh, Christian
Krant, Christoph •CL-2/ECD0.4 50N
Krakowski, Michel
CB-4.2 TUE, •CB-9.5 THU
Krall Michael CC-P 3 SUN
Krall, MichaelCC-P.3 SUN, •CB/CC-1.6 MON
Krämer, Ria G•CJ-1.3 SUN, CM-7.6 THU, •CM-8.5 THU
CM-7.6 THU. •CM-8.5 THU
Kränkel, Christian CA-2.5 SUN,
CA-5.1 TUE. CA-5.3 TUE. CE-P.1 TUE.
CJ-P.3 WED, •CJ-P.32 WED
Krapick, Stephan
Krapick, StephanIB-1.4 MON Krasavin, AlexeyIH-P.18 THU
Krasilnikov, Mikhail CA-P.1 SUN
Krasilnikov, Mikhail CA-P.1 SUN Krauch, Niels
Krauß, Moritz•CH-4.2 THU
Krauser, Jasper SIC-2.1 TUE
Krauss, Thomas•SH-4.1 SUN,
Krauser, Jasper SIC-2.1 TUE Krauss, ThomasSH-4.1 SUN, IB-1.3 MON, IG-P.4 THU
Krauss, Thomas F CK-2.3 SUN,
CK-8.1 THU
Krausz, Ferenc CF/IE-2.2 SUN, CF/IE-5.6 MON, CF/IE-P.3 WED,
CF/IE-5.6 MON, CF/IE-P.3 WED,
CG-3.2 WED, CG-4.3 THU,
CG-5.3 THU, CG-P.11 THU Krauth, Joachim•CF/IE-9.3 WED
Maun, Joachin

Krebs, ManuelCG-4.5 THU, CG-6.2 THUKrebs, NilsJSIV-2.2 MONKrebs, OlivierIH-4.4 THUKremeyer, KevinCF/IE-6.4 MONKrenn, Joachim RIH-5.4 THUKrenner, Hubert•CE-3.5 MONKrenner, Hubert J.IH-6.6 THUKress, AllaCD-6.3 MONKrestnikov, IgorCD-6.3 MONCB-4.2 TUE, CD-P.21 TUEKrichel, NilsJSII-1.2 WEDKriesch, Arian.CK-4.2 SUN, •II-2.3 WEDKriezis, EmmanouilCD-P.14 TUE,II-2.6 WEDKriger, Thijs L.Kristensen, Anders.II-P.5 WED,CK-7.5 THU, CH-P.21 THUKroesen, SebastianIF-P.15 SUN,•CM-P.6 SUN, CD-7.1 MON,•CM-7.3 THUKronjaeger, Jochen.IC-P.1 TUEKrüger, MichaelIB-P.12 MON, IB-3.2 TUEKrüger, Michael.CH-P.13 TUEKrupa, Katarzyna.CH-2.4 WED
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Krebs, Olivier IH-4.4 THU Kremeyer, Kevin CF/IE-6.4 MON Krenn, Joachim R IH-5.4 THU Krenner, Hubert •CE-3.5 MON Krenner, Hubert J. IH-6.6 THU Kress, Alla CL-4.3 MON Krestnikov, Igor CD-6.3 MON, CB-4.2 TUE, CD-P.21 TUE Krichel, Nils Kricsch, Arian CK-4.2 SUN, •II-2.3 WED Kriezis, Emmanouil CD-P.14 TUE, II-2.6 WED Kriger, Thijs L. Kristensen, Anders CG-1.2 TUE Kristensen, Anders II-9.5 WED, CK-7.5 THU, CH-P.21 THU Kroesen, Sebastian Krolikowski, Wieslaw IF-4.2 SUN, Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Kruger, Michael CI-P.13 TUE Kruger, Michael CI-P.13 TUE Kruger, Katarzyna CD-12.4 WED
Krebs, Olivier IH-4.4 THU Kremeyer, Kevin CF/IE-6.4 MON Krenn, Joachim R IH-5.4 THU Krenner, Hubert •CE-3.5 MON Krenner, Hubert J. IH-6.6 THU Kress, Alla CL-4.3 MON Krestnikov, Igor CD-6.3 MON, CB-4.2 TUE, CD-P.21 TUE Krichel, Nils Kricsch, Arian CK-4.2 SUN, •II-2.3 WED Kriezis, Emmanouil CD-P.14 TUE, II-2.6 WED Kriger, Thijs L. Kristensen, Anders CG-1.2 TUE Kristensen, Anders II-9.5 WED, CK-7.5 THU, CH-P.21 THU Kroesen, Sebastian Krolikowski, Wieslaw IF-4.2 SUN, Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Kruger, Michael CI-P.13 TUE Kruger, Michael CI-P.13 TUE Kruger, Katarzyna CD-12.4 WED
Kremeyer, Kevin
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Krenner, Hubert J. IH-6.6 THU Kress, Alla CL-4.3 MON Krestnikov, Igor CD-6.3 MON, CB-4.2 TUE, CD-P.21 TUE Krichel, Nils Krichel, Nils JSII-1.2 WED Kriesch, Arian CK-4.2 SUN, •II-2.3 WED Kriezis, Emmanouil CD-P.14 TUE, II-2.6 WED Krigger, Thijs L. Kristensen, Anders CG-1.2 TUE Kristensen, Anders II-P.5 WED, CK-7.5 THU, CH-P.21 THU Kroesen, Sebastian Krolikowski, Wieslaw IF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Kruger, Katarzyna CD-P.13 TUE
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Krikunova, MariaCG-1.2 TUE Kristensen, AndersII-P.5 WED, CK-7.5 THU, CH-P.21 THU Kroesen, SebastianIF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, WieslawIF-4.2 SUN Kronjaeger, JochenIC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael IB-P.12 MON, IB-3.2 TUE Krüger, MichaelCG-7.1 THU Krune, EdgarCI-P.13 TUE Krupa, KatarzynaCD-12.4 WED
Krikunova, MariaCG-1.2 TUE Kristensen, AndersII-P.5 WED, CK-7.5 THU, CH-P.21 THU Kroesen, SebastianIF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, WieslawIF-4.2 SUN Kronjaeger, JochenIC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael IB-P.12 MON, IB-3.2 TUE Krüger, MichaelCG-7.1 THU Krune, EdgarCI-P.13 TUE Krupa, KatarzynaCD-12.4 WED
CK-7.5 THU, CH-P.21 THU Kroesen, Sebastian IF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael CG-7.1 THU Krune, Edgar CI-P.13 TUE Krupa, Katarzyna CD-12.4 WED
CK-7.5 THU, CH-P.21 THU Kroesen, Sebastian IF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael CG-7.1 THU Krune, Edgar CI-P.13 TUE Krupa, Katarzyna CD-12.4 WED
Kroesen, Sebastian IF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael CI-P.13 TUE Krupa, Katarzyna CD-12.4 WED
Kroesen, Sebastian IF-P.15 SUN, •CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael CI-P.13 TUE Krupa, Katarzyna CD-12.4 WED
•CM-P.6 SUN, CD-7.1 MON, •CM-7.3 THU Krolikowski, WieslawIF-4.2 SUN Kronjaeger, JochenIC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, MichaelCG-7.1 THU Krune, EdgarCI-P.13 TUE Krupa, KatarzynaCD-12.4 WED
•CM-7.3 THU Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, Jochen IC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael CG-7.1 THU Krune, Edgar CI-P.13 TUE Krupa, Katarzyna CD-12.4 WED
Krolikowski, Wieslaw IF-4.2 SUN Kronjaeger, JochenIC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, MichaelCG-7.1 THU Krune, EdgarCI-1.3 TUE Krupa, KatarzynaCD-12.4 WED
Kronjaeger, JochenIC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, MichaelCG-7.1 THU Krune, EdgarCI-P.13 TUE Krupa, KatarzynaCD-12.4 WED
Kronjaeger, JochenIC-P.1 TUE Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, MichaelCG-7.1 THU Krune, EdgarCI-P.13 TUE Krupa, KatarzynaCD-12.4 WED
Krug, Michael IB-P.12 MON, IB-3.2 TUE Krüger, Michael
Krüger, MichaelCG-7.1 THU Krune, EdgarCI-P.13 TUE Krupa, KatarzynaCD-12.4 WED
Krune, Edgar
Krupa, Katarzyna CD-12.4 WED
Krupa, Katarzyna CD-12.4 WED
Kruse, KaiCA-P.23 SUN
Krzempek, Karol CH-1.3 MON
Kubat, Irnis•CD-P.9 TUE
Kubecek, VaclavCJ-P.7 WED
Kubecek, VaclavCJ-P.7 WED Kubota, AtsushiCK-P.29 MON
Kudlinski, Alexandre •CD-2.5 SUN,
•CD-P.15 TUE, JSIII-P.1 WED,
CD-11.2 WED, CD-12.2 WED,
CD-11.2 WED, CD-12.2 WED,
IG-5.5 THU
Kudlinsli, Alexandre JSIII-2.2 WED Kuerbis, Christian CB-P.1 MON
Kuerbis, Christian
Kues, MichaelCK-2.5 SUNKühl, ThomasCF/IE-2.4 SUNKuhn, AurélienIA-7.4 THU, CH-7.2 THU
Kühl Thomas CE/IE 2.4 SUN
Kuhn, Aurelien IA-7.4 THU, CH-7.2 THU
Kuhn, Axel IB-4.2 TUE Kühnemann, Frank CE-7.3 WED,
Kühnemann Frank CE-73W/ED
CE-8.6 WED
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN,
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED,
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU. CF/IE-11.5 THU
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU. CF/IE-11.5 THU
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CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU. CF/IE-11.5 THU
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyCJ-P.8 WED Kukura, PhilippJSIV-2.4 MON,
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyCJ-P.8 WED Kukura, PhilippJSIV-2.4 MON, JSIV-2.5 MON
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyCJ-P.8 WED Kukura, PhilippJSIV-2.4 MON, JSIV-2.5 MON
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey CJ-P.8 WED Kukura, Philipp JSIV-2.4 MON, JSIV-2.5 MON Kulchin, Yuri CH-P.2 THU Kulcsar, Gabor CA-P 23 SUN
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey CJ-P.8 WED Kukura, Philipp JSIV-2.4 MON, JSIV-2.5 MON Kulchin, Yuri CH-P.2 THU Kulcsar, Gabor CA-P 23 SUN
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey CJ-P.8 WED Kukura, Philipp JSIV-2.4 MON, JSIV-2.5 MON Kulchin, Yuri CH-P.2 THU Kulcsar, Gabor CA-P 23 SUN
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyCJ-P.8 WED Kukura, PhilippJSIV-2.4 MON, JSIV-2.5 MON Kulchin, YuriCH-P.2 THU Kulcsar, GaborCA-P.23 SUN Kuleshov, NikolaiCA-2.3 SUN, CE-6.5 TUE, CA-10.5 WED
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyCJ-P.8 WED Kukura, PhilippJSIV-2.4 MON, JSIV-2.5 MON Kulchin, YuriCH-P.2 THU Kulcsar, GaborCA-P.23 SUN Kuleshov, NikolaiCA-2.3 SUN, CE-6.5 TUE, CA-10.5 WED
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyJSIV-2.4 MON, JSIV-2.5 MON Kulchin, YuriCH-P.2 THU Kulcsar, GaborCA-P.23 SUN Kuleshov, NikolaiCA-2.3 SUN, CE-6.5 TUE, CA-10.5 WED Kuleshov, Nikolay VCA-4.5 SUN Kuleshov, Nikolay CCA-4.5 SUN Kulmala, TeroCB-4.6 TUE Kumagai, AkikoCL-4.4 MON
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, SergeyJSIV-2.4 MON, JSIV-2.5 MON Kulchin, YuriCH-P.2 THU Kulcsar, GaborCA-P.23 SUN Kuleshov, NikolaiCA-2.3 SUN, CE-6.5 TUE, CA-10.5 WED Kuleshov, Nikolay VCA-4.5 SUN Kuleshov, Nikolay CCA-4.5 SUN Kulmala, TeroCB-4.6 TUE Kumagai, AkikoCL-4.4 MON
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, MarkkuIH-P.14 THU Kukarin, Sergey
CE-8.6 WED Kuipers, Kobus CK-2.3 SUN, IH-1.1 SUN, IH-1.4 SUN, II-P.3 WED, II-P.16 WED, CK-8.1 THU, CF/IE-11.5 THU Kuittinen, Markku IH-P.14 THU Kukarin, Sergey

Kuramochi, Eiichi	CK-1.5 SUN,
IA-6.4 WED	
Kurashina, Seiji	CC-2.2 SUN
Kurczveil, Geza	CB-7.3 THU
Kurkov, Alexander	CJ-12.1 THU
Kurkov, Andrey CJ-P.33 WED, CJ-7.6 WE	CJ-P.9 WED,
Kurselis, Kestutis	. •CM-2.3 SUN
Kurtsiefer, Christian	IA-4.5 WED,
IA-6.3 WED	
Kuruwita, Rajika	•IB-P.6 MON,
Kurz, Christoph IB-3.1 TUE	.•ID-F.0 MON,
	CC-2.1 SUN,
CE-P.11 TUE, CK-9.4 TH	U
Kurzke. Henning	CL-P.3 SUN
Kurzke, Henning Kuttge, Martin	IH-3.2 THU
Kuwata-Gonokami, Makoto	.CC-2.2 SUN,
CC-P.6 SUN, CC-P.7 SUN	I, CC-4.2 SUN,
CD-9.6 TUE, PD-B.6 WE	D
Kuzin, Artur A.	IH-P.8 THU
Kuznetsov, Ivan	CA-7.5 TUE
Kuzyk, Mark Kwee, Patrick	IA-7.1 THU
Kwee, Patrick	CH-6.5 THU
Kwek, Leong-Chuan Kwiatkowski, Jacek	
Kwong, Wing	CLP 15 THE
Kumalia Emmanual	
L. Sundheimer, Michael	IC-P.7 TUE
Labat. Damien	CJ-6.2 WED
Labate, Luca	. CG-P.18 THU
L. Sundheimer, Michael Labat, Damien Labate, Luca Labaye, Pierre CD 23 THE	. JSII-1.5 WED
Labeye, Pierre	CK-2.6 SUN,
CD-P.33 TUE	
Labeyrie, Guillaume	•IF-3.2 SUN,
IG-1.2 TUE	
IG-1.2 TUE	
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis	CE-P.27 TUE . CD-12.4 WED
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno	CE-P.27 TUE . CD-12.4 WED IC-2.4 TUE
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo	CE-P.27 TUE .CD-12.4 WED IC-2.4 TUE C-2.1 SUN.
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC	CE-P.27 TUE .CD-12.4 WED IC-2.4 TUE C-2.1 SUN.
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo	CE-P.27 TUE D-12.4 WED IC-2.4 TUE •CD-2.1 SUN, DN,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH	CE-P.27 TUE IC-12.4 WED IC-2.4 TUE CD-2.1 SUN, ON, ON, ON,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise .	CE-P.27 TUE IC-12.4 WED IC-2.4 TUE CD-2.1 SUN, ON, ON, ON,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, eric CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU	CE-P.27 TUE CD-12.4 WED IC-2.4 TUE •CD-2.1 SUN, DN, //IE-P.43 WED, IU CM-5.5 WED,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo •CL-2.1 SUN, CK-P.17 MO •CD-P.10 TUE Lacot, eric CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper	CE-P.27 TUE CD-12.4 WED IC-2.4 TUE •CD-2.1 SUN, DN, //IE-P.43 WED, IU CM-5.5 WED,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED	CE-P.27 TUE IC-2.4 WED IC-2.4 TUE CD-2.1 SUN, DN, //IE-P.43 WED, IU .CM-5.5 WED, CJ-3.5 MON,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED	CE-P.27 TUE IC-2.4 WED IC-2.4 TUE CD-2.1 SUN, DN, //IE-P.43 WED, IU .CM-5.5 WED, CJ-3.5 MON,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Labruyère, Alexis Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED Lafargue, Clément IH-P.7 THU	CE-P.27 TUE .CD-12.4 WED IC-2.4 TUE CD-2.1 SUN, DN, /IE-P.43 WED, IU .CM-5.5 WED, CJ-3.5 MON, CK-7.4 THU,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo •CD-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, eric CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED Lafargue, Clément IH-P.7 THU Lafosse, Xavier	CE-P.27 TUE .CD-12.4 WED IC-2.4 TUE CD-2.1 SUN, DN, /IE-P.43 WED, U. .CM-5.5 WED, CJ-3.5 MON, CJ-3.5 MON, CK-7.4 THU, .PD-A.5 WED,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo •CD-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, eric CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED Lafargue, Clément IH-P.7 THU Lafosse, Xavier	CE-P.27 TUE .CD-12.4 WED IC-2.4 TUE CD-2.1 SUN, DN, /IE-P.43 WED, U. .CM-5.5 WED, CJ-3.5 MON, CJ-3.5 MON, CK-7.4 THU, .PD-A.5 WED,
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED Lafargue, Clément IH-P.7 THU Lafosse, Xavier IH-3.4 THU Lagae, LiesbetII-P.1 WE	CE-P.27 TUE IC-2.4 WED IC-2.4 TUE CD-2.1 SUN, DN, //IE-P.43 WED, IU .CM-5.5 WED, CJ-3.5 MON, CJ-3.5 MON, CJ-3.5 WED, ED, II-P.4 WED
IG-1.2 TUE Lablonde, Laurent Labruyère, Alexis Laburthe-Tolra, Bruno Lacava, Cosimo CK-2.1 SUN, CK-P.17 MC •CD-P.10 TUE Lacot, ericCF CH-P.22 THU, CH-7.4 TH Lacourt, Pierre-Ambroise IG-5.5 THU Laegsgaard, Jesper CF/IE-8.4 WED Lafargue, Clément IH-P.7 THU Lafosse, Xavier IH-3.4 THU Lagae, LiesbetII-P.1 WE	CE-P.27 TUE IC-2.4 WED IC-2.4 TUE CD-2.1 SUN, DN, //IE-P.43 WED, IU .CM-5.5 WED, CJ-3.5 MON, CJ-3.5 MON, CJ-3.5 WED, ED, II-P.4 WED
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Laussy, Fabrice P. Lautru, Joseph Lautru, Joseph Laux, Sébastien Lavdas, Spyros	CD 10 1 WED
Lavdas, Spyros	CD-12.1 WED
Laverdant, Julien	CK-6.5 WED,
IH-P.12 THU	
Lavrinenko, Andrei	
Ławniczuk, Katarzyna	CI-2.2 TUE
Ławniczuk, Katarzyna Lawrence, Jon	CH-1.6 MON,
CF/IE-P.42 WED, CH-P.15	THU
Lawson Thomas	IR 63 THU
Lawson, Thomas Le Coq, Yann le Feber, Boris .•IH-1.1 SUI	
Le Coq, Yann	. ID-P.6 MON
le Feber, Boris . •IH-1.1 SUI	N, IH-1.4 SUN
Le Gouët, Julien Leahu, Grigore	. C.J-5.6 WED
Leobu Grigore	
Lebental, Mélanie	CK-7.4 THU,
IH-P.7 THU	
Lebreton, Armand	•CK-7.6 THU
Lebrun Guy	E/IE-9.5 W/ED
Lebrun, GuyCl Lebrun, Sylvie	
Lebrun, Sylvie	CD-P.22 TUE
Lebugle Maxime	•CM_1 5 SUN
Lebugie, maxime	*CIVI-1.5 50IN
Leburn, Christopher	F/IE-2.3 SUN
Leburn, Christopher C	F/IE-2.3 SUN
Lebugle, Maxime Leburn, Christopher C Lecaplain, Caroline	.CJ-2.1 SUN,
•CJ-2.2 SUN, •JSIII-2.4 WE	.F/IE-2.3 SUN . CJ-2.1 SUN, ED,
•CJ-2.2 SUN, •JSIII-2.4 WE •IG-P.3 THU	±D,
•CJ-2.2 SUN, •JSIII-2.4 WE •IG-P.3 THU	±D,
•CJ-2.2 SUN, •JSIII-2.4 WE •IG-P.3 THU	±D,
•CJ-2.2 SUN, •JSIII-2.4 WI •IG-P.3 THU Lecomte, André Lecomte, Michel	±D, CJ-P.38 WED . CB-9.5 THU
•CJ-2.2 SUN, •JSIII-2.4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel	ED, CJ-P.38 WED . CB-9.5 THU C I-P 28 WED
•CJ-2.2 SUN, •JSIII-2.4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel	ED, CJ-P.38 WED . CB-9.5 THU C I-P 28 WED
•CJ-2:2 SUN, •JSIII-2:4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN
•CJ-2:2 SUN, •JSIII-2:4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN
•CJ-2:2 SUN, •JSIII-2:4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN
•CJ-2:2 SUN, •JSIII-2:4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN,
•CJ-2:2 SUN, JSIII-2:4 WE •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON. CE-9:5 WE	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN . CA-4.3 SUN CM-P.10 SUN, D.
•CJ-2:2 SUN, •JSIII-2:4 WE •IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9:5 WE CH-3:1 WED, •IH-P.17 TH	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, ED, U
•CJ-2:2 SUN, •JSIII-2:4 Wi •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P:30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew .•CA-1.6 SUN,	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U ••CC-3.2 SUN
•CJ-2:2 SUN, •JSIII-2:4 Wi •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P:30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew .•CA-1.6 SUN,	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U ••CC-3.2 SUN
•CJ-2:2 SUN, •JSIII-2:4 Wt •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew -CA-1.6 SUN, Lee, Chris	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, U CC-3.2 SUN CK-2.5 SUN
•CJ-2:2 SUN, •JSIII-2:4 WE •IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Maximilian Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew .•CA-1.6 SUN, Lee, Chris Lee, Chun-Hong	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-2.3 SUN . CC-3.2 SUN . CE-P.23 TUE
• CJ-2:2 SUN, •JSIII-2:4 WE • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Max Lederer, Max Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew -CA-1.6 SUN, Lee, Chris Lee, Chun-Hong Lee, Jason	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, ED, U •CC-3.2 SUN . CC-3.2 SUN . CC-2.5 SUN . CC-9.23 TUE . CA-8.4 WED
•CJ-2:2 SUN, •JSIII-2:4 Wi •IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Chris Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN CA-P.23 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-2.5 SUN . CK-2.5 SUN . CK-2.5 SUN . CE-P.23 TUE . CA-8.4 WED . CM-6.2 THU
•CJ-2:2 SUN, •JSIII-2:4 Wi •IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Chris Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN CA-P.23 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-2.5 SUN . CK-2.5 SUN . CK-2.5 SUN . CE-P.23 TUE . CA-8.4 WED . CM-6.2 THU
•CJ-2:2 SUN, •JSIII-2:4 Wi •IG-P.3 THU Lecomte, André Lecomte, Michel Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew •CA-1.6 SUN, Lee, Chris Lee, Chris Lee, Jason Lee, Kenneth KC Lee, Kevin	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, U ↓ • CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CK-2.5 SUN . CK-2.5 THU . CM-6.2 THU . CD-1.3 SUN
•CJ-2:2 SUN, •JSIII-2:4 WE •IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Maximilian Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew ·•CA-1.6 SUN, Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Timothy	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, U ↓ • CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CK-2.5 SUN . CK-2.5 THU . CM-6.2 THU . CD-1.3 SUN
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew -CA-1.6 SUN, Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Timothy -CK-P.14 MON	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U • CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 SUN, . CK-4.6 SUN,
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew -CA-1.6 SUN, Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Timothy -CK-P.14 MON	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U • CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 SUN, . CE-1.3 SUN . CK-4.6 SUN,
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew -CA-1.6 SUN, Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Timothy -CK-P.14 MON	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U • CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 SUN, . CE-1.3 SUN . CK-4.6 SUN,
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew -CA-1.6 SUN, Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Timothy -CK-P.14 MON	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U • CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 SUN, . CE-1.3 SUN . CK-4.6 SUN,
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Maximilian Lederer, Max Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9:5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew •CA-1.6 SUN, Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Kevin Lee, Kevin •CK-P.14 MON Lee, Y. Lee, Gabriel CH-3.5 WED	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, U . CC-3.2 SUN . CC-3.2 SUN . CC-2.3 TUE . CA-8.4 WED . CM-6.2 THU . CK-4.6 SUN, . CK-4.6 SUN, PD-A.3 WED . CB-4.6 TUE . CH-6.4 THU
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Max Lederer,	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, . CC-3.2 SUN . CC-3.2 SUN . CC-2.5 SUN . CC-9.23 TUE . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 SUN, . CK-4.6 SUN, PD-A.3 WED . CB-4.6 TUE . CD-5.4 MON
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lefèvre, Michel Lefèvre, Michel	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, U . CC-3.2 SUN . CC-3.2 SUN . CC-2.3 TUE . CA-8.4 WED . CM-6.2 THU . CK-4.6 SUN, . CK-4.6 SUN, PD-A.3 WED . CB-4.6 TUE . CH-6.4 THU
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lefèvre, Michel Lefèvre, Michel	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, . CC-3.2 SUN . CK-2.5 SUN . CCF-2.3 TUE . CA-8.4 WED . CA-9.4 A WED . CA-9.4 A WED . CB-4.6 TUE . CD-5.4 MON . CE-4.6 TUE
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lederer, Max Lederer, Max Lederer, Max Lederer, Max Lederer, Max Lederer, Max Lederer, Max Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Chris Lee, Chun-Hong Lee, Chris Lee, Chun-Hong Lee, Chris Lee, Kenneth KC Lee, Kenneth KC Lee, Kenneth KC Lee, Kenneth KC Lee, Kenneth KC Lee, Wangkuen Lee, Y. Leen, Gabriel CH-3.5 WED Lefèvre, Thierry Légaré, François	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, . CC-3.2 SUN . CC-3.2 SUN . CC-2.5 SUN . CC-9.23 TUE . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 WED . CA-8.4 SUN, . CK-4.6 SUN, PD-A.3 WED . CB-4.6 TUE . CD-5.4 MON
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Maximilian Lederer, Max Lederer, Max Lee, Chris Lee, Chris Lee, Chus Lee, Chus Lee, Kevin Lee, Kevin Lee, Kevin Lee, Y. Lee, Marken Lefèbre, Michel Lefèbre, Thierry Légaré, François CF/IE-9.5 WED	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, U • CC-3.2 SUN . CK-2.5 SUN . CE-P.23 TUE . CA-8.4 WED . CM-6.2 THU . CH-6.2 THU . CK-4.6 SUN, PD-A.3 WED . CB-4.6 TUE . CH-6.4 THU . CD-5.4 MON . CE-4.6 TUE • CL-4.2 MON,
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Max Lederer, Max Lee, Chun-Hong Lee, Chun-Hong Lee, Kenneth KC Lee, Kenneth KC Lee, Kenneth KC Lee, Kenneth KC Lee, Vangkuen Lee, Y. Leen, Gabriel CH-3:5 WED Lefèbyre, Michel Lefèbyre, Thierry Légarée, François CF/IE-9.5 WED LeGarrec, Bruno	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, .CC-3.2 SUN .CC-3.2 SUN .CC-3.2 SUN .CC-2.5 SUN .CC-2.5 SUN .CC-2.5 SUN .CC-3.2 THU .CC-3.2 SUN .CC-3.2 SUN .CC-
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Max Lederer, Max Lee, Chun-Hong Lee, Chun-Hong Lee, Kenneth KC Lee, Kenneth KC Lee, Kevin Lee, Timothy -CK-P.14 MON Lee, Wangkuen Lee, Y. Leen, Gabriel CH-3.5 WED Lefèbvre, Thierry Légaré, François CF/IE-9.5 WED LeGarrec, Bruno Leeg, James R.	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN . CA-4.3 SUN . CA-4.3 SUN . CC-3.2 SUN . CK-2.5 SUN . CK-2.5 SUN . CK-2.5 SUN . CK-2.5 SUN . CC-9.23 TUE . CA-8.4 WED . CA-8.4 WED
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Max Lederer, Max Lee, Andrew . •CA-1.6 SUN, Lee, Chris Lee, Chun-Hong Lee, Jason Lee, Kenneth KC Lee, Kevin Lee, Timothy . •CK-P.14 MON Lee, Wangkuen Lee, Y. Leen, Gabriel Lefèvre, Michel Lefèvre, Thierry Légaré, François CF/IE-9.5 WED LeGarrec, Bruno Leger, James R.	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, .CC-3.2 SUN .CC-3.2 SUN .CC-3.2 SUN .CC-2.5 SUN .CC-2.5 SUN .CC-2.5 SUN .CC-3.2 THU .CC-3.2 SUN .CC-3.2 SUN .CC-
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• CJ-2.2 SUN, •JSIII-2.4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Maximilian Lederer, Maximilian Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew •CA-1.6 SUN, Lee, Chun-Hong Lee, Jason Lee, Chun-Hong Lee, Jason Lee, Kevin Lee, Kevin Lee, Kevin Lee, Kevin Lee, Kevin Lee, Y. Lee, Markun Lee, Y. Lee, Sabriel Lefebvre, Michel Lefebvre, Michel Lefebvre, Thierry Légaré, François CF/IE-9.5 WED LeGarrec, Bruno Leger, James R. Legratiet, Luc Lehneis, Reinhold	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, D, U . CC-3.2 SUN . CK-2.5 SUN . CE-P.23 TUE . CA-8.4 WED . CH-6.2 THU . CC-1.3 SUN . CK-4.6 SUN, PD-A.3 WED . CB-4.6 TUE . CH-6.4 THU . CD-5.4 MON . CE-4.2 MON, . CG-4.2 THU . SH-5.1 THU . PD-A.5 WED . CA-9.4 WED
• CJ-2:2 SUN, •JSIII-2:4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Falk Lederer, Max Lederer, Max Lee, Chun-Hong Lee, Chun-Hong Lee, Kenneth KC Lee, Kenneth KC Lee, Keinn Lee, Kenneth KC Lee, Keinn Lee, Y. Leen, Gabriel CH-3.5 WED Lefebvre, Michel Lefebvre, Thierry Légarée, François CF/IE-9.5 WED LeGarrec, Bruno Leger, James R. Legratiet, Luc Lehneis, Reinhold Lehoux, Anais	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, . CC-3.2 SUN . CK-2.5 SUN . CC-9.23 TUE . CA-8.4 WED . CA-8.4 MON . CE-4.6 TUE . CI-4.2 MON, . CE-4.2 THU . SH-5.1 THU . PD-A.5 WED . CA-9.4 WED . CA-9.4 WED . CA-9.4 WED
• CJ-2.2 SUN, •JSIII-2.4 Wi • IG-P.3 THU Lecomte, André Lecourt, Jean-Bernard Lederer, Maximilian Lederer, Maximilian Lederer, Maximilian Ledoux-Rak, Isabelle CK-P.30 MON, CE-9.5 WE CH-3.1 WED, •IH-P.17 TH Lee, Andrew •CA-1.6 SUN, Lee, Chun-Hong Lee, Jason Lee, Chun-Hong Lee, Jason Lee, Kevin Lee, Kevin Lee, Kevin Lee, Kevin Lee, Kevin Lee, Y. Lee, Markun Lee, Y. Lee, Sabriel Lefebvre, Michel Lefebvre, Michel Lefebvre, Thierry Légaré, François CF/IE-9.5 WED LeGarrec, Bruno Leger, James R. Legratiet, Luc Lehneis, Reinhold	ED, CJ-P.38 WED . CB-9.5 THU CJ-P.28 WED . IG-3.3 WED CA-P.23 SUN . CA-4.3 SUN CM-P.10 SUN, .D, . CC-3.2 SUN . CK-2.5 SUN . CC-9.23 TUE . CA-8.4 WED . CA-8.4 MON . CE-4.6 TUE . CI-4.2 MON, . CE-4.2 THU . SH-5.1 THU . PD-A.5 WED . CA-9.4 WED . CA-9.4 WED . CA-9.4 WED

Leib Martin ISV 14 THE IA 65 WED	
Leib, Martin .•JSV-1.4 TUE, IA-6.5 WED Leich, MartinCJ-1.4 SUN	
Leierseder, UrsulaCF/IE-13.3 THU Leijtens, X.J.MCB-3.3 MON Leijtens, Xaveer CI-2.2 TUE, CB-6.2 TUE Lein, ManfredCG-3.3 WED,	
Lein, ManfredCG-3.3 WED,	
CG-P.16 THU	
Leinders, Suzanne CH-3.4 WED	
Leinonen, TomiCB-4.3 TUE, CB-10.2 THU	
CB-10.2 THU	
Leinse, Arne CI-2.4 TUE	
Leisner, Madeleine PD-A.6 WED Leitenstorfer, AlfredCC-P.9 SUN,	
Leitenstorfer, AlfredCC-P.9 SUN,	
CK-P.5 MON, CJ-7.3 WED,	
CF/IE-12.1 THU	
Lelarge, Francois	
Lelarge, Francois Cl-3.5 WED Lemaître, AristideIA-2.4 MON,	
IG-3.2 WED, CK-7.3 THU, IH-4.4 THU,	
IH-5.1 THU	
Lemke, NathanID-1.2 MON	
Lenhard, Andreas	
Lennikov, VassiliCM-P.30 SUN	
Lemmer, Uli	
Lenzner, Matthias •CF/IE-6.4 MON	
Leo Giuseppe IA-24 MON CK-73 THU	
Léonard I ISIV-2.3 MON	
Leonetti, Marco	
Leong, Victor•IA-4.5 WED	
Leonbardt Bainer	
Leonhardt, Rainer	
Leoni, Roberto II-1.2 WED, PD-B.5 WED	
Lepage, Guy	
Leproux Philippe CD 3 3 SUN	
Leproux, PhilippeCD-3.3 SUN, CD-12.4 WED	
Lerch, Stefan	
Lermer, Matthias	
CK-7.2 THU, IB-5.1 THU	
Levendel Cillee II D 2 W/ED	
Lefondel, Gilles II-P.2 WED	
Lerondel, Gilles II-P.2 WED Letartre, Xavier CK-1.4 SUN Lethiec, Clotilde CK-6.5 WED,	
Letniec, Clotilde CK-0.5 WED,	
IH-P.12 THU	
Lett, Paul IB-P.16 MON Leuchs, Gerd IA-1.2 MON, •SH-6.1 MON,	
Leuchs, Gerd IA-1.2 MON, •SH-0.1 MON,	
CE-P.4 TUE, CI-P.14 TUE, IA-P.17 THU	
Leung, MichaelCK-7.5 THU Leuthold, JuergCE-P.20 TUE,	
Leuthold, JuergCE-P.20 TUE,	
CK-9.2 THU	
Levashov, PavelCG-P.6 THU	
Levenius, Martin•CD-7.3 MON	
Levenson, ArielCK-8.2 THU,	
CK-8.5 THU	
Leverrier, Anthony IB-5.3 THU	
Levi, Filippo ID-3.5 MON	
Levitov, Leonid CF/IE-13.4 THU	
Lewenstein, Maciej IA-P.1 THU,	
CG-6.4 THU	
Lewis, Elfed . CH-3.5 WED, CH-6.4 THU	
Leyder, Stéphanie•CM-4.2 WED	
Leyder, Stéphanie	
Levman, Ross	
Lhermite, JérômeCJ-6.1 WED, CJ-P.18 WED, CJ-8.2 WED	
CJ-P.18 WED, CJ-8.2 WED	
L'Huillier, AnneCF/IE-9.1 WED	
Li, H.B CM-1.4 SUN	
Li, Jiang CE-6.3 TUE	
Li, JianzhaoCM-6.2 THU	

Li, Lei CA-P.5 SUI	N
Li, LiahneCB/CC-1.4 MOI	N
Li, LianheCB/CC-1.1 MOI Li, NanxiCJ-P.35 WEI	N
Li, NanxiCJ-P.35 WEI	D
Li, PingCA-P.5 SUI	N
Li, Qinggele	
LI, Qinggele•CK-P.30 MON	а,
CE-9.5 WED	
Li, WenCF/IE-P.36 WEI	D
Li, Xudong CA-P.13 SUI	M
Li, Yan CH-2.6 TU	E
Li, Zhihong CJ-10.6 TH	U
Lian, Zhenggang CI-4.2 WEI	D
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Liang, DaweiCA-P.19 SUI Liang, HaidaCJ-7.5 WEI	N
Liang, HaidaCJ-7.5 WEI	J
Liang, Y CM-1.4 SUI	N
Liao, Meisong CD-P.3 TUE, CD-P.4 TUE	:
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CJ-P.41 WED	
Libster, Ana	N
Liebel Matz • ISIV-2.5 MOI	N
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Liebowitz, Jay•TF-1/LIM.1 TU Liem, AndreasCJ-1.3 SU	L.
Liem, Andreas	N
Lienau, Christoph	J,
•IH-P.21 THU, IH-5.3 THU	,
CD/CC 1 2 MO	
Liertzer, Matthias CB/CC-1.3 MOI Liew, Seng-FattPD-A.7 WEI	N
Liew, Seng-FattPD-A.7 WEI	D
Litante Ginés (M-P17 SIII	N
Likhachev, MikhailCJ-8.2 WEI Lilach, YigalCJ-7.5 MOI	
Lilach, Yigal CD-7.5 MOI	N
Liljestrand, Charlotte CA-2.2 SUI	N
Lilley, Govinda•CE-5.5 TU	F
Lim, Han Chuen IB-P.19 MOI Limpert, Jens CJ-3.1 MON, CJ-3.2 MON	N .
Limpert, Jens CJ-3.1 MON, CJ-3.2 MON	J,
C I_3 3 MON C I_3 4 MON	
CD-6 5 MON C I-4 3 MON	
CJ-3.3 MON, CJ-3.4 MON, CD-6.5 MON, CJ-4.3 MON, CL-6.5 WED, CA.9.4 WED	
CJ-5.3 WED, CA-9.4 WED,	
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CJ-5.3 WED, CA-9.4 WED, CJ-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCH-P.23 TU Lin, DiCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, Tsung-HsienCH-P.4 THI Lin, Tsung-HsienCH-P.21 THI Lindfors, Klas II-2.4 WED, CK-6.2 WEE •IH-P.4 THU Lindfors, Klas II-2.4 WED, CK-6.2 WEE •IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasID-P.8 MOI Linfield, EdmungCB/CC-1.1 MOI Linfield, EdmungCB/CC-1.1 MOI Lingnau, BenjaminCB/CC-1.1 MOI Lingnau, BenjaminCB-5.1 TUE IH-6.3 THU Lintern, AndrewCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCE-P.25 TU Lipka, Timo	
C.J-5.3 WED, CA-9.4 WED, C.J-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, Tsung-HsienCE-P.23 TU Lindfors, Klas II-2.4 WED, CK-6.2 WEE IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasDP-8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.4 MOI Linfield, Edmund HCB/CC-1.4 MOI Lingnau, BenjaminCB-5.1 TUE IH-6.3 THU Lintern, AndrewCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCE-P.25 TU Lipka, TimoCI-P.17 TU Lippert, EspenCA-3.2 SUI Lipphardt, BurghardID-1.1 MON	
CJ-5.3 WED, CA-9.4 WED, CJ-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCH-9.4 THI Lin, Fan-YiCH-9.4 THI Lin, HuaCA-7.4 TUI Lin, Lyu-ChihCH-9.4 THI Lin, Tsung-HsienCH-9.4 THI Lin, Tsung-HsienCE-P.23 TUI Lindfors, Klas II-2.4 WED, CK-6.2 WEL IH-9.4 THI Lindfors, Klas II-2.4 WED, CK-6.2 WEL IH-9.4 THI Lindfeld, EdmungCB/CC-1.1 MOI Linfield, Edmung HCB/CC-1.4 MOI Linfield, EdmungCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.7 TUI Liporska, LudwikaCE-P.25 TUI Liphardt, BurghardID-1.1 MON Lippitz, Markus II-2.1 WED, II-2.4 WED	
C.J-5.3 WED, CA-9.4 WED, C.J-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCE-P.23 TU Lin, DiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, Tsung-HsienCE-P.23 TU Lindfors, Klas II-2.4 WED, CK-6.2 WEE •IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasID-P.8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, EdmungCB-5.1 TUE IH-6.3 THU Lintern, AndrewCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCE-P.25 TU Lipphardt, BurghardCI-P.11 MON ID-1.2 MON Lippitz, Markus II-2.1 WED, II-2.4 WEE CK-6.2 WED, IH-P.4 THU, IH-5.5 THU	
CJ-5.3 WED, CA-9.4 WED, CJ-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCH-9.4 THI Lin, Fan-YiCH-9.4 THI Lin, HuaCA-7.4 TUI Lin, Lyu-ChihCH-9.4 THI Lin, Tsung-HsienCH-9.4 THI Lin, Tsung-HsienCE-P.23 TUI Lindfors, Klas II-2.4 WED, CK-6.2 WEL IH-9.4 THI Lindfors, Klas II-2.4 WED, CK-6.2 WEL IH-9.4 THI Lindfeld, EdmungCB/CC-1.1 MOI Linfield, Edmung HCB/CC-1.4 MOI Linfield, EdmungCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.7 TUI Liporska, LudwikaCE-P.25 TUI Liphardt, BurghardID-1.1 MON Lippitz, Markus II-2.1 WED, II-2.4 WED	
C.J-5.3 WED, CA-9.4 WED, C.J-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCE-P.23 TU Lin, DiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, Tsung-HsienCE-P.23 TU Lindfors, Klas II-2.4 WED, CK-6.2 WEE •IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasID-P.8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, EdmungCB-5.1 TUE IH-6.3 THU Lintern, AndrewCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCE-P.25 TU Lipphardt, BurghardCI-P.11 MON ID-1.2 MON Lippitz, Markus II-2.1 WED, II-2.4 WEE CK-6.2 WED, IH-P.4 THU, IH-5.5 THU	
C.J-5.3 WED, CA-9.4 WED, C.J-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCE-P.23 TU Lin, DiCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCE-P.23 TU Lindfors, Klas II-2.4 WED, CK-6.2 WEE IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasDP-8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.4 MOI Lingnau, BenjaminCB-5.1 TUE IH-6.3 THU Lintern, AndrewCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCE-P.25 TU Lippert, EspenCA-3.2 SUI Lipphardt, BurghardID-1.1 MON ID-1.2 MON Lippitz, Markus II-2.1 WED, II-2.4 WEE CK-6.2 WED, IH-P.4 THU, IH-5.5 THU Lipsanen, HarriCE-2.4 MON CE-3.4 MON	
CJ-5.3 WED, CA-9.4 WED, CJ-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCH-P.2 TU Lin, DiCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCH-P.4 THI Lin, Tsung-HsienCH-P.4 THI Lin, Tsung-HsienCH-P.2 THI Lindfors, Klas II-2.4 WED, CK-6.2 WEE IH-P.4 THU Lindfors, Klas II-2.4 WED, CK-6.2 WEE IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasDP-8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, EdmungCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lippert, EspenCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCA-7.2 SUI Lipphardt, Burghard	
C.J-5.3 WED, CA-9.4 WED, C.J-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-Chung	
CJ-5.3 WED, CA-9.4 WED, CJ-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCE-P.23 TU Lin, DiCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, HuaCA-7.4 TU Lin, Lyu-ChihCE-P.23 TU Lindfors, Klas II-2.4 WED, CK-6.2 WEE IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasD-P.8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, Edmund HCB/CC-1.4 MOI Lingnau, BenjaminCB-5.1 TUE IH-6.3 THU Lintern, AndrewCA-7.2 TUE CA-7.3 TUE Lipinska, LudwikaCE-P.25 TU Lipka, TimoCI-P.17 TU Lippert, EspenCA-3.2 SUI Lipphardt, BurghardID-1.1 MON ID-1.2 MON Lippitz, Markus II-2.1 WED, II-2.4 WEE CK-6.2 WED, IH-P.4 THU, IH-5.5 THU Lipsanen, HarriCE-2.4 MON CE-3.4 MON Lisiecki, IsabelleCE-P.34 TU	UEDUEUE), UNNNA, A, EENI,), I, I, E
CJ-5.3 WED, CA-9.4 WED, CJ-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-ChungCH-P.3 TU Lin, DiCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, HuaCA-10.2 WEI Lin, Fan-YiCH-P.4 THI Lin, Lyu-ChihCH-P.4 THI Lin, Lyu-ChihCH-P.4 THI Lin, Tsung-HsienCE-P.23 TU Lindfors, Klas II-2.4 WED, CK-6.2 WEE IH-P.4 THU Lindstedt, Daniel NilssonCH-P.21 THI Lindvall, ThomasDP-8 MOI Linfield, Edmund HCB/CC-1.1 MOI Linfield, EdmungCB/CC-1.4 MOI Linfield, EdmungCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.4 MOI Lingnau, BenjaminCB/CC-1.1 MOI Lingteld, EdmungCB/CC-1.1 MOI Lippert, EspenCA-7.2 TUE Lipinska, LudwikaCE-P.25 TU Lipphardt, BurghardID-1.1 MON ID-1.2 MON Lippitz, Markus II-2.1 WED, II-2.4 WEE CK-6.2 WED, IH-P.4 THU, IH-5.5 THU Lipsanen, HarriCE-2.4 MON Lisdat, ChristianID-1.2 MON Liscki, IsabelleCE-P.34 TU Lisyansky, Alexander ACK-P.31 MOI	UEDUEUE), UNNNE, E EENI,), I, I, EN
C.J-5.3 WED, CA-9.4 WED, C.J-7.2 WED, CJ-9.1 THU, CG-4.4 THL CG-4.5 THU, CJ-10.1 THU, CG-6.2 THI Lin, Chih-Chung	UEDUEUE), UNNNE, E EENI,), I, I, EN

Lita, Adriana E. JSV-1.1 TUE Little, Brent E. Little, Douglas •CH-P.12 THU, •CH-P.23	IB-1.1 MON
J3V-1.1 TUE	
Little, Brent E	CD-2.4 SUN
Little, Douglas	.•PD-B.9 WED,
 CH-P.12 THU, CH-P.23 	THU
Liu, Baochang	CL-6.2 TUE
Liu, Bin	CG-P 19 THU
Liu, Chang×u	
Liu, Hui Chun	CH-1.2 MON
Liu, Lewis	CF/IE-7.4 MON
Liu, Mao Tong Liu, Mingkai Liu, P. Liu, Wei CL-5.3 TUE, Cl	. •IB-P.19 MON
Liu, Mingkai	II-3.5 THU
Liu. P.	CM-1.4 SUN
Liu Wei CL-53 THE C	E/IE_P 35 W/ED
Liu, Xiang	
Liu, Xiaomin•(Liu, Xiaoping	CF/IE-8.4 WED
Liu, Xiaoping	PD-A.3 WED
Liu, Xin	•CB-6.5 TUE
Liu, Xing	•CL-5.3 TUE,
CF/IE-P.13 WED, •CF/IE	-P.35 WED
Liu, Yi•CM-P.1 SUI	N CC-4.5 SUN
•CF/IE-P.26 WED, CD-11	
•CF/IE-P.20 WED, CD-11	
Liu, Zhaojun	CA-P.5 SUN
Liverini, Valeria Livshits, Daniil	•CB-2.6 SUN
Livshits, Daniil	CD-6.3 MON,
CB-4.2 TUE, CD-P.21 TU	JE
Llobera, Andreu Lloyd, David	CE-4.5 TUE
Llovd David	CE/IE-3.4 SUN
Loas, Goulc'hen	CA-10.6 WED
Locatelli, Massimiliano	
JSII-1.4 WED	
Locher, Reto CG-7.3 THU, CG-7.4 THI	•PD-A.1 WED,
CG-7.3 THU, CG-7.4 THU	
Loeber, Thomas H	CE-1.3 MON
Loeffler, Klaus•T	F-1/LIM.3 TUE
Loeber, Thomas H Loeffler, Klaus•T Loeser, Markus	CA-8.1 WED
Loh, Wei H	CI-4.2 WED
Löhmannsröben, Hans-Gerd	CH-2.2 TUE
Lohmüller, Theobald	PD-A 6 WED
Loïc Moignion	
Lohmüller, Theobald Loïc, Meignien Loiko, Pavel •CA-2.3 SUN	
CA 10 F W/ED	I, •CE-0.5 TUE,
CA-10.5 WED	
Loiko, Yury	CI-P.4_TUE
Loiseau, Pascal	
CE-P.9 TUE, CE-6.2 TUE	
Lombard, Laurent	CJ-5.6 WED,
•C.J-8.1 WED	
Lombardi. Anna	IH-P.15 THU
Lombardi. Anna	IH-P.15 THU F/IF-13 2 THU
Lombardi. Anna	IH-P.15 THU F/IE-13.2 THU
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale	F/IE-13.2 THU
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale	F/IE-13.2 THU
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris	CF/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4 4 THU
Lombardi, Anna Lombardo, Antonio Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter	:F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU
Lombardi, Anna Lombardo, Antonio Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter	:F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Looser, Herbert CH-P.14 THU	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU . PD-A.9 WED,
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Looser, Herbert CH-P.14 THU	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU . PD-A.9 WED,
Lombardi, Anna Lombardo, Antonio Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo	F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON
Lombardi, Anna Lombardo, Antonio Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe	F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Loock, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez-Garcia, Martin	F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU CH-P.17 THU CE-2.6 MON •CB-P.14 MON •CK-P.28 MON
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loo, Vivien Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John	F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU .PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John Lopez-Martens, Rodrigo	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CB-P.14 MON •CCJ-11.2 THU CF/IE-2.1 SUN,
Lombardi, Anna Lombardo, Antonio Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez-Garcia, Martin Lopez, John Lopez, John CG-3.5 WED, CG-4.1 TH	F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU CH-P.17 THU CE-2.6 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loo, Vivien Loock, Hans-Peter Loock, Hans-Peter CH-P.14 THU López-Arbeloa, Iñigo Lopez, Gefe Lopez-Garcia, Martin Lopez, John Lopez-Martens, Rodrigo CG-3.5 WED, CG-4.1 TH López-Mercado, Cesar	F/IE-13.2 THU CG-P.18 THU OB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CC-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U CJ-7.1 WED
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John Lopez-Martens, Rodrigo CG-3.5 WED, CG-4.1 TH López-Mercado, Cesar Lopez, Olivier CB-2.4 SUN	F/IE-13.2 THU CG-P.18 THU •CB-8.5 THU IH-4.4 THU CH-P.17 THU CH-P.17 THU CE-2.6 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John Lopez-Martens, Rodrigo CG-3.5 WED, CG-4.1 TH López-Mercado, Cesar Lopez, Olivier CB-2.4 SUN ID-3.4 MON	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U CJ-7.1 WED N, ID-P.6 MON,
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John Lopez-Martens, Rodrigo CG-3.5 WED, CG-4.1 TH López-Mercado, Cesar Lopez, Olivier CB-2.4 SUN ID-3.4 MON	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U CJ-7.1 WED N, ID-P.6 MON,
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John Lopez-Martens, Rodrigo CG-3.5 WED, CG-4.1 TH López-Mercado, Cesar Lopez, Olivier CB-2.4 SUN ID-3.4 MON	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U CJ-7.1 WED N, ID-P.6 MON,
Lombardi, Anna Lombardo, Antonio C Londrillo, Pasquale Long, Chris Loock, Hans-Peter Looser, Herbert CH-P.14 THU López-Arbeloa, Iñigo Lopez, Cefe Lopez, Garcia, Martin Lopez, John Lopez-Martens, Rodrigo CG-3.5 WED, CG-4.1 TH López-Mercado, Cesar Lopez, Olivier CB-2.4 SUN	F/IE-13.2 THU CG-P.18 THU CB-8.5 THU IH-4.4 THU CH-P.17 THU PD-A.9 WED, CE-2.6 MON •CB-P.14 MON •CB-P.14 MON •CK-P.28 MON CJ-11.2 THU CF/IE-2.1 SUN, U CJ-7.1 WED N, ID-P.6 MON,

Lorünser, ThomasIB-5.6 THU
Lorunser, I nomasIB-5.0 I HU
I ouchey Oleg IE-4.3 SUN
Louchev, OlegIF-4.3 SUN Lounis, BrahimIH-6.1 THU Lousteau, JorisCJ-P.36 WED
Lousteau, Joris
Louvergneaux, Eric IG-P.8 THU Louyer, Yann IH-6.1 THU Lozano, Gabriel
Louvergileaux, Life
Louyer, YannIH-6.1 THU
Lozano Cabriel II P 15 W/ED
Lozes-Dupuy, Françoise CK-1.1 SUN,
CB-P.16 MON
Lozovoy, Vadim CF/IE-P.15 WED Lozovoy, Vadim V CD-P.42 TUE Lu, Faming CG-P.19 THU Lu, Guo-Wei CI-1.3 MON, CI-1.4 MON Lu, Qiaoyin CB-P.9 MON,
Lozovoy, VadimCF/IE-P.15 WED
Lozovov Vadim V CD-P 42 TUF
Lu Famina CC D 10 THU
Lu, Faming
Lu. Guo-Wei . •CI-1.3 MON. CI-1.4 MON
 CB-P.10 MON, CB-P.35 MON
Lu, Richard PD-A.3 WED
Lubeigt, Walter CA-1.2 SUN
Lucamarini, Marco PD-B.3 WED
Lucas, Erwan CD-P.28 TUE
Lucchini Matteo CG-2.2 THE
Lucchini, Matteo CG-2.2 TUE, PD-A.1 WED, •CG-7.4 THU
Lucila Vaissian IA 6.2 WED
Lucioni, Eleonora
Lücking Fabian CE/IE-2.2 SUN
Ludge, Kathy . CB-5.1 TUE, IH-0.3 THU
Ludwig André CG-11 TUE CG-74 THU
Lukowski, Ariel CH-P.8 THU
Luk'yanchuk, BorisCF/IE-11.4 THU
Lumer, Yaakov CK-3.1 SUN
Lummer, Martina CL-3.2 MON
Lund Andersen, Ulrik
Luo, Chih-Wei
Lund Andersen, Ulrik 6A-P.7 THU Luo, Chih-Wei CF/IE-P.38 WED, CF/IE-12.3 THU Luo, Jun
CF/IE-12.3 I HU
Luo, Jun
Luropu Erongois
Lureau, François•CF/IL-F.9 WLD
Luther-Davies, Barry CK-2.6 SUN,
Lureau, François•CF/IE-P.9 WED Luther-Davies, BarryCK-2.6 SUN, CD-10.2 TUE
CD-10.2 TUE
CD-10.2 TUE
CD-10.2 TUE
CD-10.2 TUE Lutz, Thomas
CD-10.2 TUE
CD-10.2 TUE Lutz, Thomas
CD-10.2 TUE Lutz, Thomas •IA-P.14 THU Luv, Trung CG-5.3 THU Luvsandamdin, Erdenetsetseg •CB-P.1 MON Luxmoore, Isaac J. IA-P.12 THU Lynch, Stephen CB-4.3 TUE M. Gurevich, Svetlana IG-P.12 THU M. Liz-Marzan, Luis IA-P.15 THU M. Yanchuk, Serhiy GP-12 THU Ma, Guangjin
CD-10.2 TUE Lutz, Thomas

Mader, AndreasPD-A.6 WED	
Madson Lars CH P 10 THU	
Madsen, Lars CH-P.19 THU Madsen, Lars S IA-7.5 THU Maeda, Junya CB-9.4 THU Maeda, Yoshinobu CI-P.6 TUE	
Maeda, JunyaCB-9.4 THU	
Maeda, Yoshinobu	
Maese-Novo, Alejandro CK-9.3 THU	
Maestre, Haroldo•CA-2.1 SUN,	
Mafi Arash •CF-4 4 TUF	
Magna Ciavanni CK 11 SUN	
Mahler, BenoîtII-P.8 WED	
Mafi, Arash •CE-4.4 TUE Magno, Giovanni ·CK-1.1 SUN Mahler, Benoît ·········· II-P.8 WED Mahler, Dylan ····· IB-6.2 THU	
Mahnke Christoph IG-5.1 THU	
Mahnke, ChristophIG-5.1 THU Mai, Patrick .IA-2.2 MON, •IH-P.10 THU	
Maier, Christine•IA-P.4 THU	
Maier, Hans Jürgen CH-4.2 THU	
Maier Robert R I CE-4.1 TUE	
Maier Stefan CB 6 6 THE	
Maier, Hans Jürgen CH-4.2 THU Maier, Robert R.J. CE-4.1 TUE Maier, Stefan CB-6.6 TUE Maigyte, Lina •CK-P.13 MON,	
Walgyte, Lina	
•CK-P.19 MON	
Mailis, Sakellaris •CE-8.1 WED,	
CM-8.6 THU	
Maioli, Paolo	
Maioli, Paolo	
CF/IE-10.3 THU	
Maisons, GrégoryJSII-1.5 WED,	
JSII-P.3 WED	
Maissen, CurdinII-1.2 WED Maître, AgnèsCK-P.22 MON, •CK-6.5 WED, •IH-3.4 THU,	
Maître, Agnès CK-P.22 MON,	
•CK-65 WED •IH-34 THU	
Maiuri, Margherita•JSIV-P.1 MON, IH-4.2 THU, IH-P.21 THU, •CF/IE-13.5 THU	
Waluri, Wargherita •JSIV-P.1 WON,	
IH-4.2 THU, IH-P.21 THU,	
•CF/IE-13.5 THU	
Maiwald Martin •CL-P 15 SUN	
Maiwald, Martin•CL-P.15 SUN	
Maiwald, Martin	

Manak Hänninger Jaka CC D 12 SUN
Manek-Hönninger, Inka •CC-P.13 SUN
Mangold, MarioCB-4.6 TUE Mangold, MarkusPD-A.9 WED
Mangold, Markus
Manili, Gabriele CD-12.4 WED
Manninen, Albert
Manquest, Christophe CK-7.3 THU
Mans, TorstenCA-P.23 SUN,
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Mansourian, Ali CK-5.3 MON
Mansuryan, Tigran
Mantaurau Paria
Mantsyzov, Boris •CK-P.21 MON Manz, Christian JSII-2.2 WED,
Manz, ChristianJSII-2.2 WED,
CB-10.5 THU
Manz, SebastianIA-4.4 WED
Manzano, Gonzalo IB-4.3 TUE Manzo, Michele CK-P.2 MON
Manzo, Michele CK-P.2 MON
Manzoni, Cristian•CF/IE-3.1 SUN, CD-4.3 SUN, •CF/IE-5.2 MON,
CD-4.3 SUN •CE/IE-5.2 MON
JSIV-2.4 MON, •CD-9.4 TUE,
CF/IE-10.5 THU, CG-4.6 THU,
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Mappes, Timo CL-6.3 TUE, CB-6.5 TUE
Marangoni, Marco CD-4.3 SUN,
ID-1.5 MON
Marangos, Jon
CF/IE-10.2 THU, CG-5.4 THU,
CG-P.2 THU
Marangos, Jonatan CG-P.16 THU
Marc, Pawel CH-2.3 TUE, CH-P.8 THU
Marchese, SergioCH-P.6 THU
Marchev, Georgi CD-5.2 MON,
CD-6.1 MON
Marco, José Francisco CM-P.31 SUN
Marconi, Mathias
Manage Ciled CC 4.3 THU
Marcus, GiladCG-4.3 THU
Maréchal, EtienneIC-2.4 TUE
Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON
Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie Rodolphe IL-P 5 WED
Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie Rodolphe IL-P 5 WED
Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie Rodolphe IL-P 5 WED
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Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie, RodolpheII-P.5 WED Marine, WladimirCM-4.2 WED Marini, AndreaII-P.6 WED Marko, IgorCE-P.32 TUE
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Maréchal, Etienne .IC-2.4 TUE Marek, Marie Sophie .JSIV-1.1 MON Marie, Rodolphe .II-P.5 WED Marine, Wladimir .CM-4.2 WED Marini, Andrea .II-P.6 WED Marko, Igor .CE-P.32 TUE Marko, Igor P. .CB-10.6 THU Marquardt, Christoph .IB-1.5 MON Marquier, François .IH-3.4 TUE Marquier, François .IB-2.3 TUE Marrucci, Lorenzo .IB-P.2 MON, IB-P.4 MON Marshall, Andrew Marshall, G.D. .IA-2.1 MON Marsili, Francesco .JSV-1.1 TUE Marslil, A.
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Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie, RodolpheII-P.5 WED Marine, WladimirCM-4.2 WED Marini, AndreaII-P.6 WED Marko, IgorCB-10.6 THU Marquardt, ChristophIB-1.5 MON Marquardt, FlorianGB-1.4 TUE Marquier, FrançoisIB-1.5 MON Marquier, FrançoisIB-3.4 THU Marris-Morini, DelphineCI-2.3 TUE Marro, Igor DIB-2.4 MON IB-P.4 MON Marshall, AndrewIB-2.4 WED Marshall, AndrewIB-2.4 WED Marshall, CIB-2.4 WED Marshall, CIB-2.4 WED Martella, CIB-P.9 WED Martella, CII-P.9 WED Martelli, PaoloCI-2.3 MON, CD-P.41 TUE Martin Ciurana, FerranIA-3.4 MON, IA-P.8 THU, IA-P.25 THU Martin, FrançoisCL-4.2 MON
Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie, RodolpheII-P.5 WED Marine, WladimirCM-4.2 WED Marini, AndreaII-P.6 WED Marko, IgorCB-10.6 THU Marquardt, ChristophIB-1.5 MON Marquardt, FlorianGB-1.4 TUE Marquier, FrançoisIB-1.5 MON Marquier, FrançoisIB-3.4 THU Marris-Morini, DelphineCI-2.3 TUE Marro, Igor DIB-2.4 MON IB-P.4 MON Marshall, AndrewIB-2.4 WED Marshall, AndrewIB-2.4 WED Marshall, CIB-2.4 WED Marshall, CIB-2.4 WED Martella, CIB-P.9 WED Martella, CII-P.9 WED Martelli, PaoloCI-2.3 MON, CD-P.41 TUE Martin Ciurana, FerranIA-3.4 MON, IA-P.8 THU, IA-P.25 THU Martin, FrançoisCL-4.2 MON
Maréchal, EtienneIC-2.4 TUE Marek, Marie SophieJSIV-1.1 MON Marie, RodolpheI-P.5 WED Marine, WladimirCM-4.2 WED Marini, AndreaI-P.6 WED Marko, IgorCB-10.6 THU Marquardt, ChristophB-1.5 MON Marquardt, FlorianIB-1.5 MON Marquardt, FlorianIB-1.5 MON Marquardt, FlorianIB-1.5 MON Marquardt, FlorianIB-1.5 MON Marquardt, ChristophIB-1.5 MON Marquardt, ChristophIB-2.1 MON Marshall, AndrewIB-2.4 THU Marshall, AndrewIB-2.4 WED Marshall, G.DIB-2.4 WED Marshall, G.DIB-2.4 WED Marshall, G.DIB-2.1 MON Marshall, G.DIB-2.1 MON Marshall, G.DIB-2.4 WED Martelli, Francesco
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Martinenghi, Romain	•CD-10.4 TUE
CD-10.5 TUE	· • • • • • • • • • • • • • • • • • • •
Martínez-Cuenca, Raúl	CD-4.4 SUN
Martinez, Natali	
Martinez Vazquez, Rebeca	. •CL-6.5 TUE
Martl. Michael	CC-P.3 SUN
Martl, Michael Márton, István Martorell, Jordi	IH-5.4 THU
Martorell, Jordi	IH-P.10 THU
Martyanov, Mikhail	•CA-P.1 SUN,
•CD-9.5 TUE	
Martynkien, Tadeusz	C I-P 30 WFD
Maruko, Akiyuki	
	CA-F.15 50N,
CA-8.6 WED	
Marx, Achim	JSV-1.4 TUE
Marzahl, Daniel-T.	•CA-P.3 SUN
Marzahl, Daniel-Timo	CA-2.5 SUN
CJ-12.5 THU	
Mase, Nobuyuki Maslennikov, Gleb	CE-7.4 WED
Maslennikov, Gleb	IA-4.5 WED,
IA-6.3 WED	
Masoller Cristina	IG-5 3 THU
Masoller, Cristina Mason, Paul •CA-7.2 T	
Wason, Paul . •CA-7.2 T	UE, CA-7.5 TUE
Masor, Gordon	PD-A.3 WED
Massaouti, Maria	CC-P.14 SUN
Massicotte, Mathieu	CF/IE-3.5 SUN
Massicotte, Mathieu Massons, Jaume Masuda, Kensuke	CM P 17 SUN
Massolis, Jaunie	
Masuda, Kensuke	CA-2.4 SUN
Mataloni, Paolo	IA-2.5 MON,
Mataloni, Paolo IB-2.2 TUE, CM-7.1 TH	IU
Matejec, Vlastimil	C I-P 7 WFD
Mateos, Xavier	
•CA-P.29 SUN, •CA-3.5	CIVI-F.17 30IN,
Matheisen, Christopher .	CC-2.1 SUN,
•CK-9.4 THU	
Mathey, Ludwig	
	IC-21 IUE
Mathias Sassarmann	
Mathley, Eddwig	IC-2.1 TUE
Mathias, Sassermann Mathies, Richard A	IH-P.10 THU JSIV-2.4 MON
Mathias, Sassermann Mathies, Richard A	IH-P.10 THU JSIV-2.4 MON
Mathias, Sassermann Mathies, Richard A Mathis, Amaury	IH-P.10 THU JSIV-2.4 MON
Mathias, Sassermann Mathies, Richard A Mathis, Amaury CM-5.5 WED	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN,
Mathias, Sassermann Mathies, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN,
Mathias, Sassermann Mathies, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4 4 THU	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU,
Mathias, Sassermann Mathies, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4 4 THU	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU,
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU,
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU,
Mathias, Sassermann Mathies, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN,
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN,
Mathias, Sassermann Mathies, Richard A. Mathis, Amaury CM-5.5 WED Matías, Manuel A. IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8.	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN,
Mathias, Sassermann Mathias, Richard A. Mathis, Amaury CM-5.5 WED Matías, Manuel A. IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8. CH-P.18 THU	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN, 6 WED,
Mathias, Sassermann Mathies, Richard A. Mathis, Amaury CM-5.5 WED Matías, Manuel A. IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN, 6 WED,
Mathias, Sassermann Mathies, Richard A. Mathis, Amaury CM-5.5 WED Matías, Manuel A. IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN, 6 WED,
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki •IA-6.4 WED	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN, 6 WED, •CK-1.5 SUN,
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Mathias, Sassermann Mathias, Richard A. Mathis, Amaury CM-5.5 WED Matías, Manuel A. IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki •IA-6.4 WED Matsukawa, Takeshi Matsukevich, Dzmitry	IH-P.10 THU JSIV-2.4 MON •CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE •CC-1.4 SUN, CA-P.15 SUN, 6 WED, •CK-1.5 SUN, CH-P.18 THU IA-6.3 WED
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki •IA-6.4 WED Matsukawa, Takeshi Matsukevich, Dzmitry Matsukevich, Dzmitry	IH-P.10 THU JSIV-2.4 MON CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE CC-1.4 SUN, CA-P.15 SUN, 6 WED, CK-1.5 SUN, CH-P.18 THU IA-6.3 WED CE-6.4 TUE
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki •IA-6.4 WED Matsukawa, Takeshi Matsukevich, Dzmitry Matsukevich, Dzmitry	IH-P.10 THU JSIV-2.4 MON CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE CC-1.4 SUN, CA-P.15 SUN, 6 WED, CK-1.5 SUN, CH-P.18 THU IA-6.3 WED CE-6.4 TUE
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi •CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki •IA-6.4 WED Matsukawa, Takeshi Matsukevich, Dzmitry Matsukevich, Dzmitry	IH-P.10 THU JSIV-2.4 MON CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE CC-1.4 SUN, CA-P.15 SUN, 6 WED, CK-1.5 SUN, CH-P.18 THU IA-6.3 WED CE-6.4 TUE
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir CC-P.10 SUN Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki •IA-6.4 WED Matsukawa, Takeshi Matsukawa, Takeshi Matsukawa, Dzmitry Matsumoto, Shinnosuke Mattheakis, Marios Matthews, J.C.F	IH-P.10 THU JSIV-2.4 MON CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE CC-1.4 SUN, CA-P.15 SUN, 6 WED, CK-1.5 SUN, CH-P.18 THU IA-6.3 WED CE-6.4 TUE JSIII-P.3 WED
Mathias, Sassermann Mathias, Richard A Mathis, Amaury CM-5.5 WED Matías, Manuel A IG-4.4 THU Matrosov, Vladimir Matsubara, Eiichi CC-P.10 SUN Matsubara, Shinichi CF/IE-5.4 MON, CA-8. CH-P.18 THU Matsuda, Nobuyuki IA-6.4 WED Matsukawa, Takeshi Matsukevich, Dzmitry Matsumoto, Shinnosuke Mattheakis, Marios Matthews, J.C.F Mattioli, Francesco	IH-P.10 THU JSIV-2.4 MON CL-P.6 SUN, IG-P.16 THU, CE-6.5 TUE CC-1.4 SUN, CA-P.15 SUN, 6 WED, CK-1.5 SUN, CH-P.18 THU IA-6.3 WED CE-6.4 TUE JSIII-P.3 WED IA-2.1 MON PD-B.5 WED
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Metzger, Bernd	
Metzger, Bernd	
Metzger, BerndII-2.1 WED Meucci, RobertoJSII-1.4 WED Meyer, Hans-GeorgCI-1.2 SUN Meyer, TobiasCJ-7.2 WED Mezzapesa, Francesco Paolo CM-1.1 SUN Miah, Md. JarezCB-8.4 THU Miccio, LisaOL-P.13 SUN, CE-P.14 TUE, CL-6.6 TUE, JSII-1.4 WED Michaelis de Vasconcellos, Steffen IH-3.4 THU Michailovas, AndrejusCD-P.6 TUE Michaelis de Vasconcellos, Steffen IH-3.4 THU Michailovas, AndrejusCD-P.6 TUE Michaelis, RainerCB-8.4 THU, CB-8.6 THU Michel, Claire IF-2.6 SUN, CD-11.2 WED Michel, Claire IF-2.6 SUN, CD-11.2 WED Michele, CB-8.4 THU Michel, Claire IF-2.6 SUN, CD-11.2 WED Michele, MichaelCB-P.21 MON, IA-3.5 MON, CB-4.4 TUE Mičuda, MichalCF/IE-5.4 MON, CL-4.4 MON, CF/IE-10.1 THU Mielke, MichaelCF-NE TUE Mikami, TakuyaCG-P.13 TUE Mikhailova, JuliaCG-4.3 THU, CG-P.11 THU Miková, MartinaCB-4.6 TUE, CF/IE-13.2 THU Milanese, DanielCE-P.27 TUE,	

Milburn, Gerard
Millot, Guy CI-3.1 WED, JSIII-P.2 WED, CD-11.2 WED
Mills, Andrew ID-1.5 MON Mills, Ben .CH-P.11 THU, •CM-8.1 THU Mills, Benjamin .CM-P.25 SUN Milman, Pérola .IA-2.4 MON Milz, Stefan .IA-2.4 MON Milz, Stefan .IA-2.4 MON Minamid, H. .CC-3.4 SUN Minamide, Hiroaki .CH-P.18 THU Minardi, Stefano IF-2.1 SUN, IF-P.2 SUN, •CH-1.5 MON, CF/IE-P.41 WED Minguez-Vega, Gladys .CA-2.6 SUN Mínguez-Vega, Gladys .CM-P.21 SUN, CD-4.4 SUN, CD-P.34 TUE, .CF/IE-P.18 WED
Minardi, Stefano IF-2.1 SUN, IF-P.2 SUN, •CH-1.5 MON, CF/IE-P.41 WED
Minassian, Ara
Miniewicz, Andrzej IF-P.1 SUN,
Minkov, Momchil
Minot, ChristopheCK-8.5 THU, IA-P.2 THU Minowa, YosukeCC-P.10 SUN Minzioni, PaoloCD-2.1 SUN, CK-P.17 MON, CE-P.35 TUE, CL-6.5 TUE, CE-8.4 WED Miotti, PaoloCF/IE-P.16 WED
Miotti, PaoloCF/IE-P.16 WED Miranda, MiguelCF/IE-3.2 SUN, CF/IE-3.5 SUN, CF/IE-P.17 WED Mirasso, Claudio RCB-5.3 TUE,
Miri, Mohammad-Ali•CK-4.5 SUN, CI-2.5 TUE, IG-2.2 WED Mirin, Richard P IB-1.1 MON, JSV-1.1 TUE
Mironov, SergeyCA-P.1 SUN Misawa, KazuhikoCF/IE-P.4 WED Miseikis, PauliusCF/IE-P.4 WED Mishina, OxanaIA-6.2 WED Missione, JeroenCM-P.22 SUN Missous, MohamedCC-P.4 SUN, CF/IE-P.37 WED
Mistura, Giampaolo CK-P.12 MON Mitchell, Arnan CK-10.4 THU Mitchell, Brandon CE-1.4 MON Mitchell, Morgan IA-3.4 MON, IC-P.3 TUE, IA-P.1 THU, IA-P.8 THU,
IA-P.25 THU Mitchell, Morgan WIB-1.2 MON, IA-5.5 WED
Mitrofanov, Alexander CG-1.2 TUE Mitrykovskiy, Sergey CM-P.1 SUN Mitryukovskiy, Sergey •CC-4.5 SUN, CF/IE-P.26 WED
Mitsch, Rudolf II-1.3 SUN, IG-5.1 THU Mitschke, Fedor IF-1.3 SUN, IG-5.1 THU Miura, Kenta

CA-10.1 WED, CA-10.3 W	ED
Viyamoto, Masahiro Viyanaga, Noriaki Viyawaki, Atsushi Viyazaki, Kenzo CM-4.4 WED	
vilyamoto, iviasaniro	. CB-9.4 THU
Viyanaga, Noriaki	CJ-P.34 WED
Miyawaki, Atsushi	.CL-4.4 MON
Vivazaki. Kenzo	CM-4.1 WED.
	em mi mie,
CM-4.4 WED Miyazaki, Koji Mizeikis, Vygantas Mizoguchi, Kohji Mizumoto, Yoshihiko CE	
Vliyazaki, Којі	CD-P.13 TUE
Mizeikis, Vygantas	. CM-7.5 THU
Mizoguchi, Kohii CF	/IE-P.24 WED
Mizumoto Voshihiko CE	/IE-P 24 W/ED
Alexandre Aleihiles	
Mizumoto, Yoshihiko CF Mizuno, Akihiko Mizuno, Daichi CA-8.6 WED	. CG-P.9 THU
Vizuno, Daichi	CA-P.15 SUN,
CA-8.6 WED	
Mizuno Tomova	CG-P7 THU
CC P 17 THU	
CA-8.6 WED Mizuno, Tomoya •CG-P.17 THU Mizuta Takahiro	
Viizuta, Takahiro	IB-4.4 TUE
Mocek, Tomáš	CA-5.6 TUE
Mizuta, Takahiro Mocek, Tomáš Modi, Kavan	IB-6.6 THU
Modotto Daniele	CK-2.2 SUN
	. ert 2.2 5011,
•CD-12.4 WED, IG-4.5 TH	0
 Vodotto, Daniele CD-12.4 WED, IG-4.5 TH Modugno, Giovanni Moglia, Francesca CL Da WED 	IC-1.2 I UE
Moglia, Francesca	. CA-2.5 SUN,
•CJ-P.3 WED Mohammadi, Ahmad	
Achammadi Ahmad	
vionammadi, Anmad	
Nohan, Sabitha	CD-P.39 TUE
Vohtashami, Abbas	. •IH-3.1 THU
Mohtashami, Abbas Moison, Jean-Marie Moldaschl, Thomas Moldasch, Sean	. CK-8.5 THU
Moldoschl Thomas	
Vlolesky, Sean CF	/IE-12.5 I HU
Molina-Fernández, Íñigo Molina, Mario I Molina-Terriza, Gabriel	. CK-9.3 THU
Molina. Mario I.	JSIII-1.4 WED
Volina Terriza Cabriel	
violinari, Elisa	. IH-P.21 THU
Molinari, Elisa Molitor, Andreas	CB-P.4 MON,
CB-5.6 TUE	
Völler, Michael	CA-9.2 WED
Møller, Uffe IF-P.10 SUN, •	
JSIII-P.6 WED, CF/IE-8.4	WED
Molmer, Klaus	•IB-7.1 THU
Moloney, JeromeCF	/IE-6.2 MON,
CB-9.3 THU	, ,
Moloney, Jerome V.	
Molotokaite, Egle Molpeceres, Carlos	. CD-4.3 SUN
Molpeceres, Carlos	CM-P.23 SUN,
CE-P 16 TUE	
Acompart lardi CE 4 5 TH	
CE-P.16 TUE Mompart, Jordi CE-4.5 TU Monat, Christelle CK-2.6 SUN, CE-3.2 MON	
Vionat, Christelle	. CK-1.4 SUN,
CK-2.6 SUN, CE-3.2 MON	
Vlonberg, Eric	PD-A.3 WED
Monchocé, Sylvain	•CG-3 4 WFD
CG-3.5 WED	ee en 1128,
Moncorgé, Richard	.CA-6.4 TUE,
Vonemhaghdoust, Zahra	.•CL-5.2 TUE
Nönkemöller, Viola	•CL-3.1 MON
Monmayrant, Antoine	•CK-1.1 SUN,
•CB-P.16 MON Monneret, Serge	
Monneret, Serge	CL-5.1 TUE
Monroe, Tanja	. CJ-12.6 THU
Montemezzoni Cormona	
Montemezzani, Germano Montes, Carlos	
Monteville, Achille	.CE-P.27 TUE
Montfort, Frédéric	CL-5.2 TUE
Vonti, Matteo	CM-P.31 SUN
Montmessin, Franck	CA-P.32 SUN
	CB-3.2 MON,
CB-4.2 TUE	

Moore, Ana	
	JSIV-P.1 MON
Moore, Ana Moore, Tom	JSIV-P.1 MON
Moormonn Christian	
Moormann, Christian Morales, Felipe CG-P.14 THU, CG-7.6 TH	
Worales, Felipe	.•CG-5.0 THU,
CG-P.14 THU, CG-7.6 TF	10
Morales, Miguel	•CM-P.23 SUN
•CC-3.3 SUN, IG-P.1 THU	CD-2.4 SUN.
•CC-3 3 SUN_IG-P 1 THL	J ,
Morante, Joan Ramon	
Meree Deberte	
Morea, Roberta •CE-P.19 TUE	•CK-P.4 MON,
•CE-P.19 TUE	
Morel, Pascal	JSI-1.3 MON
Morenza, José Luis Morgenweg, Jonas	CM-1.3 SUN
Morgenweg, Jonas	•ID-3.2 MON.
•CE/IE-10.6 THU	
Morgner, Uwe CD-3.1 SUI CK-P.5 MON, CE-4.2 TU	
Worgher, Owe CD-3.1 SU	N, CJ-2.5 50N,
CK-P.5 MON, CE-4.2 TU	E,
CD-P.40 TUE, CF/IE-P.1	WED,
CD-P.40 TUE, CF/IE-P.1 CF/IE-9.1 WED, CF/IE-9	.4 WED
Mori Yuki CE	=/IE-P 24 WED
Morichetti Francesco	CK-2.1 SUN
Morin Franck	
Morichetti, Francesco Morin, Franck Morin, Olivier	
Iviorin, Olivier	•IA-P.18 THU,
•IB-7.2 THU	
Morin, Philippe	CI-3.1 WED,
CI-3.2 WED, PD-B.8 WEI	D
Morita, Ryuji IF-P.14 SUN,	CM-5.4 WED,
CF/IE-P.34 WED	
Morita, Takenori	CB-94 THU
Morizur, Jean François	ΙΔ_5 3 WED
Morobachi Isaa	
Morohashi, Isao Morris, Oliver J. Mortensen, Asger	
Worris, Oliver J.	CD-P.25 WON
Mortensen, Asger	II-1.1 WED
Mortensen, Niels Asger	.CH-P.21 THU
Morvan, Loïc Mosayyebi, Ali	. JSII-2.4 WED
Mosayyebi, Ali	. CM-P.25 SUN
Moselund, Peter M.	. IF-P.10 SUN.
JSIII-P.6 WED	
Moselund Peter Morten	
Moselund, Peter Morten	CL 5 2 THE
Moselund, Peter Morten Moser, Christophe	CL-5.2 TUE
Moselund, Peter Morten Moser, Christophe Moshammer, Robert	CL-5.2 TUE CL-5.2 TUE CG-1.4 TUE
Moshammer, Robert Mosk, AllardCL-2	CD-P.9 TOE CL-5.2 TUE CG-1.4 TUE /ECBO.1 SUN,
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU	CG-1.4 TUE /ECBO.1 SUN,
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU	CG-1.4 TUE /ECBO.1 SUN,
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU	CG-1.4 TUE /ECBO.1 SUN,
Moshammer, Robert Mosk, AllardCL-2, IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED. •IG-2.1 \	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, J, WED.
Moshammer, Robert Mosk, AllardCL-2, IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED. •IG-2.1 \	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, J, WED.
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,),
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,),
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, J, WED,), IFHU,
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, , WED,), FHU, •CB-P 36 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, , WED,), FHU, •CB-P 36 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David L	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON I, CE-3.2 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David L	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON I, CE-3.2 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David L	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON I, CE-3.2 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David L	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON I, CE-3.2 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David L	CG-1.4 TUE /ECBO.1 SUN, .CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON I, CE-3.2 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF-IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David J. Mosser, Gervaise Mosser, Gervaise Mossety-Leszczak, Beata Mottay, Eric CJ-4.4 MON, CA-5.2 TUE	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, NED, FHU, •CB-P.36 MON I, CE-3.2 MON CD-2.4 SUN CL-P.4 SUN CL-P.4 SUN CF/IE-4.2 SUN,
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU Moskalenko, Valentina Moss, David J. Mosser, Gervaise Mosset, Cervaise Mosset, Cervaise Mosset, Cervaise CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10.	CG-1.4 TUE /ECB0.1 SUN, N, WED,), FHU, •CB-P.36 MON J, CE-3.2 MON J, CE-3.2 MON J, CE-3.2 MON J, CE-2.4 SUN CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN CF/IE-4.2 SUN, E, 4 WED
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David J. Mosser, Gervaise Mossery-Leszczak, Beata Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, J, WED, J, FHU, •CB-P.36 MON J, CE-3.2 MON CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN CF/IE-4.2 SUN, J, 4 WED IC-1.3 TUE
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 V CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David J. Mosser, Gervaise Mossery-Leszczak, Beata Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, J, WED, J, FHU, •CB-P.36 MON J, CE-3.2 MON CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN CF/IE-4.2 SUN, J, 4 WED IC-1.3 TUE
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF-IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU Moskalenko, Valentina Moss, David CK-2.6 SUN Moss, David J. Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T	CG-1.4 TUE /ECB0.1 SUN, CJ-P.14 SUN, WED, CB-P.36 MON CB-P.36 MON CB-2.4 SUN CJ-2.4 SUN E/IE-4.2 SUN E/IE-4.2 SUN CD-4.1 SUN, FUE
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU Moskalenko, Valentina Moss, David . CK-2.6 SUN Moss, David J. Mosser, Gervaise Motser, Gervaise Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, N, WED, CD-2.4 SUN CD-2.4 SUN CD-2.4 SUN CL-P.4 SUN CL-P.4 SUN CF/IE-4.2 SUN, 5, 4 WED IC-1.3 TUE CD-4.1 SUN, FUE IG-4.3 THU
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 N CE-9.4 WED, IH-2.3 WEL CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU Mossalenko, Valentina Moss, David . CK-2.6 SUN Moss, David J. Mosser, Gervaise Mostay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO	CG-1.4 TUE /ECB0.1 SUN, CI-P.14 SUN, J, WED,), FHU, •CB-P.36 MON J, CE-3.2 MON CD-2.4 SUN CI-P.4 SUN CI-P.4 SUN IF-P.8 SUN CF/IE-4.2 SUN, E, 4 WED IC-1.3 TUE CD-4.1 SUN, FUE CI-4.3 SUN
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 M CE-9.4 WED, IH-2.3 WEL CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU Moskalenko, Valentina Mosse, David J. Mossety-Leszczak, Beata Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO Mouawad, Oussama Moulet, Antoine	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, , WED,), FHU, •CB-P.36 MON I, CE-3.2 MON CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN F/IE-4.2 SUN, F/IE-4.2 SUN, CD-1.1 SUN, FUE CD-1.4 SUN CD-1.4 SUN CD-1.4 SUN
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Mosse, David J. Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO Mouawad, Oussama Moulet, Antoine Moumdii, SouadC	CG-1.4 TUE /ECB0.1 SUN, CI-P.14 SUN, N, WED,), THU, •CB-P.36 MON I, CE-3.2 MON CD-2.4 SUN CD-2.4 SUN CI-P.4 SUN IF-P.8 SUN EF/IE-4.2 SUN, EF/IE-4.2 SUN, CD-4.1 SUN, TUE IG-4.3 THU CD-1.4 SUN CG-5.3 THU 3/CC-1.4 MON
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Mosse, David J. Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO Mouawad, Oussama Moulet, Antoine Moumdii, SouadC	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, , WED,), FHU, •CB-P.36 MON I, CE-3.2 MON CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN F/IE-4.2 SUN, F/IE-4.2 SUN, CD-1.1 SUN, FUE CD-1.4 SUN CD-1.4 SUN CD-1.4 SUN
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 W CE-9.4 WED, IH-2.3 WEE CF/IE-11.1 THU, IA-P.3 ⁻ IH-P.19 THU Moskalenko, Valentina Moss, David J. Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mosser, Gervaise Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO Mouawad, Oussama Moulet, Antoine Moumdii, SouadC	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON J, CE-3.2 MON CD-2.4 SUN CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN EF/IE-4.2 SUN, EF/IE-4.2 SUN, CI-1.3 TUE CD-4.1 SUN, TUE IG-4.3 THU CG-1.4 SUN CG-5.3 THU 3/CC-1.4 MON CC-P.13 SUN
Moshammer, Robert Mosk, AllardCL-2 IH-P.3 THU Mosk, Allard P. CL-3.5 MON, IA-3.6 MON CF/IE-P.5 WED, •IG-2.1 M CE-9.4 WED, IH-2.3 WEL CF/IE-11.1 THU, IA-P.3 T IH-P.19 THU Moskalenko, Valentina Moss, David J. Mosser, Gervaise Mossety-Leszczak, Beata Mottay, Eric CJ-4.4 MON, CA-5.2 TUE CF/IE-P.29 WED, CA-10. Mottl, Rafael Motzkus, Marcus JSIV-1.1 MON, CE-P.17 T Mou, CHENGBO Mouavad, Oussama Moulet, Antoine Moumaji, Souad Moya-Cessa, Hector	CG-1.4 TUE /ECB0.1 SUN, CL-P.14 SUN, N, WED,), FHU, •CB-P.36 MON J, CE-3.2 MON CD-2.4 SUN CD-2.4 SUN CL-P.4 SUN IF-P.8 SUN EF/IE-4.2 SUN, EF/IE-4.2 SUN, CI-1.3 TUE CD-4.1 SUN, TUE IG-4.3 THU CG-1.4 SUN CG-5.3 THU 3/CC-1.4 MON CC-P.13 SUN

Mücke, Oliver D	CG-4.6 IHU
Mueller, Holger	•IC-2.5 TUE
Mueller, Holger Mueller, Simon Muilwijk, Pim	•CK-10.1 THU
Multuille Dime	
	. CH-3.4 WED
Vluiumdar. Sushil	CK-P.34 MON.
ČK-8.4 THU Mukhin, Ivan Mulet, Roberto	
Mukhin Ivan	
Mulet, Roberto	JSIV-2.1 MON
Muller. Antoine	. CC-P.15 SUN
Müler, Roberto Muller, Antoine Müller, Jörg Müller, Philipp IB-P.6 MO Müller, Sebastan Müller, Sebastian CJ-P.32 WED, CJ-12.5 TH Munch Leapar	CLP 17 THE
Viulier, Philipp .IB-P.0 WO	N, IB-3.1 TUE
Müller, Sebastan	CA-2.5 SUN
Müller Sebastian	CI-P3 WFD
CIP22 WED CI125 TH	,
CJ-1.52 WED, CJ-12.5 11	
Munch, Jesper	CA-7.1 TUE
Munch, Jesper Munns, J	IA-2.1 MON
Munoz-Martin, David	CM-P 23 SUN
Munzke, Dorit Mura, Alberto	•CH-P.17 THU
Mura, Alberto	ID-3.5 MON
Mura, Emanuel	CJ-P.36 WED
Mura, Aberto Mura, Emanuel Mura, Francesco Murakami, Kenta	
Murakami, Kenta	CE-7.4 WED
Murakami, Motoichiro	CJ-P.27 WED
Murakami, Motoichiro Murawski, Michal	CH-2.3 THE
•CH-P.0 THU	
•CH-P.8 THU Murdoch, Stuart •CD-2.2 SUN, CI-3.5 WED	•IF-2.2 SUN,
•CD-2.2 SUN, CI-3.5 WED)
Murdoch, Stuart G.	
	IF-1.4 30N,
CD-12.5 WED, PD-B.7 W	ED,
IG-4.1 THU	
Murzanev, AlekseyC Murzina, Tatiana Musha, Mitsuru Muskens, Otto	F/IE-6.1 MON
viurzina, latiana	CK-P.21 MON
Musha, Mitsuru	CJ-8.6 WED
Muskens. Otto	. CK-P.6 MON
Muskans, Otto I	
viussot, Arnaud	. CD-2.5 SUN,
CD-P.15 TUE, JSIII-P.1 W	. CD-2.5 SUN, /ED,
CD-P.15 TUE, JSIII-P.1 W	. CD-2.5 SUN, /ED, //ED
Muskens, Otto L. Mussens, Otto L. Mussot, Arnaud CD-P.15 TUE, JSIII-P.1 W •CD-12.2 WED, JSIII-2.2 W	. CD-2.5 SUN, /ED, /ED, WED,
CI-11 3 THU IG-5 5 THU	
CI-11 3 THU IG-5 5 THU	
CI-11 3 THU IG-5 5 THU	
CI-11 3 THU IG-5 5 THU	
CI-11 3 THU IG-5 5 THU	
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Wyara, Mikhael	
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllvperkiö. Pasi	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, . CE-7.6 WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllvperkiö. Pasi	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, . CE-7.6 WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllvperkiö. Pasi	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, . CE-7.6 WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysryrowicz André	. •CK-8.6 THU CL-P.1 SUN .PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CM-P1 SUN
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CG-4.5 SUN CD-P16 TU	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, . CE-7.6 WED IF-P.1 SUN . CM-P.1 SUN, F
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10 1 TUE CE/IE-P 25	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10 1 TUE CE/IE-P 25	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10 1 TUE CE/IE-P 25	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10 1 TUE CE/IE-P 25	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Cd-4.1 Jaia	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN IF-P.1 SUN IF-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU CLP 5 TUE
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Cd-4.1 Jaia	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN IF-P.1 SUN IF-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU CLP 5 TUE
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Cd-4.1 Jaia	. •CK-8.6 THU CL-P.1 SUN . PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN IF-P.1 SUN IF-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU CLP 5 TUE
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naether, Uta	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, .CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED F/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysirowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.26 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nagai, Laia Nagai, Masaya	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, .CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED F/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Nagai, Masaya CC-10 SUN	•CK-8.6 THU CL-P.1 SUN .PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN .CE-P.18 SUN IF-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED 5/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Nagai, Masaya CC-10 SUN	•CK-8.6 THU CL-P.1 SUN .PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN .CE-P.18 SUN IF-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED 5/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Myslyiwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Nagakura, Takehito 	•CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CH-P.1 SUN, E, WED, 5 WED 5 WED 5 WED CI-P.5 TUE CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CC-9.4 THU
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo CP-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Naegar, Jakob Naegther, Uta Nagai, Masaya CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora	•CK-8.6 THU CL-P.1 SUN D-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CH-P.1 SUN, E, WED, 5 WED -/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo CP-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Naegar, Jakob Naegther, Uta Nagai, Masaya CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora	•CK-8.6 THU CL-P.1 SUN D-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CH-P.1 SUN, E, WED, 5 WED -/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Naether, Uta Nagai, Masaya CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagel, Michael CK-9.4 THU	•CK-8.6 THU CL-P.1 SUN .PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN .CE-P.18 TUE, CH-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU CL-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON .•CC-2.1 SUN,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Naether, Uta Nagai, Masaya CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagel, Michael CK-9.4 THU	•CK-8.6 THU CL-P.1 SUN .PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN .CE-P.18 TUE, CH-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU CL-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON .•CC-2.1 SUN,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Myslyiwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Naether, Jakob Naether, Jakob Naether, Uta Nagakura, Takehito Nagakura, Takehito Nagali, Eleonora Nagali, Michael CC-9.4 THU Naga, Tamas	•CK-8.6 THU CL-P.1 SUN .PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, IF-P.1 SUN .CE-P.18 TUE, CH-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU CL-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON .•CC-2.1 SUN,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Nagai, Masaya CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagal, Michael CK-9.4 THU Nagy, Tamas CF/IE-P.1 WED	• CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, .CE-P.18 TUE, . CE-7.6 WED IF-P.1 SUN .CM-P.1 SUN, E, WED, 5 WED 5 /IE-10.1 THU IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, • CB-9.4 THU IB-P.4 MON .•CC-2.1 SUN, • CD-3.1 SUN,
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CC-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nabekawa, Yasuo CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagel, Michael CK-9.4 THU Nagy, Tamas CF/IE-P.1 WED Nair, Rahul R.	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CM-P.1 SUN, E, WED, 5 WED F/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON CC-2.1 SUN, CD-3.1 SUN, F/IE-13.2 THU
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CC-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nabekawa, Yasuo CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagel, Michael CK-9.4 THU Nagy, Tamas CF/IE-P.1 WED Nair, Rahul R.	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CM-P.1 SUN, E, WED, 5 WED F/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON CC-2.1 SUN, CD-3.1 SUN, F/IE-13.2 THU
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CC-8.5 WED Myllyperkiö, Pasi Myslyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nabekawa, Yasuo CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagel, Michael CK-9.4 THU Nagy, Tamas CF/IE-P.1 WED Nair, Rahul R.	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CM-P.1 SUN, E, WED, 5 WED F/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON CC-2.1 SUN, CD-3.1 SUN, F/IE-13.2 THU
CJ-11.3 THU, IG-5.5 THU Mustonen, Anna Mwad Naife, Riyadh Myara, Mikaël Myara, Mikaël Myara, Mikhael CB-10.3 THU Myasnikov, Daniil CE-8.5 WED Myllyperkiö, Pasi Mysliwiec, Jaroslaw Mysyrowicz, André CC-4.5 SUN, CD-P.16 TU CD-10.1 TUE, CF/IE-P.25 CF/IE-P.26 WED, CD-11.1 Nabekawa, Yasuo Nadal, Laia Naeger, Jakob Naether, Uta Nagai, Masaya CC-P.10 SUN Nagakura, Takehito Nagali, Eleonora Nagal, Michael CK-9.4 THU Nagy, Tamas CF/IE-P.1 WED	. •CK-8.6 THU CL-P.1 SUN PD-A.5 WED CB-P.18 MON, CE-P.18 TUE, CE-7.6 WED IF-P.1 SUN CM-P.1 SUN, E, WED, 5 WED F/IE-10.1 THU CI-P.5 TUE IG-2.2 WED JSIII-1.4 WED CC-1.4 SUN, CB-9.4 THU IB-P.4 MON CC-2.1 SUN, CD-3.1 SUN, F/IE-13.2 THU

Nakamura, Kazutaka G. CF/IE-P.33 WED
Nakano, HitoshiCJ-P.27 WED
Nakashima, Takuya CE-2.5 MON
Nakwaski Wlodzimierz CB-P 40 MON
Nam. Sae WooIB-1.1 MON.
•JSV-1.1 TUE, IB-7.3 THU
Napierała, Marek•CJ-P.44 WED,
CH-P.8 THU
Napolitano, Mario IA-3.4 MON, IA-P.8 THU, IA-P.25 THU
Nasiev, Diar
Nasilowski, Tomasz
CJ-P.44 WED, CH-P.8 THU,
CH-7.3 THU
Nasir, Mazhar•CK-5.3 MON
Naskali, Liisa
Nassisi, VincenzoCM-P.3 SUN,
•CG-P.18 THU
Natali Riccardo IA 7 2 THU
Natali, RiccardoIA-7.2 THU Natoli, Jean-YvesCE-9.2 WED Nauerth, SebastianB-5.1 THU
Natoli, Jean-Tves
Nava, GiovanniCE-P.35 TUE, CL-6.5 TUE, •CE-8.4 WED
Navarrete-Benlloch, Carlos . IA-3.3 MON, •IA-P.11 THU, IG-P.6 THU
•IA-P.11 THU, IG-P.0 THU
Nawrocka, Marta CB-P.9 MON, CB-P.10 MON, •CB-P.35 MON
CB-P.10 MON, •CB-P.35 MON
Nedeoglo, DmitriiCE-P./ TUE
Nedeoglo, Dmitrii CE-P.7 TUE Nedev, Spas PD-A.6 WED Neely, David CG-P.8 THU
Neely, DavidCG-P.8 THU
Neergaard-Nielsen, JonasIA-P.7 THU
Neergaard-Nielsen, Jonas
Negro, Matteo CF/IE-10.3 THU,
Neira, Andres•IH-5.2 THU
Neira, Andres
Neira, Andres •IH-5.2 THU Nejezchleb, Karel CA-P.17 SUN Nekhoroshik, Anastasiya CE-P.6 TUE Nemec, Michal CA-P.30 SUN Nemitz, Nils ID-3.3 MON Nemoto, Natsuki •CC-2.2 SUN Nemova, Galina •CA-P.21 SUN Neo, Richard CD-10.2 TUE Neshev, Dragomir N. II-4.2 THU
Neira, Andres

Nicholl, Adrian
Nicholson, JettreyPD-A.3 WED
Nicolas, AdrienIB-P.18 MON,
IA-6.2 WED
Nicoletti, SergioCK-2.6 SUN,
Nicoletti, Sergio CK-2.6 SUN, CD-P.33 TUE, JSII-1.5 WED
Nicolodi, DanieleID-P.0 MON
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Nielsen Bo M IA 75 THU
Niendorf, ThoraffCK-P.20 MON
Nikodem, Michal
Nillon Julian CE/IE DO WED
Nilsson, JohanCJ-9.2 THU
Niendorf, ThoralfCK-P.20 MON Nikodem, MichalCH-1.3 MON Nillon, JulienCJ-9.2 THU Nilsson, JohanCJ-9.2 THU Nilsson, JonasPD-B.3 WED
Nisbet-Jones, Peter B. RIB-4.2 TUE
Nishifuli, MasavukiCA-1.1 SUN
Nishimura, Jiro
Nishio, Masatoshi CA-P.15 SUN,
Nisoli, MauroCF/IE-1.4 SUN, CG-2.2 TUE, CG-P.1 THU Niu, HanbenCL-5.3 TUE,
CG-2.2 TUE, CG-P.1 THU
Niu Hanben CL-5.3 TUE
CF/IE-P.35 WED
Noack, Monika•CK-P.5 MON
Noack, MonikaOK-P.5 MON Noblet, YoannCB-P.20 MON,
CB-P.39 MON, IG-4.2 THU
CB-P.39 MON, IG-4.2 THU Nock, RichardIB-8.2 THU
Nogami lun CM-6.2 THU
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Nogrette, Florence IA-1.4 MON Noguès, Claude
Noguès, ClaudeCH-3.1 WED
Nob Heeso ISIII 1.5 WED
Nolleke, Christian IA-1.5 WON
Nolte, Peter WCD-P.36 TUE
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CH-1.5 MON, IB-P.17 MON,
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU,
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CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, AntonCP/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.ECF/IE-7.3 MON Noom, Daniel Wilhelmus Emile
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CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, AntonCP/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.ECF/IE-7.3 MON Noom, Daniel Wilhelmus Emile • CA-8.3 WED Nordlander, PeterII-1.3 WED, • II-3.1 THU
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CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, AntonCP/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.ECF/IE-7.3 MON Noom, Daniel W.ECF/IE-7.3 MON Noom, Daniel Wilhelmus Emile • CA-8.3 WED Nordlander, PeterII-1.3 WED, •II-3.1 THU Norgia, MicheleCF/IE-P.33 WED Normatsu, Katsura•CF/IE-P.33 WED Norman, MichaelCG-P.20 THU Norris, BarnabyCF/IE-P.42 WED Norris, GregCF/IE-P.42 WED Norris, GregCF/IE-P.42 WED Norris, GregCF/IE-P.44 WED Norwood, Robert
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton CF/IE-12.3 THU Noom, Daniel W.E. CF/IE-12.3 THU Noom, Daniel Wilhelmus Emile •CA-8.3 WED Nordlander, Peter •II-3.1 THU Norgia, Michele Norrimatsu, Katsura •CF/IE-P.33 WED Norman, Michael Norris, Barnaby •CF/IE-P.42 WED Norris, Greg CD-P.26 TUE Norton, Benjamin IA-4.1 WED Norwood, Robert CE-3.4 MON
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CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton CF/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.E. CF/IE-7.3 MON Noom, Daniel Wilhelmus Emile •CA-8.3 WED Nordlander, Peter II-1.3 WED, •II-3.1 THU Norgia, Michele CF/IE-P.33 WED Normatsu, Katsura •CF/IE-P.33 WED Normatsu, Katsura CF/IE-P.42 WED Norris, Barnaby CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg CF-P.20 THU Norwood, Robert
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton CF/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.E. CF/IE-7.3 MON Noom, Daniel Wilhelmus Emile •CA-8.3 WED Nordlander, Peter II-1.3 WED, •II-3.1 THU Norgia, Michele CF/IE-P.33 WED Normatsu, Katsura •CF/IE-P.33 WED Normatsu, Katsura CF/IE-P.42 WED Norris, Barnaby CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton CF/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.E. CF/IE-7.3 MON Noom, Daniel Wilhelmus Emile •CA-8.3 WED Nordlander, Peter II-1.3 WED, •II-3.1 THU Norgia, Michele CF/IE-P.33 WED Normatsu, Katsura •CF/IE-P.33 WED Normatsu, Katsura CF/IE-P.42 WED Norris, Barnaby CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton CF/IE-P.38 WED, CF/IE-12.3 THU Noom, Daniel W.E. CF/IE-7.3 MON Noom, Daniel Wilhelmus Emile •CA-8.3 WED Nordlander, Peter II-1.3 WED, •II-3.1 THU Norgia, Michele CF/IE-P.33 WED Normatsu, Katsura •CF/IE-P.33 WED Normatsu, Katsura CF/IE-P.42 WED Norris, Barnaby CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg CF/IE-P.42 WED Norris, Greg
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CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton Noom, Daniel W.E. CF/IE-12.3 THU Noom, Daniel W.E. Nordlander, Peter •II-3.1 THU Norgia, Michele Nordlander, Peter •II-3.1 THU Norgia, Michele Norman, Michael Norris, Barnaby CF/IE-P.42 WED Norris, Greg Nortom, Benjamin Nature, CE-3.4 MON Notowood, Robert CE-3.4 MON Notomi, Masaya Notowikov, Sergey Novikov, Vladimir Novikov, Vladimir Novikov, Anton Novokov, Anton
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton CF/1E-12.3 THU Noom, Daniel W.E. CF/IE-12.3 THU Noom, Daniel Wilhelmus Emile • CA-8.3 WED Nordlander, Peter • II-3.1 THU Norgia, Michele Norman, Michael CF-P.20 THU Norris, Barnaby CF/IE-P.33 WED Norris, Greg Norris, Greg Norton, Robert CE-3.4 MON Notomi, Masaya Notomi, Masaya Notomi, Masaya Notomi, Masaya Novikov, Sergey Novikov, Sergey Novikov, Vladimir Novokov, Anton Novokov, Anton Novikov, Konstantin S.
CH-1.5 MON, IB-P.17 MON, CD-8.4 TUE, CI-2.5 TUE, CI-P.10 TUE, IB-3.4 TUE, JSIII-P.5 WED, JSIII-1.4 WED, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, IA-P.24 THU, CM-7.6 THU, CM-8.5 THU Nolvi, Anton Noom, Daniel W.E. CF/IE-12.3 THU Noom, Daniel W.E. Nordlander, Peter •II-3.1 THU Norgia, Michele Nordlander, Peter •II-3.1 THU Norgia, Michele Norman, Michael Norris, Barnaby CF/IE-P.42 WED Norris, Greg Nortom, Benjamin Nature, CE-3.4 MON Notowood, Robert CE-3.4 MON Notomi, Masaya Notowikov, Sergey Novikov, Vladimir Novikov, Vladimir Novikov, Anton Novokov, Anton

Nowinowski-Kruszelnicki, Edward
CD-P.44 TUE
Nowosielski, Jedrzej CK-P.27 MON
Nussbaumer Bernhard CA-P 27 SUN
Nyga, Sebastian
Nshii, Chidi
O Duill, Sean CI-3.4 WED
Obidin. Aleksev
Obraztsov, AlexanderPD-B.6 WED
Obraztsov, Petr•PD-B.6 WED
O'Brien, J.L
O'Brien, JeremyIA-6.6 WED O'Brien, Jeremy LIB-6.3 THU O'Brien, StephenCB-P.33 MON
O'Brien Stephen CB-P 33 MON
OCallaghan, James CB-P.9 MON,
CB-P.10 MON, CB-P.35 MON
O'Carroll, JohnCD-P.20 TUE,
O'Carroll, JohnCD-P.20 TUE, •CB-7.2 THU
Ochalski, TomaszCF/IE-P.37 WED O'Connor, DanielCK-5.3 MON,
O'Connor, Daniel CK-5.3 MON,
CE-5.4 TUE, IH-P.18 THU
Oda, Hisaya•CK-P.23 MON Oda, NaokiCC-2.2 SUN
Odent Vincent
Odent, Vincent
CH-P.18 THU
Ogawa, Keiji CE-7.5 WED
O'Gorman, James
Ogrisek, Matthias CB-6.6 TUE
Ogrisek, Matthias
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CJ-P.41 WED
Ohkubo, TakeruCK-P.29 MON Ohshima, TakashiCF/IE-5.4 MON
Ohtani, Keita
Oikawa, MasahiroCJ-P.40 WED
Oishi, Yu•CD-P.13 TUE
Okamoto, Rvo
Okamoto, Takashi•JSIII-1.1 WED
Okamoto, TakashiJSIII-1.1 WED Okamoto, TakuyaCI-5.1 WED Okamura, KotaroCD-P.13 TUE
Okamura, Kotaro CD-P.13 TUE
Okayasu, YuichiCF/IE-5.4 MON, CH-P.18 THU
O'Keeffe, KevinCF/IE-3.4 SUN,
CF/IE-7.4 MON Okell, William
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Okhapkin, Maxim ID-1.1 MON,
ID-3.3 MON
Okhotnikov, OlegCB-P.12 MON,
CJ-P.33 WED
Okhotnikov, Oleg GCB-P.2 MON
Okino, Tomoya CF/IE-10.1 THU
Oksenhendler, ThomasCF/IE-P.7 WED Olaizola, Santiago MCM-6.7 THU Oliver, NeusCB-5.5 TUE
Olivero, Massimo
Olivucci, M
Omachi, Junko•CD-9.6 TUE
Omatsu, Takashige CA-1.6 SUN, CJ-6.6 WED, CM-5.1 WED,
CJ-6.6 WED, CM-5.1 WED,
CM-5.4 WED, CA-10.1 WED,
CA-10.3 WED
Omrani, Hengameh CH-P.17 THU O'Neale Charlotte IC-P.1 THE
O'Neale, CharlotteIC-P.1 TUE O'Neill, William•CM-2.1 SUN
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Onishchukov, Georgy CI-P.14 TUE,	Ozaki, Nobuhiko CK-P.23 MON
IG-2.2 WED	Ozaki, Tsuneyuki CC-3.3 SUN,
Oohata, Goro CF/IE-P.24 WED	CF/IE-9.5 WED
Opheij, Aron•CK-2.3 SUN	Ozawa, YusukeCK-P.29 MON
Oppermann, MalteCF/IE-10.2 THU	Paajaste, Jonna•CE-1.1 MON
Oppo, Gian-Luca IF-3.2 SUN,	Paboeuf, David•CB-10.1 THU
•CB-P.20 MON, IG-1.2 TUE,	Padgett, MilesCK-4.1 SUN,
CD-P.26 TUE, IC-P.2 TUE, IC-P.8 TUE,	•SH-7.1 WED
IG-4.2 THU	Paeder, Vincent
Orcutt, Jason CK-1.3 SUN	Pagliarulo, Vito CE-P.14 TUE
Ordonez-Miranda, Jose•IH-P.13 THU	Pagnoux, DominiqueCA-P.8 SUN,
Oren, GiladIF-3.5 SUN,	CD-P.18 TUE, CL-5.6 TUE
•CF/IE-P.10 WED	Paiè, PetraCL-6.5 TUE
Oreshkov, Bozhidar CA-P.7 SUN,	Painchaud, YvesCK-2.4 SUN
CA-P.9 SUN	Paipulas, Domas CM-P.12 SUN,
Orieux, AdelineIA-2.4 MON,	•CM-7.5 THU, CM-8.3 THU
CK-7.3 THU	Pal, Atasi•CJ-P.1 WED, CJ-P.25 WED
Orlandi, PieroCK-2.1 SUN	Pal, MrinmayCJ-P.25 WED
Orlando, PierangeloCL-6.6 TUE	Palacios, SilvanaIC-P.3 TUE
Orlovich, Valentin	Palashov, Oleg CA-P.6 SUN, CA-7.5 TUE
Orobtchouk, Règis CK-1.4 SUN	Palazzo, ClaudioCM-1.1 SUN
Oron, Dan IF-P.7 SUN	Pal'chikov, Vitaly ID-P.7 MON
Orsila, Lasse	Palecek, DavidJSIV-1.3 MON
Orta, Renato	Pálfalvi, László•CC-4.6 SUN
Ortega, Beatriz	Palmer, Guido•CJ-12.6 THU
Ortega-Feliu, Inés	Palmer, Robert
Ortega-Moñux, Alejandro•CK-9.3 THU	Palpant, BrunoCK-P.4 MON
Ortegel, Norbert	Pan, Yubai
•IB-3.2 TUE	Panajotov, KrassimirCB-P.40 MON,
Ortín, Silvia	CB-5.2 TUE, IG-P.12 THU,
Ortiz, María José CE-2.6 MON	IG-P.15 THU, IG-P.17 THU
Ortiz, SandrineCK-2.6 SUN	Panoiu, Nicolae CD-12.1 WED
Ortmaier, Tobias CL-P.2 SUN	Pantouvaki, MariannaCK-9.2 THU
Osadola, Tolulope•CI-P.15 TUE	Papadopoulos, Dimitris •CA-10.4 WED
Osborne, Simon•CB-P.33 MON	Papasimakis, Nikitas
Osellame, RobertoIA-2.5 MON,	CF/IE-11.4 THU
IB-2.2 TUE, CL-6.5 TUE, CM-7.1 THU	Papazoglou, DemetrisIG-P.14 THU
Osgood, Richard CD-12.1 WED	Papoff, FrancescoCK-P.1 MON,
O'Shea, DannyIA-1.3 MON	CK-P.3 MON
O'Shuaghnessy, Ben CF/IE-P.27 WED	
O Shuaghnessy, Den Ci / IE-1.27 WED	Papp, Scott •ID-2.5 MON, PD-B.1 WED
Osiko, Vyacheslav	Papp, Scott •ID-2.5 MON, PD-B.1 WED Paquet-Mercier, François CE-4.6 TUE
Osiko, VyacheslavCA-P.30 SUN Ossó, J.OriolCE-3.3 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE
Osiko, VyacheslavCA-P.30 SUN Ossó, J.OriolCE-3.3 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE
Osiko, Vyacheslav CA-P.30 SUN	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU
Osiko, VyacheslavCA-P.30 SUN Ossó, J.OriolCE-3.3 MON Ostendorf, Ralf•JSII-2.2 WED, JSII-P.2 WED	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David•IB-P.15 MON
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf•JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David •IB-P.15 MON Parigi, Valentina •IA-1.4 MON
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf•JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David •IB-P.15 MON Parigi, Valentina •IA-1.4 MON Parillaud, Olivier CB-9.5 THU
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-4.1 THU,	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David•IB-P.15 MON Parigi, Valentina•IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.22 THU	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Parisi, Daniela CA-3.3 SUN
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JE-22 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-4.1 THU, CG-P.22 THU Otake, Yuji CF/IE-5.4 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude J-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Parisi, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-4.1 THU, CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David •IB-P.15 MON Parigi, Valentina •IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Parisi, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Parisi, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-P.11 TUE
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Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.2 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON,	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, ValentinaIA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-P.11 TUE Parra-Rivas, Pedro IG-4.4 THU
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JEI-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-4.1 THU, CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Parisi, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-P.11 TUE Parra-Cetina, Josue IG-4.4 THU Parra-Rivas, Pedro IG-4.4 THU Parravicini, Jacopo CD-8.5 TUE
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Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.2 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-7.1 TUE Ottake, Yuji CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen JJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-9.10 TUE Parra-Cetina, Josue CI-3.6 WED Parra-Rivas, Pedro IG-4.4 THU Parsonage, Tina L CJ-12.3 THU Parsons, Aaron. D CH-P.11 THU
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Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JEI-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.2 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed•CM-P.31 SUN	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-P.11 TUE Parra-Cetina, Josue IG-4.4 THU Parravicini, Jacopo CD-8.5 TUE Parsonage, Tina L CJ-12.3 THU Partner, Heather CM-2.3 SUN Partner, Heather CM-2.3 SUN
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JEI-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-4.1 THU, CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen C-J-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed •CM-P.31 SUN Oulton, Rupert CB-6.6 TUE Oulton, Ruth CK-P.28 MON,	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Parisi, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parker, Stefan CG-P.20 THU Para-Rivas, Pedro IG-4.4 THU Parra-Rivas, Pedro IG-4.4 THU Parsons, Aaron. D •CH-P.11 THU Partner, Heather CM-2.3 SUN Partner, Heather CM-2.3 SUN Parviainen, Tomi JSII-1.3 WED Parviaite, Bertrand CC-P.16 SUN
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JEI-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed •CM-P.31 SUN Oulton, Rupert CB-6.6 TUE Oulton, Ruth CK-P.28 MON, IA-P.12 THU	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IB-P.15 MON Parigi, Valentina IB-P.15 MON Parigi, Valentina IB-P.15 MON Paris, Matteo CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-9.11 TUE Parra-Cetina, Josue CI-3.6 WED Parra-Rivas, Pedro IG-4.4 THU Parsonage, Tina L CJ-12.3 THU Parsver, Heather CH-9.11 THU Parviainen, Tomi JSII-1.3 WED Parvitte, Bertrand CC-P.16 SUN Paschke, Katrin CB-P.11 MON,
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JEII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.2 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen JJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed CH-P.31 SUN Oulton, Rupert CB-6.6 TUE Oulton, Ruth CK-P.28 MON, IA-P.12 THU Ourjoumtsev, Alexei IA-1.4 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-3.6 WED Parra-Cetina, Josue CI-3.6 WED Parra-Rivas, Pedro IG-4.4 THU Parravicini, Jacopo CD-8.5 TUE Parsonage, Tina L CJ-12.3 THU Parvianen, Tomi JSII-1.3 WED Parviainen, Tomi JSII-1.3 WED Parvite, Bertrand CC-P.16 SUN Paschke, Katrin CB-P.11 MON, CB-P.17 MON, +CB-9.2 THU CB-P.11 MON
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Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JSII-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostorowski, Lukasz CH-P.8 THU Osvay, Karoly •CG-4.1 THU, CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.1 MON, CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed •CM-P.31 SUN Oulton, Rupert CB-6.6 TUE Oulton, Ruth Ourjoumtsev, Alexei IA-1.4 MON Overman, Robert TF-1/LIM.1 TUE Overmaver, Ludger CJ-1.2 SUN	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parillaud, Olivier CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Para-Rivas, Pedro IG-4.4 THU Parra-Rivas, Pedro IG-4.4 THU Parsons, Aaron. D •CH-P.11 THU Partner, Heather CM-2.3 SUN Partner, Heather CM-2.3 SUN Parviainen, Tomi JSII-1.3 WED Parviaite, Bertrand CC-P.16 SUN Paschke, Katrin CB-9.11 MON, CB-P.17 MON, •CB-9.2 THU Paschotta, Rüdiger Pashkin, Alexej CC-P.9 SUN,
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JEI-2.2 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.22 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed •CM-P.31 SUN Oulton, Rueth CK-P.28 MON, IA-P.12 THU Ourjoumtsev, Alexei IA-1.4 MON Overman, Robert CJ-1.2 SUN Ovsiannikov, Vitaly •ID-P.7 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IB-P.15 MON Parigi, Valentina CB-9.5 THU Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-9.11 TUE Parra-Cetina, Josue CI-3.6 WED Parra-Rivas, Pedro IG-4.4 THU Parsonage, Tina L CJ-12.3 THU Parsons, Aaron D CH-9.11 THU Parviainen, Tomi JSII-1.3 WED Parviatner, Heather CB-9.11 MON, CB-9.17 MON, •CB-9.2 THU Paschotta, Rüdiger SH-8.1 SUN Pashkin, Alexej CC-P.9 SUN, CF/IE-12.1 THU
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Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JE-22 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.2 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed CH-P.31 SUN Oulton, Rupert CB-6.6 TUE Oulton, Ruth CK-9.28 MON, IA-P.12 THU Ourjoumtsev, Alexei IA-1.4 MON Overman, Robert TF-1/LIM.1 TUE Overmeyer, Ludger CJ-1.2 SUN Owada, Sigeki CF/IE-5.4 MON Owada, Sigeki CF/IE-5.4 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parigi, Valentina IA-1.4 MON Parigi, Valentina IB-P.15 MON Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Parker, Stefan CG-P.20 THU Parker, Stefan CI-21.1 TUE Parra-Cetina, Josue CI-3.6 WED Parra-Rivas, Pedro IG-4.4 THU Parsons, Aaron. D •CH-P.11 THU Parsons, Aaron. D •CH-P.11 THU Parviainen, Tomi JSII-1.3 WED Parvitte, Bertrand CG-P.16 SUN Paschke, Katrin CB-P.11 MON, CB-P.17 MON, •CB-9.2 THU Paschotta, Rüdiger SH-8.1 SUN Pashkin, Alexej CC-P.9 SUN, CF/IE-12.1 THU Pasikevicius, Valdas CD-5.2 MON, CD-7.3 MON
Osiko, Vyacheslav CA-P.30 SUN Ossó, J.Oriol CE-3.3 MON Ostendorf, Ralf JE-22 WED, JSII-P.2 WED Osterwalder, Jürg PD-A.1 WED Ostrowski, Lukasz CH-P.8 THU Osvay, Karoly CG-P.2 THU Otake, Yuji CF/IE-5.4 MON Otani, Kazunori CA-8.6 WED Ottaway, David CA-7.1 TUE Otto, Hans-Jürgen CJ-3.1 MON, CJ-3.2 MON, CJ-3.3 MON, •CJ-3.4 MON Ou, Jun-Yu CK-3.2 SUN, CE-5.1 TUE, CE-5.2 TUE, II-3.2 THU, IH-P.11 THU Oujja, Mohamed CH-P.31 SUN Oulton, Rupert CB-6.6 TUE Oulton, Rupert CB-6.6 TUE Oulton, Ruth CK-P.28 MON, IA-P.12 THU Ourjoumtsev, Alexei IA-1.4 MON Overman, Robert TF-1/LIM.1 TUE Overmeyer, Ludger CJ-1.2 SUN Ovsiannikov, Vitaly OD-P.7 MON Owada, Sigeki CE-5.4 MON	Paquet-Mercier, François CE-4.6 TUE Paquot, Yvan CD-10.2 TUE Paré, Claude CJ-11.4 THU Paredes-Barato, David IB-P.15 MON Parigi, Valentina IA-1.4 MON Parigi, Valentina IA-1.4 MON Parigi, Valentina IB-P.15 MON Paris, Matteo CH-P.19 THU Paris, Daniela CA-3.3 SUN Park, Doojae IH-5.3 THU Paris, Daniela CA-3.3 SUN Parker, Stefan CG-P.20 THU Parladori, Giorgio CI-9.11 TUE Parra-Cetina, Josue CI-3.6 WED Parra-Rivas, Pedro IG-4.4 THU Parsonage, Tina L CJ-12.3 THU Partner, Heather CH-9.11 THU Parviainen, Tomi JSII-1.3 WED Parvitte, Bertrand CF-9.11 MON, CB-P.17 MON, •CB-9.2 THU Paschotta, Riidiger SH-8.1 SUN Pashkin, Alexej CC-9.9 SUN, CF/IE-12.1 THU Pasiskevicius, Valdas CD-5.2 MON,

(J_{7}) $(K_{-}P_{-})$ $M(J_{N})$	
Ozaki, Nobuhiko CK-P.23 MON Ozaki, Tsuneyuki CC-3.3 SUN, CF/IE-9.5 WED	
Ozawa, Yusuke CK-P.29 MON Paajaste, JonnaCE-1.1 MON Paboeuf, DavidCB-10.1 THU Padgett, MilesCK-4.1 SUN, •SH-7.1 WED	
Paajaste, Jonna•CE-1.1 MON	
Paboeuf, David•CB-10.1 THU	
Padgett, MilesCK-4.1 SUN,	
•SH-7.1 WED	
Paeder, Vincent	
Pagliarulo Vito CE-P 14 TUE	
Pagnoux, DominiqueCA-P.8 SUN,	
CD-P.18 TUE, CL-5.6 TUE	
CD-P.18 TUE, CL-5.6 TUE Paiè, PetraCK-2.6 STUE Painchaud, YvesCK-2.4 SUN Paipulas, DomasCK-2.4 SUN Paipulas, DomasCK-2.4 SUN, •CM-7.5 THU, CM-8.3 THU Pal, Atasi•CJ-P.1 WED, CJ-P.25 WED Pal, MrinmayCJ-P.25 WED Palacios, SilvanaIC-P.3 TUE Palashov, Oleg CA-P.6 SUN, CA-7.5 TUE Palazzo, ClaudioCM-1.1 SUN Pal'chikov, VitalyID-P.7 MON Palecek, DavidJSIV-1.3 MON Pálfalvi, LászlóCC-4.6 SUN Palmer, GuidoCL-12.6 THU Palmer, RobertCK-9.2 THU Palpant, BrunoCK-9.4 MON Pan, YubaiCB-6.3 TUE Panajcov, KrassimirCB-P.40 MON, CB-5.2 TUE, IG-P.12 THU, IG-P.15 THU, IG-P.17 THU	
Pale, Petra	
Painchaud, YvesCK-2.4 SUN	
Paipulas, Domas CM-P.12 SUN,	
•CM-7.5 THU, CM-8.3 THU	
Pal, Atasi •CJ-P.1 WED, CJ-P.25 WED	
Pal, MrinmayCJ-P.25 WED	
Palacios. Silvana IC-P.3 TUE	
Palashov Oleg CA-P6 SUN CA-75 TUE	
Palazzo Claudio CM-11 SUN	
Pal chikov, vitaly	
Palecek, DavidJSIV-1.3 MON	
Páltalvi, László•CC-4.6 SUN	
Palmer, Guido•CJ-12.6 THU	
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Palpant, BrunoCK-P.4 MON	
Pan, Yubai	
Panajotov Krassimir CB-P40 MON	
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CD-6.1 MON, CE-P.8 TUE Petrozza, AnnaMaria CF/IE-13.5 THU Petrucelli, Vincenzo CK-1.1 SUN Pettersson, Mika CE-7.6 WED Peyghambarian, Nasser CE-2.4 MON, CE-3.4 MON Pézolet, Michel CE-4.6 TUE Pezzagna, Sébastien IH-P.6 THU Pfeiffer, Christian P CL-4.2 MON Pfeiffer, Christian P IG-3.5 WED Pfeiffer, Markus IIG-3.5 WED Pfeiffer, Markus IID-P.3 MON, ID-2.3 MON Pfisterer, Simon CL-4.5 MON Pfullmann, Nils CK-P.5 MON Phan Huy, Kien IB-P.13 MON, IG-4.6 THU Phelan, Richard CB-7.2 THU, CJ-10.6 THU Philippe, Severine CB-P.22 MON Philippe, Fritz IH-P.4 THU Philips, Jonathan CA-7.2 TUE, CA-7.3 TUE Phua, Poh Boon CA-8.2 WED
CD-6.1 MON, CE-P.8 TUE Petrozza, AnnaMaria CF/IE-13.5 THU Petrucelli, Vincenzo CK-1.1 SUN Pettersson, Mika CE-7.6 WED Peyghambarian, Nasser CE-2.4 MON, CE-3.4 MON Pézolet, Michel CE-4.6 TUE Pezzagna, Sébastien IH-P.6 THU Pfeffer, Christian P CL-4.2 MON Pfeiffer, Christian P IG-3.5 WED Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IH-P.4 THU Pfeiffer, Simon CL-4.5 MON Pfullmann, Nils CK-P.5 MON Phan Huy, Kien IB-P.13 MON, IG-4.6 THU Phelan, Richard CB-7.2 THU, CJ-10.6 THU Philippe, Severine CB-P.22 MON Phillips, Christopher CD-7.4 MON Phillips, Christopher CD-7.4 MON Phillips, Jonathan CA-7.2 TUE, CA-7.3 TUE Phua, Poh Boon CA-8.2 WED Picca, Rosaria Anna CM-8.1 TUE
CD-6.1 MON, CE-P.8 TUE Petrozza, AnnaMaria CF/IE-13.5 THU Petrucelli, Vincenzo CK-1.1 SUN Pettersson, Mika CE-7.6 WED Peyghambarian, Nasser CE-2.4 MON, CE-3.4 MON Pézolet, Michel CE-4.6 TUE Pezzagna, Sébastien IH-P.6 THU Pfeffer, Christian P CL-4.2 MON Pfeifer, Christian P CL-4.2 MON Pfeifer, Christian P IG-3.5 WED Pfeiffer, Loren N. IG-3.5 WED Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IB-P.3 MON, ID-2.3 MON Pfisterer, Simon CL-4.5 MON Pfullmann, Nils CK-P.5 MON Phan Huy, Kien IB-P.13 MON, IG-4.6 THU Phelan, Richard CB-7.2 THU, CJ-10.6 THU Phillipe, Severine CB-P.22 MON Phillips, Christopher CD-7.4 MON Phillips, Sonathan CA-7.2 TUE, CA-7.3 TUE Phua, Poh Boon CA-8.2 WED Picca, Rosaria Anna CD-8.1 TUE Picozzi, Antonio IF-2.6 SUN,
CD-6.1 MON, CE-P.8 TUE Petrozza, AnnaMaria CF/IE-13.5 THU Petrucelli, Vincenzo CK-1.1 SUN Petresson, Mika CE-7.6 WED Peyghambarian, Nasser CE-2.4 MON, CE-3.4 MON Pézolet, Michel CE-4.6 TUE Pezzagna, Sébastien IH-P.6 THU Pfeffer, Christian P CL-4.2 MON Pfeifer, Christian P CL-4.2 MON Pfeiffer, Christian P IG-3.5 WED Pfeiffer, Markus IH-P.6 THU Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IB-P.3 MON, ID-2.3 MON Pfisterer, Simon CL-4.5 MON Pfullmann, Nils CK-P.5 MON Phan Huy, Kien IB-P.13 MON, IG-4.6 THU Phelan, Richard CB-7.2 THU, CJ-10.6 THU Phillipe, Severine CB-P.22 MON Phillipe, Fritz IH-P.4 THU Phillipe, Schristopher CD-7.4 MON Phillips, Jonathan CA-7.2 TUE, CA-7.3 TUE Phua, Poh Boon CA-8.2 WED Picca, Rosaria Anna CM-1.1 SUN Piccardi, Armando CD-8.1 TUE Picozzi, Antonio IF-2.6 SUN, CI-3.1 WED, CD-11.2 WED
CD-6.1 MON, CE-P.8 TUE Petrozza, AnnaMaria CF/IE-13.5 THU Petrucelli, Vincenzo CK-1.1 SUN Pettersson, Mika CE-7.6 WED Peyghambarian, Nasser CE-2.4 MON, CE-3.4 MON Pézolet, Michel CE-4.6 TUE Pezzagna, Sébastien IH-P.6 THU Pfeffer, Christian P CL-4.2 MON Pfeifer, Christian P CL-4.2 MON Pfeifer, Christian P IG-3.5 WED Pfeiffer, Loren N. IG-3.5 WED Pfeiffer, Markus IH-P.4 THU Pfeiffer, Markus IB-P.3 MON, ID-2.3 MON Pfisterer, Simon CL-4.5 MON Pfullmann, Nils CK-P.5 MON Phan Huy, Kien IB-P.13 MON, IG-4.6 THU Phelan, Richard CB-7.2 THU, CJ-10.6 THU Phillipe, Severine CB-P.22 MON Phillips, Sonathan CA-7.2 TUE, CA-7.3 TUE Phua, Poh Boon CA-8.2 WED Picca, Rosaria Anna CD-8.1 TUE Picozzi, Antonio IF-2.6 SUN,

Piehler, Stefan•CA-4.4 SUN,
•CA-9.3 WED
Piekarek, M IA-2.1 MON
Pierangelo, Angelo
Pierangelo, Angelo CD-8.5 TUE Pierrat, RomainIH-1.2 SUN Pierre, ChristopheCJ-5.1 WED
Pierre François Cohadon IA 7.2 THU
Pifferi Antonio CH 4.3 THU
Pigeau Benjamin PD-B 4 WED
Pierre-François, Cohadon IA-7.3 THU Pifferi, AntonioCH-4.3 THU Pigeau, BenjaminPD-B.4 WED, CH-7.2 THU
Piglosiewicz, BjörnIH-5.3 THU Pileni, Marie-PauleCE-P.34 TUE Pillai, SmithaJSIV-P.1 MON Pillet, GrégoireJSII-2.4 WED
Pileni, Marie-Paule CE-P.34 TUE
Pillai, SmithaJSIV-P.1 MON
Pillet, GrégoireJSII-2.4 WED
Pimenov, AleksandrIG-P.12 THU
Pimenov, Alexander •CB-P.27 MON
Pimenov, AleksandrIG-P.12 THU Pimenov, Alexander•CB-P.27 MON Pinel, OlivierID-1.6 MON
Pinkse, Pepijn W.H •IA-3.6 MON,
IA-P.3 THU
Piotrowski, Marcin IF-3.1 SUN Piramidowicz, Ryszard CI-2.2 TUE, CE-P.25 TUE, CE-P.29 TUE
Piramidowicz, Ryszard CI-2.2 TUE,
Pirandola, Stefano
Pirzio Ederico
Pirandola, Stefano
Písařík Michael CI-P5 WED
Piskarskas Algis CD-P6 TUF
Pissadakis, Stavros
Pisariello, Ferdicido
Pitilakis, Alexandros
Pitois, Stéphane CI-3.1 WED,
Pitsios, IoannisJSIII-P.3 WED Pivovarov, PavelCM-3/LIM.2 TUE Piwnoski, TomaszCF/IE-P.37 WED Pizzocaro, MarcoID-3.5 MON
Pivovarov, Pavel CM-3/LIM.2 TUE
Piwnoski, Tomasz CF/IE-P.37 WED
Pizzocaro, MarcoID-3.5 MON
Pizzocchero, Filippo CC-4.3 SUN
Planchat, ChristopheCJ-8.1 WED
Plant, Genevieve
Pletzer, Toblas IVICC-2.1 SUN
Plotnik Vonatan CK 3.1 SUN
Plum Fric CK-3.2 SUN II-3.2 THU
Pocholle Jean-Paul CA-10.6 WFD
Podivilov, Evgenv CF/IE-P.8 WED
Podoliak, Nina•CI-4.2 WED
Podrazký, OndřejCJ-P.5 WED,
Pizzocaro, Marco
Poeggel, Sven CH-3.5 WED, CH-6.4 THU Poeld, JanCH-6.5 THU Poellmann, ChristophIH-5.1 THU Poggi, PasqualeJSII-1.4 WED Pohl, JohannesCL-P.15 SUN,
Poeld, JanCH-6.5 THU
Poellmann, Christoph IH-5.1 THU
Poggi, PasqualeJSII-1.4 WED
Pohl, Johannes CL-P.15 SUN,
CB-P.17 MON
•CD-P.16 TUE, •CD-10.1 TUE
Poitras François CE/IE-9.5 WED
Pokorny Fabian IA-P4 THI
Pola. Andrea
Poletto, Luca
Poitras, FrançoisCF/IE-9.5 WED Pokorny, FabianIA-P.4 THU Pola, AndreaCG-P.18 THU Poletto, LucaCF/IE-1.4 SUN, •CF/IE-5.5 MON, CG-2.2 TUE,
Poli, FedericaCJ-P.2 WED Polini, MarcoCF/IE-13.2 THU Polis, PawelCE-P.25 TUE
Polini, Marco CF/IE-13.2 THU
Polis, PawelCE-P.25 TUE

Politko, MaximCJ-P.10 WED
Polli Dario •CD-4.3 SUN ISIV-P.1 MON
•JSIV-2.4 MON, •CE-P.34 TUE
Pollnau, Markus
PD-A.4 WED, CK-10.2 THU,
CK-10.3 THU, CK-10.6 THU
Polynkin, Pavel•CF/IE-6.2 MON Polzik, Eugene Simon CH-6.3 THU
Pomeranz, Leonard JSII-2.3 WED
Pomraenke, Robert
Pomeranz, Leonard JSII-2.3 WED Pomeranke, Robert JSII-2.3 WED Poncharal, Philippe IH-4.2 THU Poncharal, Philippe
Popa, Daniel CB-4.6 TUE, CJ-P.39 WED
Popescu, Alexandru CK-P.20 MON
Popescu, Traian CK-6.5 WED
Popmintchev. Tenio•CF/IE-7.1 MON
Poplawsky, JonathanCE-1.4 MON Popmintchev, Tenio•CF/IE-7.1 MON Popoff, SebastienCH-2.4 TUE
Popov, Ivan
Popov, Konstantin
Popp, JurgenCJ-7.2 WED
Poppe, Andreas
•CF/IE-13.3 THU
Porras, DiegoIA-P.11 THU Porte, Xavier CB-5.3 TUE, •CB-7.5 THU
Porte, Xavier CB-5.3 TUE, •CB-7.5 THU
Portolan, StefanoIH-P.9 THU Pösch, AndreasCH-4.2 THU
Poteomkin, Anatoly CA-P.1 SUN
Potnis, Shreyas IC-2.2 TUE, IG-3.5 WED
Potocek, VaclavIB-2.3 TUE Pottie Paul-Fric ID-3.4 MON
Poteomkin, AnatolyCH-9.2 THO Poteomkin, AnatolyCA-P.1 SUN Potnis, Shreyas IC-2.2 TUE, IG-3.5 WED Potocek, VáclavIB-2.3 TUE Pottie, Paul-EricID-3.4 MON Poturaj, KrzysztofIA-2.1 MON Poulios, KIA-2.1 MON
Poulios, KIA-2.1 MON
Považay, BorisCL-6.1 TUE Powell, DavidII-3.5 THU
Powell, HaydnCG-P.8 THU Pozo, JoseCH-3.4 WED
Pozo, Jose
Pozza, Gianluca CE-P.35 TUE, CE-8.4 WED
Prode Bernard CC 4 5 SUN
CD-P.16 TUE, CD-10.1 TUE,
CD-11.5 WED Prasad. Paras N CK-6.1 WED
Prasad, Paras N CK-6.1 WED Prasciolu, Mauro CK-5.2 MON
Prater, KarinIF-2.1 SUN Pratesi, Filippo
CK-P.35 MON
Preciado, Miguel A•CI-P.3 TUE Preda, Cristina Elena•CJ-P.22 WED
Preda, Cristina Elena•CJ-P.22 WED Preda, ElenaCJ-7.1 WED
Predojević, Ana•IA-2.3 MON,
IB-3.5 TUE
Priebe, Gerd CF/IE-4.5 SUN
Prigent, ChristopheCF/IE-P.7 WED Priimagi, ArriCE-7.5 WED
Prince, Kamau
Prinz, HeinoCH-P.14 THU Prior, YehiamII-1.5 WED
Prochnow, Oliver CF/IE-9.1 WED
Pronin, Oleg
Pruneri, ValerioIB-1.2 MON, CE-2.1 MON, CE-2.2 MON,
CE-2.3 MON, CE-2.2 MON, CE-2.3 MON, CI-P.12 TUE
Pruvost, Laurence•IA-P.21 THU

Durate Cooff I	
Pryde, Geoff J. Prylepa, Andrii	
Prziwarka, Thomas	CB-P 29 MON
Psaltis, Demetri	•CK-5.1 MON.
IG-P.14 THU	
Pucker, Georg	CK-2.2 SUN
Pugachev, Leonid Pugliese, Eugenio	CG-P.6 THU
Pugliese, Eugenio	. JSII-1.4 WED
Pugliesi, Igor	•JSIV-2.2 MON
Pugžlys, Audrius CF/IE-4.6 SUN, CF/IE-6.	CD-1.1 SUN,
CF/IE-6.3 MON, CA-8.2	Z MON, WED
Pujol, Maria Cinta	
CA-3.5 SUN	. CA-1 .29 30N,
Pukhov, Alexander A.	. CK-P.31 MON
Puncken, Oliver	CH-6.5 THU
Punj, Deep	IH-3.5 THU
Purlys, Vytautas	CK-P.13 MON,
CK-P.19 MON	
Pusino, Vincenzo CB-6.3 TUE	.•CB-3.1 MON,
Pustelny Szymon	IF-P 11 SUN
Puzvrev. Dmitry	IG-P.12 THU
Pustelny, Szymon Puzyrev, Dmitry Pyka, Karsten	CM-2.3 SUN
Pyragaite, Viktorija Pysz, Dariusz	. CC-P.11 SUN
Pysz, Dariusz	. CJ-P.30 WED
Qian, Kai Qiang, X.	CJ-2.1 SUN
Qiang, X.	IA-2.1 MON
Quélin, Xavier II-P.8 WEl Quéré, Fabien	D, •IH-6.2 THU
Quéré, Fabien	CG-3.5 WED
Quiquempois, Yves CJ-11.3 THU, CJ-11.5 TH	CJ-6.2 WED,
CJ-11.5 THU, CJ-11.5 TH	
Quiring, Viktor Raabe, Sebastian	IA-P 22 THU
Rachinskii, Dmitrii	CB-P 27 MON
Račiukaitis, Gediminas	CD-P.5 TUE
Račiukaitis, Gediminas Racz, Ervin	CG-4.1 THU
Rácz, Péter CA-P.31 SU	JN, IH-5.4 THU
Radevici, Ivan Radier, Christophe	•CE-P.7 TUE
Radier, Christophe	CF/IE-P.9 WED
Radke, AndréCN	A-3/LIM.3 TUE
Radzewicz, Czeslaw	IB-8.6 I HU
Radzewicz, Czeslaw Radziunas, Mindaugas •CB-P.38 MON, IG-2.4 W	EB-P.37 MON,
Rafailov, Edik CD-6.3 MON, CB-4.2 TU	CC-P.5 SUN,
CD-6.3 MON, CB-4.2 TU	E,
CD-P.21 I UE	
Rafailov, Edik U	CE-P.28 TUE
Rahim, Abdul	•CI-1.2 MON
Rahimi-Keshari, Saleh IB-6.1 THU	•IB-P.9 MON,
Rahlves, Maik	•CL-P.2 SUN
Raimond Jean-Michel	IA-1 1 MON
Raineri, Fabrice	CK-8.2 THU
Raimond, Jean-Michel Raineri, Fabrice Ralph, Tim IB-P.3 MO	N, IB-5.4 THU,
IB-6 6 THU	
Ralph, Timothy IB-P.9 MC	DN, IB-6.1 THU
Ralph, Timothy C Ram, Rajeev	IB-6.5 THU
Ram, Rajeev	CK-1.3 SUN
Ramdane, Abderrahim Ramelow Sven IB 1.2 MC	
Ramelow, Sven IB-1.2 MC Ramon, Céline Ramos, Ramon	F/IF-P7WFD
Ramos, Ramon	IC-2.2 TUF
Rampnoux, Jean-Michel Cl	F/IE-P.29 WED
Ramponi, Roberta	
	IA-2.5 MON,
IB-2.2 TUE, CL-6.5 TUE,	IA-2.5 MON, CM-7.1 THU
IB-2.2 TUE, CL-6.5 TUE, Rampp, Markus	IA-2.5 MON, CM-7.1 THU

Ramsey, Andrew J.	IA-P.12 THU
Ramunno, Lora	CL-4.2 MON
Ramunno, Lora	. ID-2.1 MON
Randoshkin, Ivan	CM-P.18 SUN
Ranella, Anthi	CM-2.2 SUN
Rangelov, Andon A Ranta, Sanna CB-4.3 TUE,	IF-3.4 SUN
Ranta, Sanna CB-4.3 TUE.	CB-10.2 THU
Rantamäki, Antti	CB-P.2 MON,
•CB-P.12 MON	
Rapp, Philipp	II-3.4 THU
Rarity, J.G.	IA-2.1 MON
Rarity, J.G Rarity, John CK-P.28 MON,	IA-6.6 WED.
•IB-5.2 THU, IA-P.16 THU,	IB-8.2 THU
Rarity, John G.	IA-P.12 THU
Rasel, Ernst Maria	ID-1.3 MON
Raspopin, Konstantin Rasskazov, Gennady Rastelli, Armando	CJ-P.9 WED
Rasskazov. Gennady	CD-P.42 TUE
Rastelli, Armando	. IH-P.4 THU
Rathje, Tim	.CG-2.3 TUE
Ratner, Justin	F/IE-3.6 SUN
Rattunde, Marcel	ĆB-4.5 TUE,
ISII-2.2 WED CB-10.5 TH	U
Rau, Markus	•IB-5.1 THU
Rausch, Stefan CF	/IE-P.1 WED.
CF/IE-9.1 WED	,
Rauschenberger, JensCl Rauschenbeutel, Arno	F/IE-3.2 SUN
Rauschenbeutel, Arno	ÍA-1.3 MON,
IA-4.3 WED	
Rautiainen, Jussi	CB-P.2 MON,
CB-P12 MON	
Ravagnan, LucaCF	/IE-10.5 THU
Ravaine, Serge	IE-P.32 WED
Ravaro, Marco	•CC-2.3 SUN
Ravet, Gautier	CJ-P.22 WED
Raybaut, Myriam	CD-5.1 MON,
CD-5.4 MON	
Razskazovskaya, Olga CF	/IE-5.6 MON,
CG-4.3 THU, CG-5.3 THU	
Reali, Giancarlo	CD-6.1 MON,
CE-6.3 TUE	
Reardon, Chris	. IB-1.3 MON
Reardon, Christopher	. CC-P.5 SUN
Rebollar, Esther	_M-P.31 SUN
Rebolledo, Miguel A Rebrova, Natalia Rechtsman, Mikael C	CJ-12.4 THU
Rebrova, Natalia	B-P.27 MON
Rechtsman, Mikael C	. CK-3.1 SUN
Recur, Benoit	CC-P.13 SUN
Recur, Benoit Redding, Brandon JSIII-1.3 WED, JSIII-1.5 W	CH-2.4 IUE,
JSIII-1.3 WED, JSIII-1.5 W	ED,
PD-A.7 WED	
Redeker, Kai	IB-P.12 MON
Regelskis, Kestutis CF/IE-P.19 WED, CJ-P.21	CD-P.5 TUE,
CF/IE-P.19 WED, CJ-P.21	
Regensburger, Alois	IG-2.2 WED
Reggentin, Matthias	CD 41 CUN
Reggentin, MatthiasC Rehbinder, JeanC CE-P.17 TUE	CD-4.1 SUN,
Reich, Oliver CH-2.2 TUE, (
Reich, Oliver CH-2.2 IUE, C	
Poichart Ephion	
Reichel, Jakob . IC-P.6 TUE Reichert, Fabian CA-P.3 SUN, •CJ-12.5 THU	CA-2.5 50N,
Reid, Derryck	, :/IE_2 3 SLIN
CF/IE-P.30 WED	/12-2.5 5014,
Reid, Derryck T.	ID-1.4 MON
Reilly, Sean	CA-1 2 SUN
Reimann, René	. IA-4.4 WED
Reimche, Wilfried	CH-4.2 THU
,	

Reinbard Andreas	
Reiniaru, Anureas	CC-1.2 SUN
Reinhard, Andreas Reinhardt, Carsten	CM-2.3 SUN
)
Reininger, Peter Reiserer, Andreas Reitböck, Cornelia Reithmeier, Eduard	
Reininger, Peter	CB-1.4 SUN
Reiserer, Andreas	IA-1.5 MON
Reitböck, Cornelia	. CD-P.19 TUE
Reithmeier Eduard	CL-P 2 SUN
CH-4.2 THU	
Reitz, Daniel	IA-4.3 WED
Reitzenstein, Stephan	.•CK-7.2 THU,
IB-5.1 THU Rekstyte, Sima Remita, Hynd	
Rekstyte. Sima	•CM-P.15 SUN
Remita Hynd	
Demons Carls and	
Rempe, Gerhard	IA-1.5 MON,
IA-4.2 WED	
Remy, Braive Ren, Guanghui Ren, Ximing	IA-7.3 THU
Ren. Guanghui	•CK-10.4 THU
Ren Ximing	ISII-1.2 WED
Ren, Yingying Renault, Anne Renner, MichaelCM	
Renault, Anne	CE-4.6 TUE
Renner, MichaelCM	-3/LIM.3 TUE,
II-4.2 THU	
II-4.2 THU Renninger, William•(Renversez, Gilles Renversez Renz, Günther Resch, KevinIA-3.1 MC Ressel, BarbaraCI Restoin, Christine Reuter, Rainer Rey, Isabella CK-8.1 THU	CF/IE-8.5 WED
Renversez Gilles Renversez	IE-P6 SUN
Renversez, Gines Renversez	
Renz, Gunther	•CA-P.20 50N
Resch, Kevin IA-3.1 MC	N, IB-8.3 THU
Ressel, BarbaraCl	F/IE-P.16 WED
Restoin, Christine	. CJ-P.38 WED
Reuter Rainer	CI-P31 WED
Rev Isabella	IB 13 MON
Rey, Isabella H	CK-2.5 50N,
CK-8.1 THU	
Reynaud, Serge	IH-2.2 WED
Rhodes, Charles K.	. CG-P.15 THU
Rhodes Michelle	CE/IE-3.6 SUN
Riboli Francesco	CK-P35 MON
Disoud Sondring	
	CA-5.2 TUL,
	=D
CL-F.9 TOL, CA-10.4 WL	
Rey, Isabella H. CK-8.1 THU Reynaud, Serge Rhodes, Charles K. Rhodes, Michelle Riboli, Francesco Ricaud, Sandrine CE-P.9 TUE, CA-10.4 WE Ricci, Aurelien	CF/IE-2.1 SUN,
CG-3.5 WED	
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	CK-P.2 MON CJ-10.4 THU CI-5.3 WED,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	CK-P.2 MON CJ-10.4 THU CI-5.3 WED,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	CK-P.2 MON CJ-10.4 THU CI-5.3 WED,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	CK-P.2 MON CJ-10.4 THU CI-5.3 WED,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	CK-P.2 MON CJ-10.4 THU CI-5.3 WED,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J	CK-P.2 MON CJ-10.4 THU CI-5.3 WED,
CG-3.5 WED Rice, James Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Daniel •CM-7.6 THU	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, elB-8.4 THU CD-6.6 MON CJ-1.3 SUN,
CG-3.5 WED Rice, James Richardson, Dave CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, OD-11.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU
CG-3.5 WED Rice, James Richardson, Dave CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, OD-11.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU
CG-3.5 WED Rice, James Richardson, Dave CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, OD-11.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU
CG-3.5 WED Rice, James Richardson, Dave CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, OD-11.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU
CG-3.5 WED Rice, James Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Daniel •CM-7.6 THU Richter, Frank Richter, Johannes Richter, Maria Richter, Sören	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, OD-11.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU
CG-3.5 WED Rice, James Richardson, Dave CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Nichter, Daniel Richter, Frank Richter, Frank Richter, Maria Richter, Sören •CM-6.6 THU	CK-P.2 MON CJ-10.4 THU CI-5.3 WED, •IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU •CE-1.3 MON •CG-7.6 THU CM-6.1 THU,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel • CM-7.6 THU Richter, Frank Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU O-11.5 WED OB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CK-7.5 THU CC-7.5 THU CG-7.6 THU CG-7.6 THU CM-6.1 THU,
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel •CM-7.6 THU Richter, Frank Richter, Johannes Richter, Maria Richter, Sören •CM-6.6 THU Rico, Mauricio Ridolfo. Alessandro	CK-P.2 MON CJ-10.4 THU Cl-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-6.6 MON CJ-1.3 SUN, CC-1.3 MON CG-7.6 THU .CM-6.1 THU, CA-P.10 SUN IA-6.5 WED
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel •CM-7.6 THU Richter, Frank Richter, Johannes Richter, Maria Richter, Sören •CM-6.6 THU Rico, Mauricio Ridolfo. Alessandro	CK-P.2 MON CJ-10.4 THU Cl-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-6.6 MON CJ-1.3 SUN, CC-1.3 MON CG-7.6 THU .CM-6.1 THU, CA-P.10 SUN IA-6.5 WED
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Daniel •CM-7.6 THU Richter, Frank Richter, Johannes Richter, Maria Richter, Sören •CM-6.6 THU Rico, Mauricio Ridolfo. Alessandro	CK-P.2 MON CJ-10.4 THU Cl-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-6.6 MON CJ-1.3 SUN, CC-1.3 MON CG-7.6 THU .CM-6.1 THU, CA-P.10 SUN IA-6.5 WED
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CI-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-7.5 THU CC-7.6 THU CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED CB-1.1 SUN CD-6.2 MON, 4 THU
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CI-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-7.5 THU CC-7.6 THU CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED CB-1.1 SUN CD-6.2 MON, 4 THU
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CI-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-7.5 THU CC-7.6 THU CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED CB-1.1 SUN CD-6.2 MON, 4 THU
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CI-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-7.5 THU CC-7.6 THU CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED CB-1.1 SUN CD-6.2 MON, 4 THU
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CI-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-7.5 THU CC-7.6 THU CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED CB-1.1 SUN CD-6.2 MON, 4 THU
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CI-5.3 WED, IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CC-7.5 THU CC-7.6 THU CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED CB-1.1 SUN CD-6.2 MON, 4 THU
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter •CM-7.6 THU Richter, Frank Richter, Frank Richter, Maria Richter, Sören •CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedle, Eberhard JSIV-2.2 MON, CF/IE-12 Riedrich-Möller, Janine Rieger, Steffen Rieländer, Daniel Rieznik, Andres A. Rizzi Pierre	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CJ-13.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED IB-1.1 SUN CJ-6.2 MON, 4 THU CJ-8.3 WED CJ-8.3 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.1 WED CJ-8.1 WED CJ-8.2 WED
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter •CM-7.6 THU Richter, Frank Richter, Frank Richter, Maria Richter, Sören •CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedle, Eberhard JSIV-2.2 MON, CF/IE-12 Riedrich-Möller, Janine Rieger, Steffen Rieländer, Daniel Rieznik, Andres A. Rizzi Pierre	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CJ-13.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED IB-1.1 SUN CJ-6.2 MON, 4 THU CJ-8.3 WED CJ-8.3 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.1 WED CJ-8.1 WED CJ-8.2 WED
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter •CM-7.6 THU Richter, Frank Richter, Frank Richter, Maria Richter, Sören •CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedle, Eberhard JSIV-2.2 MON, CF/IE-12 Riedrich-Möller, Janine Rieger, Steffen Rieländer, Daniel Rieznik, Andres A. Rizzi Pierre	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CJ-13.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED IB-1.1 SUN CJ-6.2 MON, 4 THU CJ-8.3 WED CJ-8.3 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.1 WED CJ-8.1 WED CJ-8.2 WED
CG-3.5 WED Rice, James Richardson, Dave Richardson, David J. CJ-10.6 THU Richardson, Martin Richart, Daniel L. Richter, Claus-Peter Richter, Claus-Peter Richter, Claus-Peter Richter, Johannes Richter, Johannes Richter, Johannes Richter, Sören • CM-6.6 THU Rico, Mauricio Ridolfo, Alessandro Riedi, Sabine Riedle, Eberhard SIMC 2.2 MONL CE/LE12	CK-P.2 MON CJ-10.4 THU CJ-10.4 THU CJ-13.5 WED IB-8.4 THU CD-6.6 MON CJ-1.3 SUN, CG-7.6 THU CG-7.6 THU CA-P.10 SUN IA-6.5 WED IB-1.1 SUN CJ-6.2 MON, 4 THU CJ-8.3 WED CJ-8.3 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.3 WED CJ-8.1 WED CJ-8.1 WED CJ-8.1 WED CJ-8.2 WED

Righini, RobertoCF/IE-P.44 WED Rigneault, HerveIF-P.1 SUN,
Rigneault, HerveIF-P.1 SUN,
IF-P.7 SUN, IF-4.4 SUN, •CD-4.5 SUN, CL-4.3 MON, CL-5.1 TUE, •IH-3.5 THU
CL-4.3 MON, CL-5.1 TUE, •IH-3.5 THU
Riikonen, Juha CE-2.4 MON Riis, Erling IF-P.13 SUN, IC-P.5 TUE,
Riis, Erling IF-P.13 SUN, IC-P.5 TUE,
IA-4.6 WED
Rios Leite, Jose R
Rios Leite, Jose R IG-5.3 THU Ristau, Detlev CE-9.2 WED Ristow, Oliver CE-1.2 MON,
Kistow, Oliver CE-1.2 MON,
CF/IE-12.2 THU Ritchie, DCC-2.6 SUN
Ritchie, David A CB-P.25 MON,
CB/CC-1.1 MON, PD-B.3 WED,
IB-6.4 THU
Ritter, Stephan•IA-1.5 MON
Rivard, Maxime
Rivas, Daniel CG-3.2 WED, CG-4.3 THU
Rivera-Perez, Emmanuel CJ-P.42 WED
Rivière, PaulaCG-7.3 THU
Riziotis, Christos•CH-P.10 THU
Rizza Carlo II-P 17 WFD
Ro, Jung Hoon
Roach, William CF/IE-6.2 MON
Robb, Gordon IF-3.2 SUN, IG-1.2 TUE,
IC-F.2 I UL
Robert-Philip, Isabelle CK-7.6 THU,
IA-P.2 THU
Robert, YannickCB-9.5 THU
Robin, ThierryCE-P.27 TUE Rode, AndreiCL-P.12 SUN
Rode, AndreiCL-P.12 SUN
Rödel, ChristianCH-4.4 THU
Röder, RobertCB-6.6 TUE
Röder, RobertCB-6.6 TUE Rodes, RobertoCI-P.1 TUE Rodoni, LucioCH-P.6 THU
Rodoni, Lucio CH-P.0 THU
Rodriguez, Brian Joseph CK-P.2 MON
Rodriguez-Cobos, Amparo .CJ-P.42 WED Rodríguez-Lara, Blas IB-3.4 TUE Rodriguez, Said RK II-P.15 WED
Rodriguez-Lara, Dias
Rodríguez Vázquez de Aldana, Javier
CD-P.34 TUE, CF/IE-P.40 WED
Roedig, PhilipIF-P.15 SUN
Roeloffzen, ChrisCI-2.4 TUE
Rogacheva, Alexandra V II-P.14 WED
Rogers, Helen CI-P.16 TUE, CH-P.1 THU
Rogers, Helen L CE-P.12 TUE
Rogers, Helen L CE-P.12 TUE Rohde, Peter PIB-2.3 TUE
Rohr, Sven . •PD-B.4 WED, CH-7.2 THU
Rohr, Sven .•PD-B.4 WED, CH-7.2 THU Rohrlapper, Timo
Rohrmann, Philipp•IF-1.3 SUN
Rohwer, Erich CD-P.49 TUE
Roither, StefanCG-1.5 TUE,
CG-2.3 TUE, CG-P.4 THU
Rojo-Romeo, PedroCK-1.4 SUN Roldán, EugenioIB-P.20 MON,
Koldan, EugenioIB-P.20 MON,
IG-P.6 THU Rolland, Antoine
Rolly, Brice
Romanelli, MarcoCH-2.7 TUE,
IG-P.5 THU
Romanov, Alexey•CE-P.21 TUE,
CE-P.31 TUE
Romanov, Sergei•CK-6.4 WED
Romashko, Roman
Romashko, Roman
•CI-4.6 WED

Romero, CarolinaCF/IE-P.40 WED
Ronning Carsten CB 6 6 THE
Ronning, CarstenCB-6.6 TUE Roos, C.F
Roos, C.F
Ropers, Claus•CF/IE-1.5 SUN
Röpke, Ulrich IF-2.1 SUN
Ropers, Claus •CF/IE-1.5 SUN Röpke, Ulrich IF-2.1 SUN Roppo, Vito IF-4.2 SUN Rorison, Judy •CB-P.15 MON
Rorison Judy •CB-P15 MON
Rosales, Ricardo
Rösch, Markus •CB/CC-1.2 MON Rose, PatrickJSIII-P.7 WED,
Rose, PatrickJSIII-P./ WED,
CD-11.4 WED
Rosenbusch, Peter IC-P.6 TUE
Rosencher, Emmanuel CD-P.28 TUE
Rosencher, EmmanuelCD-P.28 TUE Rosenfeld, WenjaminIB-P.12 MON,
IB-3.2 TUE
Röser, Fabian CA-8.1 WED
Roskos, Hartmut
Roslund, JonathanID-1.6 MON,
•IA-5.2 WED
Roso, LuisCG-6.4 THU
Rossetti, MattiaCB-4.2 TUE
Rossi, Jussi CH-5.4 THU
Rost, Jan-MichaelCG-7.3 THU
Rotenberg, Nir CK-2.3 SUN, IH-1.1 SUN,
Rotenberg, Nir CK-2.3 SUN, IH-1.1 SUN, •IH-1.4 SUN, II-P.3 WED, •II-P.16 WED,
CK-8.1 THU. CF/IE-11.5 THU
Rotermund, Fabian CB-4.5 TUE,
•CA-6.1 TUE
Roth, BernhardCL-P.2 SUN
Roth, M.MCK-P.18 MON
Roth Markus CC 4 4 THU
Roth, MarkusCG-4.4 THU Roth, Martin M•CK-P.16 MON,
CD-P.11 TUE
Rothhardt, Jan
Rothhardt, Jan CD-6.5 MON, CJ-4.3 MON, CG-4.5 THU,
•CG-6.2 THU
•CG-6.2 THU Rothhardt. Manfred
•CG-6.2 THU Rothhardt. Manfred
•CG-6.2 THU
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU
•CG-6.2 THU Rothhardt, Manfred CJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, Philipp CF/IE-13.1 THU Rotter Stefan CB/CC-1 3 MON
•CG-6.2 THU Rothhardt, Manfred CJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, Philipp CF/IE-13.1 THU Rotter Stefan CB/CC-1 3 MON
•CG-6.2 THU Rothhardt, Manfred CJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, Philipp CF/IE-13.1 THU Rotter Stefan CB/CC-1 3 MON
•CG-6.2 THU Rothhardt, Manfred CJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, Philipp CF/IE-13.1 THU Rotter Stefan CB/CC-1 3 MON
•CG-6.2 THU Rothhardt, Manfred CJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, Philipp CF/IE-13.1 THU Rotter Stefan CB/CC-1 3 MON
•CG-6.2 THU Rothhardt, Manfred CJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, Philipp CF/IE-13.1 THU Rotter Stefan CB/CC-1 3 MON
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Rov Choudhury, Kaushik IA-61 WED
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Rov Choudhury, Kaushik IA-61 WED
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN,
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCJ-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-Philippe .CF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, Vincent
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-Philippe .CF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-11.4 THU Royon, Romain
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-Philippe .CF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-11.4 THU Royon, RomainCJ-6.1 WED, •CJ-P.18 WED Rozema, Lee AIG-3.5 WED,
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwitt, KarstenCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCl-2.3 TUE Rousseau, Jean-PhilippeCJ-P.38 WED Roy, Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentCJ-6.1 WED, •CJ-P.18 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCJ-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-Philippe .CF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-11.4 THU Royon, RomainCJ-6.1 WED, CJ-P.18 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU Rozhin, AlekseyIG-4.3 THU Rozino, EleonoraC-3.3 SUN
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCl-2.3 TUE Rousseau, Jean-PhilippeCJ-P.38 WED Roy, Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentCJ-6.1 WED, •CJ-P.18 WED Rozema, Lee A
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwitt, KarstenCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-Philippe .CF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, Vincent
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwitt, KarstenCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-Philippe .CF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, Vincent
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-11.4 THU Royon, RomainCJ-6.1 WED, vCJ-P.38 WED, CF/IE-8.2 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU Rozinin, AlekseyIG-4.3 THU Rozinin, AlekseyIG-4.3 THU Rubino, EleonoraC-3.3 SUN Rubinszstein-Dunlop, Halina CH-6.2 THU Rubio, AngelIH-P.21 THU Ruchert, ClemensCF/IE-9.1 WED
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwirt, KarstenCD-P.31 TUE Rougier, SébastienCD-P.31 TUE Rousseau, Jean-PhilippeCJ-2.3 TUE Rousseau, Jean-PhilippeCJ-2.3 TUE Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeCJ-11.4 THU Royon, RomainCJ-6.1 WED Rozema, Lee AIG-3.5 WED, •CJ-P.18 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU Rozhin, AlekseyIG-4.3 THU Rozin, CI-2.3 TUU Rubino, EleonoraC-3.3 SUN Rubinszstein-Dunlop, Halina CH-6.2 THU Rubio, AngelCJ-3.3 SUN Rudawski, PiotrCJ-11.4 WED Rudé. MInuel
• CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwitt, KarstenCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeOJ-0.3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentOJ-6.1 WED, vCJ-P.18 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU Rozin, AlekseyIG-4.3 THU Rozzi, Carlo AIH-P.21 THU Rubino, EleonoraCC-3.3 SUN Rubinszstein-Dunlop, Halina CH-6.2 THU Rubio, AngelIH-P.21 THU Ruchert, ClemensCC-1.3 SUN Rudawski, PiotrCF/IE-9.1 WED Rudé, MiquelCI-12 TUE Rude, MiquelCI-12 TUE
• CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwitt, KarstenCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeOJ-0.3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentOJ-6.1 WED, •CJ-P.18 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU Rozin, AlekseyIG-4.3 THU Rozzi, Carlo AIH-P.21 THU Rubino, EleonoraCC-3.3 SUN Rubinszstein-Dunlop, Halina CH-6.2 THU Rubio, AngelIH-P.21 THU Ruchert, ClemensCC-1.3 SUN Rudawski, PiotrCF/IE-9.1 WED Rudé, MiquelCI-12 TUE Rude, MiquelCI-12 TUE
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCl-2.3 TUE Rousseau, Jean-PhilippeCJ-P.38 WED Roy, Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentCJ-6.1 WED, Rozema, Lee A
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCl-2.3 TUE Rousseau, Jean-PhilippeCJ-P.38 WED Roy, Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentCJ-6.1 WED, Rozema, Lee A
•CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rotter, StefanCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCl-2.3 TUE Rousseau, Jean-PhilippeCJ-P.38 WED Roy, Choudhury, KaushikIA-6.1 WED Roy, PhilippeCD-3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentCJ-6.1 WED, Rozema, Lee A
• CG-6.2 THU Rothhardt, ManfredCJ-1.4 SUN, CH-1.4 MON, CH-2.3 TUE, CJ-9.1 THU, CJ-10.6 THU Rothhardt, PhilippCF/IE-13.1 THU Rottwitt, KarstenCB/CC-1.3 MON Rottwitt, KarstenCD-P.31 TUE Rougier, SébastienCJ-P.38 WED Rouifed, Mohamed-SaidCI-2.3 TUE Rousseau, Jean-PhilippeCF/IE-2.1 SUN Roy Choudhury, KaushikIA-6.1 WED Roy, PhilippeOJ-0.3.3 SUN, CJ-P.38 WED, CF/IE-8.2 WED Roy, VincentOJ-6.1 WED, •CJ-P.18 WED Rozema, Lee AIG-3.5 WED, •IB-6.2 THU Rozin, AlekseyIG-4.3 THU Rozzi, Carlo AIH-P.21 THU Rubino, EleonoraCC-3.3 SUN Rubinszstein-Dunlop, Halina CH-6.2 THU Rubio, AngelIH-P.21 THU Ruchert, ClemensCC-1.3 SUN Rudawski, PiotrCF/IE-9.1 WED Rudé, MiquelCI-12 TUE Rude, MiquelCI-12 TUE

CJ-12.4 THU	
Ruiz, Myke	CB-4.2 TUE
Ruiz-Rivas, Joaquín Rumpel, Martin •CA-9.2 WED	IG-P6 THU
Duranal Mantin	
Rumpel, Martin	CA-P.25 50N,
•CA-9.2 WED	
Runge, Antoine	CJ-P.6 WED,
•JSIII-2.3 WED, PD-A.2	WED
•JSIII-2.5 WED, I D-A.2	WED,
CJ-9.4 THU	
Ruostekoski, Janne Rus, Bedrich Rußbüldt, Peter Russell, N IH-1.5 SUN, CK-4.1 SUI CF/IE-P.14 WED	IH-P.22 THU
Rus Bedrich	CG-4.2 THU
Bulkhäldt Deter	
Rusbuldt, Peter	CD-9.2 TUE
Russell, N	IA-2.1 MON
Russell, Philip CD-1.3 SU	JN. CD-3.6 SUN.
IH-1 5 SUN CK-4 1 SUI	N
	ч,
CF/IE-P.14 WED	
Russell, Philip St.J. CL-2/ECBO.3 SUN, CF,	CD-3.5 SUN,
CL-2/ECBO.3 SUN. CF.	/IE-6.6 MON.
	ни
IG-P.13 THU, CH-6.1 T Russo, Giuseppe Rusteika, Nerijus Rüter, Christian E.	
Russo, Giuseppe	CB-0.1 TUE
Rusteika, Nerijus	CF/IE-P.19 WED
Rüter Christian F	CK-P8 MON
•CE-P.3 TUE, CJ-P.17 V	VED
•CE-P.3 TUE, CJ-P.17 V	
Rutkowska, Katarzyna Rutkunas, Vygandas Ryabtsev, Anton Ryabushkin, Oleg	•CD-P.27 TUE
Rutkunas, Vygandas	CM-P.15 SUN
Ryphtsey Anton	CD P 42 THE
Ryabushkin, Oleg	CE-P.18 TUE,
CE-8.5 WED	
Rybak, Andrey Rybarczyk, Théo Ryczkowski, Piotr	•C I-6 5 WED
Pybarczyle Théo	
Rybarczyk, Theo	
Ryczkowski, Piotr	. •CD-P.43 TUE,
CJ-9.6 I HU	
Rytikov, Georgy Rytz, DanielCA-4.2 SU	IA-P 17 THU
Deta Desial CA 40 CL	
Rylz, DanielCA-4.2 St	JN, CA-5.2 TUE,
CA-5.4 TUE	
Saalmann, Ulf	CG-7.3 THU
Saalmann, Ulf	CG-7.3 THU CG-7 3 THU
Saalmann, Ulf Sabbar, Mazyar	CG-7.3 THU CG-7.3 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7 4 THU	CG-7.3 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7 4 THU	CG-7.3 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7 4 THU	CG-7.3 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7 4 THU	CG-7.3 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana	CG-7.3 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safairia Pachid	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safairia Pachid	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safairia Pachid	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safairia Pachid	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safairia Pachid	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Safiei, Ali IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safais, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CL-P.25 WED	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sada, Cinzia Sadavnikova, Yana CJ-12.1 THU Safaisini, Rashid Safaisini, Rashid Safiei, Ali Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sada, Cinzia Sadavnikova, Yana CJ-12.1 THU Safaisini, Rashid Safaisini, Rashid Safiei, Ali Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sada, Cinzia Sadavnikova, Yana CJ-12.1 THU Safaisini, Rashid Safaisini, Rashid Safiei, Ali Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Safiei, Ali G-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED •CM-5.2 WED CB-P.1 MON,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED •CM-5.2 WED CB-P.1 MON,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED •CM-5.2 WED CB-P.1 MON,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, •PD-B.5 WED •CM-5.2 WED CB-P.1 MON,
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CB-P.1 MON, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CB-P.1 MON, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CB-P.1 MON, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.31 TUE CJ-P.13 TUE CJ-P.34 WED CJ-P.34 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.31 TUE CJ-P.13 TUE CJ-P.34 WED CJ-P.34 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.31 TUE CJ-P.13 TUE CJ-P.34 WED CJ-P.34 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.31 TUE CJ-P.13 TUE CJ-P.34 WED CJ-P.34 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.31 TUE CJ-P.13 TUE CJ-P.34 WED CJ-P.34 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CE-P.35 TUE CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CB-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.31 TUE CJ-P.13 TUE CJ-P.34 WED CJ-P.34 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Condu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Saito, Norihito Sakagawa, Tomokazu Sakagawa, Tomokazu Sakata, Hajime Sakellari, Ioanna Sakoda, Kazuaki Sala, Filip	CG-7.3 THU, CJ-2.4 SUN CJ-7.6 WED, CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CL-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-10.6 THU CJ-P.13 TUE CJ-P.13 WED CJ-P.13 WED CJ-P.13 WED CK-3.5 SUN CK-3.5 SUN CJ-P.44 TUE CK-3.2 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Condu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Saito, Norihito Sakagawa, Tomokazu Sakagawa, Tomokazu Sakata, Hajime Sakellari, Ioanna Sakoda, Kazuaki Sala, Filip	CG-7.3 THU, CJ-2.4 SUN CJ-7.6 WED, CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CL-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-10.6 THU CJ-P.13 TUE CJ-P.13 WED CJ-P.13 WED CJ-P.13 WED CK-3.5 SUN CK-3.5 SUN CJ-P.44 TUE CK-3.2 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Condu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Saito, Norihito Sakagawa, Tomokazu Sakagawa, Tomokazu Sakata, Hajime Sakellari, Ioanna Sakoda, Kazuaki Sala, Filip	CG-7.3 THU, CJ-2.4 SUN CJ-7.6 WED, CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CL-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-10.6 THU CJ-P.13 TUE CJ-P.13 WED CJ-P.13 WED CJ-P.13 WED CK-3.5 SUN CK-3.5 SUN CJ-P.44 TUE CK-3.2 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sada, Cinzia Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 TH CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Condu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayantah Saito, Norihito Sakagawa, Tomokazu Sakagawa, Tomokazu Sakata, Hajime Sakellari, Ioanna Sakoda, Kazuaki Sala, Filip	CG-7.3 THU, CJ-2.4 SUN CJ-7.6 WED, CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CL-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-10.6 THU CJ-P.13 TUE CJ-P.13 WED CJ-P.13 WED CJ-P.13 WED CK-3.5 SUN CK-3.5 SUN CJ-P.44 TUE CK-3.2 WED
Saalmann, Ulf Sabbar, Mazyar CG-7.4 THU Saby, Julien Sadovnikova, Yana CJ-12.1 THU Safaisini, Rashid Safiei, Ali Sagnes, Isabelle IG-3.2 WED, PD-A.5 W CK-7.6 THU, CK-8.2 Th CB-10.3 THU Saha, Maitreyee CJ-P.25 WED Sahin, Dondu Sahin, Ramazan Sahm, Alexander CB-P.11 MON Sahu, Jayanta Sahu, Jayanta Sahu, Jayanta Sahu, Jayantah Sahu, Jayantah Sakamoto, Takahide	CG-7.3 THU, CJ-2.4 SUN CJ-7.6 WED, CJ-7.6 WED, CB-7.1 THU CC-2.1 SUN CC-2.1 SUN CL-P.18 MON, ED, HU, IH-4.4 THU, CJ-P.1 WED, CJ-P.1 WED, CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.35 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-P.37 WED CJ-10.6 THU CJ-P.13 TUE CJ-P.13 WED CJ-P.13 WED CJ-P.13 WED CK-3.5 SUN CK-3.5 SUN CJ-P.44 TUE CK-3.2 WED

Salin, François .CA-1.3 SUN, CJ-2.4 SUN	
Salomon, Adi II-1.5 WED	
Salter, Cameron L PD-B.3 WED Salzenstein, Patrice IG-4.6 THU	
Salzenstein, Patrice	
Samanta, Goutam Kumar CD-9.1 TUE	
Sames, Christian IA-4.2 WED Samuel, Deléglise IA-7.3 THU Samuelson, Lars CE-3.1 MON	
Samuel. Deléglise IA-7.3 THU	
Samuelson Lars •CE-3.1 MON	
San-Emeterio-Alvarez, Lara JSV-P.1 TUE	
San Román, JulioCF/IE-3.2 SUN,	
San Roman, JulioCF/IE-3.2 SUN,	
CF/IE-P.40 WED	
Sanatinia, Reza CE-P.2 TUE	
Sánchez, Christian	
Sanchez-Curto, Julio IF-2.3 SUN	
Sanchez-Curto, Julio IF-2.3 SUN Sand, Johan . IF-1.5 SUN, •JSII-P.1 WED	
Sandner Wolfgang CE/IE 4 5 SUN	
Sandarhdan Vahid DD R 2 WED	
Sandner, Wolfgang CF/IE-4.5 SUN Sandoghdar, Vahid PD-B.2 WED Sangar, Alexandre CK-P.26 MON	
Sangar, AlexandreCK-P.20 MON	
Sangla, Damien CA-1.3 SUN, CJ-2.4 SUN	
Sangouard, Nicolas	
Sankar, Siva CA-5.6 TUE	
Sanner, Nicolas CM-1.5 SUN	
Sansone, Giuseppe	
Sansoni, Linda •IB-2.2 TUE, CM-7.1 THU Santagati, RIA-2.1 MON	
Santagati R IA-21 MON	
Santamato, A IA-2.1 MON	
Santamato, A	
Santamato, Enrico IB-P.2 MON Santarelli, Giorgio ID-P.6 MON,	
Santarelli, Giorgio ID-P.6 MON,	
ID-3.4 MON	
Santos, José Domingo CE-P.16 TUE	
Santra, Robin•CG-6.1 THU	
Sanvitto, Daniele IG-3.1 WED,	
Sanvitto, Daniele IG-3.1 WED, IG-3.6 WED	
Sanz, Mikel CM-P.31 SUN	
Saraceno, Clara CA-5.1 TUE Sarger, LaurentCJ-6.1 WED,	
CJ-P.18 WED	
Sarma, Raktim JSIII-1.5 WED,	
PD-A.7 WED	
Sarzala, Robert P CB-P.34 MON,	
CB-P.40 MON	
Sasagawa, Takao CF/IE-P.33 WED Sasaki, MasahideIB-P.10 MON	
Sasaki, MasahideIB-P.10 MON	
Sasaki. Tokuhito	
Seester: Veshinghu CAD1ESUN	
Sasatani, Yoshinomu CA-8.6 WED	
Sata Manabu	
Sasatahi, YoshinobuCA-F.15 SON Sasatahi, YoshinobuCA-8.6 WED Sato, ManabuCA-10.1 WED Sato, MassakiCC-4.2 SUN Sato, TakahiroCF/IE-5.4 MON Sato, TatsuhiroCI-7.27 WED Sato, YasuakiCE-7.4 WED Sato, TakahiroCF.7.4 WED	
Sato, Takaniro CF/IE-5.4 MON	
Sato, TatsuhiroCJ-P.27 WED	
Sato, YasuakiCE-7.4 WED	
Sauer, Markus CL-3.2 MON	
Saunders, John CH-P.17 THU	
Savage, RickCH-6.5 THU	
Savasta Salvatore	
Savasta, SalvatoreIA-6.5 WED Savatier, JulienCL-4.3 MON	
Savelli Inna CD 1 4 CUN	
Savelli, InnaCD-1.4 SUN	
Savelli, Inna	
Savelli, Inna	
Savelli, InnaCD-1.4 SUN Savelyev, AndreyJSI-1.4 MON Saviauk, AllarCH-1.5 MON Savinov, VassiliCC-2.4 SUN,	
Savelli, InnaCD-1.4 SUN Savelyev, AndreyJSI-1.4 MON Saviauk, AllarCH-1.5 MON Savinov, VassiliCC-2.4 SUN, •II-P.14 WED	
Savelli, InnaCD-1.4 SUN Savelyev, AndreyJSI-1.4 MON Saviauk, AllarCH-1.5 MON Savinov, VassiliCC-2.4 SUN, •II-P.14 WED Savitski, VasiliCA-1.2 SUN,	
Savelli, Inna	
Savelli, InnaCD-1.4 SUN Savelyev, AndreyJSI-1.4 MON Saviauk, AllarCH-1.5 MON Savinov, VassiliCC-2.4 SUN, •II-P.14 WED Savitski, VasiliCA-1.2 SUN, •CA-10.5 WED Savona, VincenzoIH-P.2 THU	
Savelli, InnaCD-1.4 SUN Savelyev, AndreyJSI-1.4 MON Saviauk, AllarCH-1.5 MON Savinov, VassiliCC-2.4 SUN, •II-P.14 WED Savitski, VasiliCA-1.2 SUN, •CA-10.5 WED Savona, VincenzoIH-P.2 THU Savva, KyriakiCM-P.2 SUN	
Savelli, InnaCD-1.4 SUN Savelyev, AndreyJSI-1.4 MON Saviauk, AllarCH-1.5 MON Savinov, VassiliCC-2.4 SUN, •II-P.14 WED Savitski, VasiliCA-1.2 SUN, •CA-10.5 WED Savona, VincenzoIH-P.2 THU	

Sawallich, SimonCC-2.1 SUN,
CK-9.4 THU
Sayinc, Hakan CJ-1.2 SUN, CE-4.2 TUE,
CJ-8.5 WED
Säynätjoki, Antti•CE-2.4 MON,
CE-3.4 MON
Sayrin, Clement IA-4.3 WED
Sazio, Pier CM-8.6 THU
Scalari, GiacomoCC-P.1 SUN,
CB/CC-1.2 MON, CB/CC-1.5 MON,
•II-1.2 WED
Scarani, Valerio IA-4.5 WED
Scarcella, Carmelo IA-3.1 MON,
IB-8.3 THU
Scarpignato, Gerardo Cristian
•CJ-P.36 WED
Schacht, MartinCA-9.2 WED Schad, FlorianCH-P.16 THU
Schad, Florian•CH-P.16 THU
Schade, Wolfgang CM-P.16 SUN
Schaeffer, ChristianCl-1.2 MON
Schanne-Klein, Marie-Claire •CL-P.4 SUN,
•CL-5.5 TUE
Schapiro, I
Schäptigen Fering
Schättiger, Farina
Scheel, PatriciaCF/IE-12.2 THU
Scheer, Elke CF/IE-12.2 THU
Schell, Andreas W
•CK-7.1 THU
Scheller, MaikCC-3.1 SUN
Schellhorn Martin •CA-3.3 SUN
Scherman, Michael IA-6.2 WED
Scherman, Michael IA-6.2 WED Scheuer, Jacob CI-5.6 WED Schiavi, Andrea CG-5.4 THU
Schiavi Andrea CG-5.4 THU
Schilke, AlexanderIF-3.3 SUN Schiller, StephanCB-2.7 SUN,
Schiller, Stephan•CB-2.7 SUN,
•ID-1.3 MON
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE,
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg•CD-P.36 TUE
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg•CD-P.36 TUE
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg •CD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON,
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg •CD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON,
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg CD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schlosser, Peter JCB-10.1 THU
•ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schlosser, Peter JCB-10.1 THU
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schlosser, Peter JCB-10.1 THU Schmauss, BernhardCI-P.14 TUE Schmeissner, RomanID-1.6 MON,
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schlosser, Peter JCB-10.1 THU Schmauss, BernhardID-1.6 MON, •ID-P.1 MON
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schlosser, Peter JCB-10.1 THU Schmauss, BernhardID-1.6 MON, •ID-P.1 MON
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schlosser, Peter JCB-10.1 THU Schmauss, BernhardCI-P.14 TUE Schmeissner, RomanID-1.6 MON, •ID-P.1 MON Schmid, Jens HCK-9.3 THU Schmid, Silvan CH-6.3 THU
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilling, JoergCP.15 SUN Schindler, Philipp CCK-9.2 THU Schlesser, AlbertID-2.4 MON, CH-6.3 THU Schnesser, Peter JCB-10.1 THU Schmauss, BernhardCI-P.14 TUE Schmeissner, RomanID-1.6 MON, ID-P.1 MON Schmid, Jens HCK-9.3 THU Schmid, SilvanCH-6.3 THU Schmidberrer, Michael JIG-P.13 THU
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilling, JoergCP.15 SUN Schindler, Philipp CCK-9.2 THU Schlesser, AlbertID-2.4 MON, CH-6.3 THU Schnesser, Peter JCB-10.1 THU Schmauss, BernhardCI-P.14 TUE Schmeissner, RomanID-1.6 MON, ID-P.1 MON Schmid, Jens HCK-9.3 THU Schmid, SilvanCH-6.3 THU Schmidberrer, Michael JIG-P.13 THU
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schnosser, Peter JCB-10.1 THU Schmeissner, RomanID-1.6 MON, •ID-P.1 MON Schmid, Jens HCK-9.3 THU Schmid, SilvanCH-6.3 THU Schmid, SilvanCH-6.3 THU Schmid, SilvanCH-6.3 THU Schmid, SilvanCH-6.3 THU Schmid, Ser, Michael JGE-P.13 THU Schmidt, AlbrechtCC-1.2 SUN Schmidt AndreasCB-5 TUE
ID-1.3 MON Schilling, ChristianCB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, JoergCD-P.36 TUE Schilt, StéphaneCC-P.15 SUN Schindler, Philipp CCK-9.2 THU Schliesser, AlbertID-2.4 MON, CH-6.3 THU Schnosser, Peter JCB-10.1 THU Schmeissner, RomanID-1.6 MON, •ID-P.1 MON Schmid, Jens HCK-9.3 THU Schmid, SilvanCH-6.3 THU Schmid, SilvanCH-6.3 THU Schmid, SilvanCH-6.3 THU Schmid, SilvanCH-6.3 THU Schmid, Ser, Michael JGE-P.13 THU Schmidt, AlbrechtCC-1.2 SUN Schmidt AndreasCB-5 TUE
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 ID-1.3 MON Schilling, Christian CB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg CD-P.36 TUE Schilling, Joerg CD-P.36 TUE Schindler, Philipp C CK-9.2 THU Schiesser, Albert ID-2.4 MON, CH-6.3 THU Schosser, Peter J CB-10.1 THU Schmauss, Bernhard CI-P.14 TUE Schmid, Jens H CK-9.3 THU Schmid, Silvan CK-9.3 THU Schmidt, Albrecht CG-1.2 SUN Schmidt, Bernhard OF-13 THU Schmidt, Bernhard OF-13 THU Schmidt, Bernhard OF-12 MON Schmidt, Bernhard CJ-P.31 WED Schmidt, Jochen CJ-P.31 WED Schmidt, Markus CJ-9.3 UN, IH-1.5 SUN Schmidt, Matthias CH-6.1 THU Schmidt, Oliver A CL-2/ECBO.3 SUN Schmidt, Slawa IH-9.4 THU Schmidt, Slawa IH-9.4 THU Schmidt, Slawa IH-6.1 THU Schmidt, Slawa IH-7.3 THU Schmidt, Slawa IH-7.3 THU
ID-1.3 MON Schilling, Christian CB-4.5 TUE, JSII-2.2 WED, JSII-P.2 WED Schilling, Joerg CD-P.36 TUE Schills, Stéphane CD-P.36 TUE Schilt, Stéphane CC-P.15 SUN Schindler, Philipp C CK-9.2 THU Schlesser, Albert ID-2.4 MON, CH-6.3 THU Schlosser, Peter J CB-10.1 THU Schmauss, Bernhard CI-P.14 TUE Schmeissner, Roman ID-1.6 MON, •ID-P.1 MON Schmid, Jens H CK-9.3 THU Schmidberger, Michael J. •IG-P.13 THU Schmidt, Albrecht CC-1.2 SUN Schmidt, Bruno CF/IE-9.5 WED Schmidt, Bruno CF/IE-9.5 WED Schmidt, Jochen CJ-P.31 WED Schmidt, Jochen CJ-P.31 WED Schmidt, Markus CJ-P.31 WED Schmidt, Markus CL-2/ECBO.3 SUN Schmidt, Oliver A CL-2/ECBO.3 THU Schmidt, Slava

Schnatz, HaraldID-1.2 MON
Schneeweiss, Philipp•IA-4.3 WED
Schneeweiss, Philipp •IA-4.3 WED Schneider, Christian CK-7.2 THU,
Schneider, Waldemar CD-9.2 TUE
Schnitzler, Claus CF/IE-4.3 SUN
Schnürer, Matthias CF/IE-4.5 SUN
Schöffler, MarkusCG-1.5 TUE,
Schneider, Waldemar CD-9.2 TUE Schnitzler, Claus CF/IE-4.3 SUN Schöffler, Matthias CF/IE-4.5 SUN Schöffler, Markus CG-1.5 TUE, CG-2.3 TUE, CG-P.4 THU
Scholl, EckenardCB-5.1 TUE,
IH-6.3 THU
Scholle, Karsten
Schönfeld, Rolf Simon IA-3.2 MON
Schonnagel, HorstCF/IE-4.5 SUN
Schönnagel, Horst CF/IE-4.5 SUN Schramm, HeikoIH-P.21 THU Schramm, Ulrich CA-8.1 WED
Schreck, Matthias
Schreiber Andreas IB-2.3 THE
Schreiber, AndreasIB-2.3 TUE Schreiber, EmilCJ-P.16 WED
Schreiber, Thomas
Schreiber, ThomasCJ-1.3 SUN Schrenk, WernerCB-1.4 SUN,
CB-2.3 SUN, CB/CC-1.3 MON,
CB/CC-1.6 MON
Schriber, Cinia•CA-5.1 TUE
Schrobenhauser, Robert •CH-2.5 TUE
Schröder, Jochen•CD-10.2 TUE
Schubert, MartinCF/IE-12.2 THU
Schrobenhauser, Robert •CH-2.5 TUE Schröder, Jochen•CD-10.2 TUE Schubert, MartinCF/IE-12.2 THU Schubert, Olaf•CF/IE-5.1 MON Schug, Michael IB-P.6 MON, •IB-3.1 TUE Schüldin Elarian
Schug, Michael IB-P.6 MON, •IB-3.1 TUE
Schülein, Florian
Schultze, MarcelCF/IE-9.4 WED
Schulz, Sebastian CC-P.5 SUN
Schulz, Wolfgang-Michael IA-3.5 MON
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED,
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, •IH-5 5 THU
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Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter S JSII-2.3 WED Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE. CF/IE-8.2 WED
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter GCD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, AlonCF/IE-P.10 WED
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter S CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED
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Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, •IH-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay .IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain •IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt •IC-P.6 TUE, Schwarz, Benedikt •IC-1.4 SUN Schwarz, Stefan CF/IE-1.1 WED Schwarz, Stefan CF/IE-1.2 THU Schwarz, Ulrich T CF/IE-1.2 THU
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Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter GCD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-9.10 WED Schwartz, Alon ICF/IE-9.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel Schwarz, SII-2.1 WED Schwarz, Stefan CI-1.2 MON Schwarz, Ulrich T. CF/IE-11.2 THU Schwarzbäck, Thomas CB-10.4 THU Schwarzer, Clemens CB-2.3 SUN Schwarzl, Thomas CB-10.4 THU Schwarzl, Harald G.L. CE-9.3 WED
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain CF/IE-P.10 WED Schwartz, Sylvain CF/IE-9.10 WED Schwarz, Senedikt CB-1.4 SUN Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel SII-2.1 WED Schwarz, Stefan CI-1.2 MON Schwarz, Ulrich T CF/IE-11.2 THU Schwarzeh, Thomas CB-2.3 SUN Schwarz, Thomas CB-10.4 THU Schwarz, Thomas CB-10.4 THU Schwefel, Harald G.L. CE-9.3 WED Schwob, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciamanna, Marc CB-5.2 TUE,
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter GCD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, AlonCF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel Schwarz, Ulrich TCF/IE-1.2 TWED Schwarz, Stefan CI-1.2 MON Schwarz, Ulrich TCF/IE-11.2 THU Schwarz, CB-0.4 TUE Schwarz, Clemens CB-2.3 SUN SchwarzI, Thomas CB-0.4 THU SchwerzI, Thomas CB-0.4 THU SchwereI, Harald G.LCE-9.3 WED Schwob, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Scimanna, MarcCB-5.2 TUE, IG-P 15 THU
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel Schwarz, Ulrich T. CF/IE-11.2 THU Schwarz, Stefan CI-1.2 MON Schwarz, Ulrich T. CF/IE-11.2 THU Schwarz, Ulrich T. CF/IE-11.2 THU Schwarz, Clemens CB-2.3 SUN Schwarz, Thomas CB-10.4 THU Schwarz, THI G.L. CE-9.3 WED Schwob, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciarrino, Fabio IB-P.2 MON,
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter SCD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, AlonCF/IE-P.10 WED Schwartz, Sylvain CF/IE-P.10 WED Schwartz, Sylvain CF/IE-9.10 WED Schwartz, Sylvain CF/IE-9.10 WED Schwartz, Sylvain CF/IE-9.10 WED Schwarz, Stefan C. CF/IE-9.10 WED Schwarz, Muriel Schwarz, Ulrich TCF/IE-11.2 THU Schwarz, Ulrich TCF/IE-11.2 THU Schwarz, Ulrich TCF/IE-11.2 THU Schwarz, Clemens CB-2.3 SUN Schwarzer, Clemens CB-2.3 SUN Schwarzer, Clemens CB-10.4 THU Schwarzer, Thomas CB-10.4 THU Schwarzer, Thomas CB-10.4 THU Schwarzer, THU Schwarzer, THU Sciamanna, Marc CB-5.2 TUE, IG-P.15 THU Sciarrino, FabioIB-P.2 MON, IB-P.4 MON, IA-2.5 MON, IB-2.1 TUE,
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, •IH-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain •IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt •IC-P.6 TUE, CA-10.6 WED Schwarz, Muriel SII-2.1 WED Schwarz, Muriel
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, •IH-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain •IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CF/IE-11.2 TWED Schwarz, Stefan CF/IE-11.2 THU Schwarz, Stefan CB-2.3 SUN Schwarz, Ilrich T CF/IE-11.2 THU Schwarzeh, Clemens CB-2.3 SUN Schwarz, Thomas CB-2.3 SUN Schwarz, Thomas CB-2.3 WED Schwarz, Thomas CB-3.4 THU Schwarzel, Thomas CB-3.4 THU Schwarzel, Thomas CB-2.3 WED Schwob, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciamanna, Marc CB-5.2 TUE, IG-P.15 THU Sciarrino, Fabio IB-2.1 TUE, IB-2.2 TUE, CM-7.1 THU Scotognella, Francesco CF/IE-10.5 THU
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, SylvainIC-P.6 TUE, CA-10.6 WED Schwarz, BenediktISI-2.1 WED Schwarz, BenediktISI-2.1 WED Schwarz, StefanCF/IE-11.2 THU Schwarz, Ulrich T CF/IE-11.2 THU Schwarz, Ulrich T CF/IE-11.2 THU Schwarze, ClemensISI-2.3 SUN Schwarz, ThomasCB-2.3 SUN Schwarz, ThomasCB-10.4 THU Schwarz, ThomasCB-10.4 THU Schwarzer, ClemensCB-2.3 SUN Schwarz, ThomasCB-10.4 THU Schwefel, Harald G.LCE-9.3 WED Schwob, CatherineCK-9.2 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciamanna, MarcCB-5.2 TUE, IG-P.15 THU Sciamanna, MarcCB-5.2 TUE, IG-P.15 THU Sciamanna, MarcCB-2.1 TUE, IB-2.2 TUE, CM-7.1 THU Scotognella, FrancescoCG-1.3 THU Scars, Chris
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt ISI-2.1 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CF/IE-11.2 TWD Schwarz, Ulrich T CF/IE-11.2 THU Schwarz, CI-12 MON Schwarz, Ulrich T CF/IE-11.2 THU Schwarzl, Thomas CB-2.3 SUN Schwarzl, Thomas CB-2.3 SUN Schwarzl, Thomas CB-2.3 SUN Schwarzl, Thomas CB-2.3 SUN Schwarzl, Thomas CB-2.3 SUN Schwob, Catherine CK-9.2 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciamanna, Marc CB-5.2 TUE, IG-P.15 THU Sciarrino, FabioIB-P.2 MON, IB-P.4 MON, IA-2.5 MON, IB-2.1 TUE, IB-2.2 TUE, CM-7.1 THU Scotognella, Francesco CF/IE-10.5 THU Scott, Greame CG-8.8 THU Sediak, Michal IB-P.11 MON
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel SIII-2.1 WED Schwarz, Benedikt CF.1.4 SUN Schwarz, Muriel SIII-2.1 WED Schwarz, Stefan CF/IE-11.2 THU Schwarz, Stefan CF/IE-11.2 THU Schwarzbäck, Thomas CB-P.21 MON, •CB-4.4 TUE Schwarzer, Clemens CB-2.3 SUN Schwarz, Thomas CB-0.4 THU Schwarzel, Thomas CB-0.4 THU Schweb, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciamanna, Marc CB-5.2 TUE, IG-P.15 THU Scotognella, Francesco CF/IE-10.5 THU Scott, Greame CG-9.8 THU Seatif, Michal IB-P.11 MON Sedlmeir, Florian CE-9.3 WED
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel JSII-2.1 WED Schwarz, Benedikt CF-1.4 SUN Schwarz, Muriel SII-2.1 WED Schwarz, Stefan CF/IE-11.2 THU Schwarz, Stefan CF/IE-11.2 THU Schwarz, Ulrich T CF/IE-11.2 THU Schwarz, Clemens CB-2.3 SUN Schwarzl, Thomas CB-1.4 HU Schwarzl, Thomas CB-0.4 THU Schwarzl, Thomas CB-0.4 THU Schwefel, Harald G.L CE-9.3 WED Schwob, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciarrino, Fabio IB-P.2 MON, IB-P.4 MON, IA-2.5 MON, IB-2.1 TUE, IB-2.2 TUE, CM-7.1 THU Scotognella, Francesco CF/IE-10.5 THU Scotognella, Francesco CF-Re THU Sears, Chris CG-9.8 THU Sears, Chris CG-9.3 WED
Schulz, Wolfgang-Michael IA-3.5 MON Schumacher, Thorsten II-2.1 WED, III-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Muriel JSII-2.1 WED Schwarz, Benedikt CF-1.4 SUN Schwarz, Muriel SII-2.1 WED Schwarz, Stefan CF/IE-11.2 THU Schwarz, Stefan CF/IE-11.2 THU Schwarz, Ulrich T CF/IE-11.2 THU Schwarz, Clemens CB-2.3 SUN Schwarzl, Thomas CB-1.4 HU Schwarzl, Thomas CB-0.4 THU Schwarzl, Thomas CB-0.4 THU Schwefel, Harald G.L CE-9.3 WED Schwob, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciarrino, Fabio IB-P.2 MON, IB-P.4 MON, IA-2.5 MON, IB-2.1 TUE, IB-2.2 TUE, CM-7.1 THU Scotognella, Francesco CF/IE-10.5 THU Scotognella, Francesco CF-Re THU Sears, Chris CG-9.8 THU Sears, Chris CG-9.3 WED
Schulz, Wolfgang-Michael I. IA-3.5 MON Schumacher, Thorsten II-2.1 WED, IH-5.5 THU Schunemann, Peter G CD-6.1 MON Schuster, Kay IF-2.1 SUN, CK-4.4 SUN, CE-4.3 TUE, CF/IE-8.2 WED Schwartz, Alon CF/IE-P.10 WED Schwartz, Sylvain IC-P.6 TUE, CA-10.6 WED Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CB-1.4 SUN Schwarz, Benedikt CF/IE-1.2 TWED Schwarz, Ulrich T CF/IE-1.2 THU Schwarz, Stefan CF-2.3 SUN Schwarz, Clemens CB-2.3 SUN Schwarz, Thomas CB-1.4 HU Schwarzl, Thomas CB-2.3 SUN Schwarzl, Thomas CB-0.4 THU Schwarzl, Thomas CB-0.4 THU Schwarzl, Thomas CB-0.4 THU Schweb, Catherine CK-P.22 MON, CK-6.5 WED, IH-3.4 THU, IH-P.12 THU Sciarrino, Fabio IB-P.2 MON, IG-P.15 THU Scotognella, Francesco CF/IE-10.5 THU Scott, Greame CG-9.8 THU Seallak, Michal IB-P.11 MON Sedlmeir, Florian CE-9.3 WED

•PD-A.5 WED
Segura, Martha CA-3.5 SUN
Segura, Martha CA-3.5 SUN Seidel, Marcus CF/IE-2.2 SUN Seifert, Frank CH-6.5 THU
Seifert Frank CH-6.5 THU
Solfort Carbord CD P 20 THE
Sekatski, Pavel IB-7.2 THU
Seki, Masatoshi CD-8.3 TUE
Sekikawa, Taro•CF/IE-1.3 SUN
Seifert, Gerhard
Seletskiy, Denis CA-4.1 SUN Seletskiy, Denis V •CC-P.9 SUN, CF/IE-12.1 THU
Seletakiy, Denia V
Seletskiy, Denis V
CF/IE-12.1 THU
PD-A.5 WED, •CB-10.3 THU
Selleri Stefano CL-P 1 SUN
CM P7 SUN CLP2 WED
Civi-1.7 Join, CJ-1.2 WED
Selvaraja, Shankar Kumar CK-9.2 THU
Seliani, Monamed
Sen, Ranjan CJ-P.1 WED, •CJ-P.25 WED
Senel, Cagri .•CJ-6.3 WED, CJ-6.5 WED,
CJ-P.37 WED
Senellart Pascale IH-3.4 THU
Senellart, Pascale IH-3.4 THU, IH-4.4 THU
Senttleben, ArneCG-1.4 TUE
Sengo, Gabriel CK-10.2 THU,
Senftleben, Arne CG-1.4 TUE Sengo, Gabriel CK-10.2 THU, CK-10.3 THU Sengstock, Klaus
Sengstock, KlausIC-2.1 TUE
Seniutinas. Gediminas CM-8.3 THU
Sennato Simona II-P 9 WED
Sentis Marc CM-1.5 SUN CM-4.2 WED
Serbinonko Valoria
Serbinenko, Valeria
Serbinenko, ValeriyaCG-5.0 THU
Seres, EnikoeCF/IE-2.4 SUN,
•CF/IE-7.2 MON
Seniutinas, GediminasCM-8.3 THU Senutionas, GediminasII-P.9 WED Sentis, Marc CM-1.5 SUN, CM-4.2 WED Serbinenko, ValeriaCG-7.2 THU Serbinenko, ValeriyaCG-5.6 THU Seres, EnikoeCF/IE-2.4 SUN, •CF/IE-7.2 MON Seres, Jozsef•CF/IE-2.4 SUN,
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU,
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU,
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU,
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU,
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 WED Setzler ScottCF/IE-P.25 WED
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 WED Setzler ScottCF/IE-P.25 WED
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 WED Setzler ScottCF/IE-P.25 WED
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 WED Setzler ScottCF/IE-P.25 WED
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 WED Setzler ScottCF/IE-P.25 WED
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, PierreCA-3.4 MON,
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, PierreCA-3.4 MON,
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, PierreCA-3.4 MON,
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, PierreCA-3.4 MON,
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, PierreCA-3.4 MON,
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, PierreCA-3.4 MON,
CF/IE-7.2 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Sesarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-5.6 TUE Sévillano, Pierre
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, SergeyCP-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-PierreCF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-6.4 TUE Sévell, RobertA3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shadbit, SarooshIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shadrivov, Ilya •II-P.13 WED, 1B-1.3 MON, CE-3.2 MON
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, SergeyCP-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-PierreCF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-6.4 TUE Sévell, RobertA3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shadbit, SarooshIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shadrivov, Ilya •II-P.13 WED, 1B-1.3 MON, CE-3.2 MON
CF/IE-7.2 MON Sergeev, YuryCF/IE-6.1 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, SergeyCP-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sesarego, Jean-PierreCF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, PierreCA-6.4 TUE Sévell, RobertA3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shadbit, SarooshIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shadrivov, Ilya •II-P.13 WED, 1B-1.3 MON, CE-3.2 MON
CF/IE-7.2 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sessarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, Pierre .CA-6.4 TUE Sévillano, PierreA.3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shabbir, SarooshIA-P.5 THU Shadbit, PIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shabhir, ShayanIB-1.3 MON, CE-3.2 MON Shakfa, Mohammad Khaled .CC-3.1 SUN Shalaby, Badr M.ICD-12.4 WED Shab Tires
CF/IE-7.2 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sessarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, Pierre .CA-6.4 TUE Sévillano, PierreA.3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shabbir, SarooshIA-P.5 THU Shadbit, PIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shabhir, ShayanIB-1.3 MON, CE-3.2 MON Shakfa, Mohammad Khaled .CC-3.1 SUN Shalaby, Badr M.ICD-12.4 WED Shab Tires
CF/IE-7.2 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sessarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, Pierre .CA-6.4 TUE Sévillano, PierreA.3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shabbir, SarooshIA-P.5 THU Shadbit, PIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shabhir, ShayanIB-1.3 MON, CE-3.2 MON Shakfa, Mohammad Khaled .CC-3.1 SUN Shalaby, Badr M.ICD-12.4 WED Shab Tires
CF/IE-7.2 MON Sergeyev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Serrat, CarlesCG-P.3 THU Sessarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE Sévillano, Pierre .CA-6.4 TUE Sévillano, PierreA.3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.5 THU Shabbir, SarooshIA-P.5 THU Shadbit, PIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shabhir, ShayanIB-1.3 MON, CE-3.2 MON Shakfa, Mohammad Khaled .CC-3.1 SUN Shalaby, Badr M.ICD-12.4 WED Shab Tires
CF/IE-7.2 MON Sergevev, Anton
CF/IE-7.2 MON Sergevev, AntonCF/IE-6.1 MON Sergeyev, AntonCD-7.2 MON Sergeyev, SergeyIG-P.18 THU, •IG-4.3 THU Serra, PereCG-P.3 THU Sessarego, Jean-Pierre .CF/IE-P.25 WED Setzler, ScottJSII-2.3 WED Severová, PatricieCA-6.4 TUE Sewell, RobertISI-2.3 WED Severová, PatricieCA-6.4 TUE Sewell, RobertISI-2.3 WED Sewerová, PatricieCA-6.4 TUE Sewell, RobertIA-3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.25 THU Shabbir, SarooshIA-2.1 MON Shadbolt, PIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shafir, DrorCG-1.3 TUE, CG-1.5 TUE Shahnia, ShayanIB-1.3 MON, CE-3.2 MON Shakfa, Mohammad Khaled .CC-3.1 SUN Shalaby, Badr M.ICD-12.4 WED Shalm, Krister .IA-3.1 MON, IB-8.3 THU Shams, HaymenCI-5.5 WED Shan, Liye

•PD-A.5 WED	Sheng, Yan•IF-4.2 SUN	
Segura, Martha CA-3.5 SUN	Shephard, Jonathan D CE-4.1 TUE	:
Seidel, Marcus CF/IE-2.2 SUN	Shepherd, David CE-7.1 WED,	
Seifert, FrankCH-6.5 THU	CF/IE-8.3 WED, CJ-12.2 THU	:
Seifert, GerhardCD-P.39 TUE	Sheremet, AlexandraIB-P.18 MON,	
Sekatski, Pavel IB-7.2 THU	IA-6.2 WED	
Seki, Masatoshi CD-8.3 TUE	Sheridan, Eoin•CH-6.2 THU	
Sekikawa, Taro•CF/IE-1.3 SUN	Shevchenko, AndriyII-4.3 THU	÷
Sekimoto, S CC-3.4 SUN	Shi, Kai CI-P.2 TUE	-
Seletskiy, Denis CA-4.1 SUN Seletskiy, Denis V	Shi, Li	
CF/IE-12.1 THU	IB-6.4 THU	÷
Sellahi, Mohamed•CB-P.18 MON,	Shigematsu, Kyouhei CF/IE-P.34 WED	i
PD-A.5 WED, •CB-10.3 THU	Shimizu, Kaoru CK-1.5 SUN, IA-6.4 WED	į
Selleri, Stefano	Shimizu, Ryosuke IB-P.10 MON	
CM-P.7 SUN, CJ-P.2 WED	Shimojo, Naoya•CA-P.15 SUN,	:
Selvaraja, Shankar Kumar CK-9.2 THU	CA-8.6 WED	
Semenov, Sergei•CJ-12.1 THU	Shimomura, AkitoCJ-6.6 WED	:
Sen, Ranjan CJ-P.1 WED, •CJ-P.25 WED	Shiraga, Hiroyuki CJ-P.27 WED	1
Şenel, Cagri .•CJ-6.3 WED, CJ-6.5 WED,	Shishido, Atsushi CE-7.5 WED	:
CJ-P.37 WED	Shitamichi, Osamu CF/IE-P.12 WED	
Senellart, Pascale IH-3.4 THU,	Shmakov, Vyacheslav CM-P.18 SUN	
IH-4.4 THU	Shoji, Ichiro	
Senftleben, Arne CG-1.4 TUE Sengo, Gabriel CK-10.2 THU,	Shomroni, Itay IA-6.2 WED Shore, Keith Alan CB-P.41 MON	
CK-10.3 THU	Shu, Xuewen	÷
Sengstock, KlausIC-2.1 TUE	Shulga, Boris•CJ-5.5 WED,	÷
Seniutinas, GediminasCM-8.3 THU	•CJ-P.29 WED	
Sennato, Simona	Shum, Perry Ping CI-5.2 WED	
Sentis, Marc CM-1.5 SUN, CM-4.2 WED	Shynkar, Vasyl•CD-P.7 TUE	1
Serbinenko, Valeria•CG-7.2 THU	Sibbett, Walter CA-6.2 TUE	:
Serbinenko, ValeriyaCG-5.6 THU	Sibbett, WilsonCA-6.3 TUE,	
Seres, Enikoe CF/IE-2.4 SUN,	CF/IE-8.3 WED	
•CF/IE-7.2 MON	Sibilia, ConcitaII-P.9 WED	÷
Seres, Jozsef•CF/IE-2.4 SUN, CF/IE-7.2 MON	Sibillano, Teresa CM-1.1 SUN Sibson, PIA-2.1 MON	
Sergeev, Yury CF/IE-6.1 MON	Siddique, Radwanul Hasan •CE-P.20 TUE	i
Sergeyev, Anton	Sidiropoulos, Themistoklis . •CB-6.6 TUE	į
Sergeyev, SergeyIG-P.18 THU,	Siebold, Mathias•CA-8.1 WED	
•IG-4.3 THU	Siegel, Jan CM-4.5 WED, CM-6.5 THU	:
Serra, Pere•CM-1.3 SUN	Siemering, Robert •CF/IE-1.1 SUN	:
Serrat, Carles•CG-P.3 THU	Sierakowski, MarekCD-P.44 TUE	
Sessarego, Jean-Pierre . CF/IE-P.25 WED	Siikanen, Roope IH-P.14 THU	:
Setzler, ScottJSII-2.3 WED Severová, PatricieCA-5.6 TUE	Silberhorn, Christine IB-1.4 MON,	
Severova Patricie (A-5 b LUE		
	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU	
Sévillano, Pierre•CA-6.4 TUE	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, Pierre•CA-6.4 TUE Sewell, Robert•IA-3.4 MON,	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	:
Sévillano, Pierre•CA-6.4 TUE Sewell, Robert•IA-3.4 MON,	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, PierreCA-6.4 TUE Sewell, RobertA-3.4 MON, •IA-P.1 THU, IA-P.8 THU, IA-P.25 THU Shabbir, SarooshIA-P.5 THU Shadbolt, PIA-2.1 MON Shadrivov, Ilya •II-P.12 WED, •II-3.5 THU Shafir, DrorCG-1.3 TUE, CG-1.5 TUE Shahnia, ShayanIB-1.3 MON,	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, FernandoIB-P.20 MON Silva, FranciscoIF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-P.17 WED Silverstone, JIA-2.1 MON Silverstone, JoshuaIA-6.6 WED Sima, ChaotanCK-1.2 SUN, CK-P.33 MON, •CI-P.16 TUE, CH-P.1 THU	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando •IB-P.20 MON Silva, Francisco IF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-P.17 WED Silverstone, J. IA-2.1 MON Silverstone, Joshua •IA-6.6 WED Sima, Chaotan CK-1.2 SUN, CH-P.1 THU Simakov, Nikita	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, FernandoIB-P.20 MON Silva, FranciscoIF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-P.17 WED Silverstone, JIA-2.1 MON Silverstone, J	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando •IB-P.20 MON Silva, Fernando •IB-P.20 MON Silva, Francisco IF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-9.17 WED Silverstone, J. IA-2.1 MON Silverstone, J. IA-2.1 MON Silverstone, Joshua •IA-6.6 WED Sima, Chaotan CK-1.2 SUN, CH-P.1 THU CH-P.1 THU Simakov, Nikita •CJ-10.3 THU Simakov, Nikita •CK-2.4 SUN, •CB-6.3 TUE Simitzi, Chara CM-2.2 SUN CM-2.2 SUN	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, FernandoIB-P.20 MON Silva, FranciscoIF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-P.17 WED Silverstone, JIA-2.1 MON Silverstone, J	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, FernandoIB-P.20 MON Silva, FranciscoIF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-P.17 WED Silverstone, JIA-2.1 MON Silverstone, JoshuaIA-2.1 MON Silverstone, JoshuaIA-6.6 WED Sima, ChaotanCK-1.2 SUN, CK-P.33 MON, •CI-P.16 TUE, CH-P.1 THU Simakov, Nikita•CJ-10.3 THU Simard, Alexandre D•CK-2.4 SUN, •CB-6.3 TUE Simitzi, CharaCM-2.2 SUN Simon-Boisson, Christophe	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, FernandoIB-P.20 MON Silva, FranciscoIF-1.1 SUN, CF/IE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-P.17 WED Silverstone, JIA-2.1 MON Silverstone, J	
Sévillano, Pierre	IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU Silva, Fernando •IB-P.20 MON Silva, Francisco VERIE-3.2 SUN, •CF/IE-3.5 SUN, •CF/IE-9.17 WED Silverstone, J.	
Sévillano, Pierre	$\label{eq:second} \begin{array}{c} \text{IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU}\\ \text{Silva, Fernando} & & \text{IB-P.20 MON}\\ \text{Silva, Francisco} & & \text{IF-1.1 SUN,}\\ CF/IE-3.2 SUN, \bullet CF/IE-3.5 SUN, \\ \bullet CF/IE-P.17 WED\\ \text{Silverstone, J} & & \text{IA-2.1 MON}\\ \text{Silverstone, Joshua} & & \text{IA-6.6 WED}\\ \text{Sima, Chaotan} & & \text{CK-1.2 SUN,}\\ CK-P.33 MON, \bullet \text{CI-P.16 TUE,}\\ CH-P.1 THU\\ \text{Simakov, Nikita} & & \text{CJ-10.3 THU}\\ \text{Simat, Alexandre D} & & \text{CK-2.4 SUN,}\\ \bullet \text{CB-6.3 TUE}\\ \text{Simitzi, Chara} & & \text{CM-2.2 SUN}\\ \text{Simon-Boisson, Christophe}\\ CF/IE-P.9 WED\\ \text{Simon, Peter} & & \text{CD-3.1 SUN}\\ \text{Simonetta, Marcello} & & \text{CB-6.1 TUE}\\ \text{Simonsen, Anders} & & \text{CB-4.1 TUE}\\ \end{array}$	
Sévillano, Pierre	$\label{eq:second} \begin{array}{c} \text{IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU}\\ \text{Silva, Fernando} & & \text{IB-P.20 MON}\\ \text{Silva, Francisco} & & \text{IF-1.1 SUN,}\\ & CF/IE-3.2 SUN, \bullet CF/IE-3.5 SUN, \\ \bullet CF/IE-P.17 WED\\ \text{Silverstone, J.} & & \text{IA-2.1 MON}\\ \text{Silverstone, Joshua} & & \text{IA-6.6 WED}\\ \text{Sima, Chaotan} & & \text{CK-12 SUN,}\\ & CK-P.33 MON, \bullet \text{CI-P.16 TUE,}\\ & CH-P.1 THU\\ \text{Simakov, Nikita} & & \text{CJ-10.3 THU}\\ \text{Simard, Alexandre D.} & & \text{CK-2.4 SUN,}\\ & \bullet \text{CB-6.3 TUE}\\ \text{Simitzi, Chara} & & \text{CM-2.2 SUN}\\ \text{Simon-Boisson, Christophe}\\ & CF/IE-P.9 WED\\ \text{Simon, Peter} & & \text{CD-3.1 SUN}\\ \text{Simonsenta, Anders} & & \text{CH-6.3 THU}\\ \text{Simonsen, Anders} & & \text{CH-6.1 TUE}\\ \text{Simos, Christos} & & \text{CB-4.1 TUE}\\ \text{Simos, Hercules} & & \text{CB-4.1 TUE}\\ \end{array}$	
Sévillano, Pierre	$\label{eq:second} \begin{array}{c} \text{IB-1.5 MON, IB-2.3 TUE, IA-P.23 THU}\\ \text{Silva, Fernando} & & \text{IB-P.20 MON}\\ \text{Silva, Francisco} & & \text{IF-1.1 SUN,}\\ CF/IE-3.2 SUN, \bullet CF/IE-3.5 SUN, \\ \bullet CF/IE-P.17 WED\\ \text{Silverstone, J} & & \text{IA-2.1 MON}\\ \text{Silverstone, Joshua} & & \text{IA-6.6 WED}\\ \text{Sima, Chaotan} & & \text{CK-1.2 SUN,}\\ CK-P.33 MON, \bullet \text{CI-P.16 TUE,}\\ CH-P.1 THU\\ \text{Simakov, Nikita} & & \text{CJ-10.3 THU}\\ \text{Simat, Alexandre D} & & \text{CK-2.4 SUN,}\\ \bullet \text{CB-6.3 TUE}\\ \text{Simitzi, Chara} & & \text{CM-2.2 SUN}\\ \text{Simon-Boisson, Christophe}\\ CF/IE-P.9 WED\\ \text{Simon, Peter} & & \text{CD-3.1 SUN}\\ \text{Simonetta, Marcello} & & \text{CB-6.1 TUE}\\ \text{Simonsen, Anders} & & \text{CB-4.1 TUE}\\ \end{array}$	

JSII-P.3 WED Simpson, Robert
CI-P.12 TUE
Simsek, Ergun CM-5.2 WED Sinclair, Alastair IA-4.6 WED
Singh, Anshuman
Singh, Pushkar
Singh, Satyapratap•CJ-P.23 WED
Sinigardi, StefanoCG-P.18 THU Sinito, ChiaraIH-6.1 THU
Sinito, ChiaraIH-6.1 THU
Sinkevicius, Vytautas CF/IE-P.4 WED
Sinuco, German
Siozos, Panayiotis•CM-P.13 SUN Sipe, John EIC-2.2 TUE, II-P.16 WED
Sipos. Áron
Sipos, Áron
CB-8.2 THU, CB-8.5 THU
Siria, Alessandro CH-7.2 THU
Sirkeli, Vadim CE-P.7 TUE
Sirutkaitis, ValdasCM-P.12 SUN, CM-7.5 THU, CM-8.3 THU
CM-7.5 THU, CM-8.3 THU
Sitters, Gerrit
Situ, Guonal JSIII-P.4 WED, CH-4.5 THU
Skiba-Szymanska, Joanna PD-B.3 WED Škoda, Václav CA-P.17 SUN
Skolnick, Maurice S IA-P.12 THU
Skorić Boris IA 36 MON
Skorupski, Krzysztof CH-2.3 TUE
Skorynin, Alexander CK-P.21 MON
Skryabin, Dmitry IF-2.4 SUN, IF-2.5 SUN
Skupin, StefanCF/IE-P.23 WED,
Skorupski, KrzysztofCH-2.3 TUE Skorynin, AlexanderCK-P.21 MON Skryabin, Dmitry IF-2.4 SUN, IF-2.5 SUN Skupin, StefanCF/IE-P.23 WED, CF/IE-P.28 WED, IG-5.2 THU
Slepneva, SvetlanaCF/IE-P.27 WED Slight, Thomas JCF/IE-P.27 WED Slipht, Thomas JCB-1.5 SUN Slipchenko, SergeyCB-P.24 MON Sloyan, Katherine ACJ-12.3 THU Slussarenko, SergeiIB-P.4 MON Smektala, FrédéricCD-1.4 SUN Smither Monitore COD-11 SUN
Slipchenko Sergev •CB-P 24 MON
Slovan, Katherine A
Slussarenko, SergeiIB-P.4 MON
Smektala, Frédéric CD-1.4 SUN
Smilgevicius valerius (C-P I SUN
Smirnov, Sergey•CJ-P.8 WED, CJ-P.10 WED, CJ-P.12 WED
CJ-P.10 WED, CJ-P.12 WED
Smirnova, OlgaCG-1.3 TUE, CF/IE-P.39 WED, CG-5.6 THU,
CG-P.13 THU, CG-P.14 THU, CG-7.2 THU, CG-7.6 THU
Smit. M.K
Smit, M.K. CB-3.3 MON Smit, Meint CB-P.5 MON,
CB-P.36 MON, CI-2.2 TUE, CK-9.1 THU
Smith, BrianIB-2.4 TUE
Smith, Cameron
Smith, Cameron L. C CK-7.5 THU Smith, Graham N
Smith, Graham N•CM-6.3 THU
Smith, Peter CK-1.2 SUN, CK-P.33 MON, IB-2.4 TUE,
CI-P.16 TUE, CH-P.1 THU
Smith, Peter G. R
CE-P.12 TUE
Smits, Edsger CM-P.22 SUN
Smits, EdsgerCM-P.22 SUNSmrž, MartinCA-5.6 TUE
Snellenburg, Joris
Snetkov, Ilya•CA-P.6 SUN
Spoke David W/ IC 3.5 W/ED
Snoke, David W IG-3.5 WED Snowdon, O
So. Jin-Kvu
Snowdon, O.

JODOII, GIZEGOIZCJ-F.JU WLD
Sobon, GrzegorzCJ-P.30 WED Soci, CesareCI-5.2 WED
Soergel, ElisabethCE-8.1 WED
Soergel, ElisabethCE-8.1 WED Sohler, WolfgangCK-P.8 MON
Soifer, HadasCG-1.3 TUE Sokolova, Tatiana•CM-P.8 SUN
Sokolovskii Grigorii CD-6.3 MON
Sokolovskii, Grigorii CD-6.3 MON, CD-P.21 TUE
Sokolovskii, Grigorii S•CE-P.28 TUE
Sola, Iñigo•CF/IE-3.2 SUN,
CF/IE-P.40 WED Soldo, Marco CB-P.13 MON, CB-6.1 TUE
Solé, Rosa CM-P.17 SUN, CE-7.1 WED
Solís Céspedes, Javier CM-4.5 WED
Solís, Javier CM-P.17 SUN, CJ-12.4 THU
Solntsev, Alexander S IA-P.13 THU
Solomon, Glenn
Solntsev, Alexander S IA-P.13 THU Solnyshkov, Dmitry D IG-3.2 WED Solomon, Glenn IB-3.5 TUE Solomon, Glenn S IA-2.3 MON,
IA-6.1 WED
Sondermann, MarkusIA-1.2 MON Sones, Collin•CM-P.25 SUN,
CM-P.28 SUN, CM-P.29 SUN
Song, Justin
Song, JustinCF/IE-13.4 THU Sorba, LuciaCC-2.3 SUN Sorel, MarcCB-1.2 SUN, CK-2.1 SUN,
Sorel, Marc CB-1.2 SUN, CK-2.1 SUN,
CK-P.17 MON, CB-3.1 MON, CD-P.10 TUE, CB-6.1 TUE,
CB-6.3 TUE, CB-6.4 TUE
Sørensen, Anders
Sørensen, Simon Toft•IF-P.10 SUN,
•CD-P.45 TUE, •JSIII-P.6 WED
Sorger, Volker
Soriano, Miguel C
CD-10.3 TUE, CB-7.5 THU
Sornphiphatphong, Chanond .IA-P.6 THU Sorokin, Evgeni•CD-1.2 SUN,
CE/IE 4 4 SUN
CF/IE-4.4 SUN
CF/IE-4.4 SUN
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU Soto-Crespo, José-Maria JSIII-2.4 WED Soto, Marcelo CD-P.47 TUE Sotor. Jaroslaw CJ-P.30 WED
CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CD-1.2 SUN Soto-Crespo, José-Maria JSIII-2.4 WED Soto, Marcelo CD-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Souhaité, Grégoire CD-5.4 MON Soukoulis, Costas II-P.13 WED
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU Soto-Crespo, José-Maria JSIII-2.4 WED Soto, Marcelo CD-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Souhaité, Grégoire CJ-5.4 MON Soukoulis, Costas II-P.13 WED Soukoulis, Costas M IH-6.4 THU
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU Soto-Crespo, José-MariaJSIII-2.4 WED Soto, Marcelo CD-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Souhaité, Grégoire CD-5.4 MON Soukoulis, Costas II-P.13 WED Soukoulis, Costas M IH-6.4 THU Sow, Papa Lat Tabara CB-2.4 SUN,
CF/IE-4.4 SUN Sorokina, Irina T CP-II-2 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU Soto-Crespo, José-Maria JSIII-2.4 WED Soto, Marcelo CD-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Souhaité, Grégoire CD-5.4 MON Soukoulis, Costas II-P.13 WED Soukoulis, Costas M IH-6.4 THU Sow, Papa Lat Tabara CB-2.4 SUN, ID-P 6 MON
CF/IE-4.4 SUN Sorokina, Irina T CP-I1.2 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CH-5.4 THU Soto-Crespo, José-Maria JSIII-2.4 WED Soto, Marcelo CJ-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Souhaité, Grégoire CD-5.4 MON Soukoulis, Costas II-P.13 WED Soukoulis, Costas M IH-6.4 THU Sow, Papa Lat Tabara CB-2.4 SUN, ID-P.6 MON Sozzi, Michele CM-P.7 SUN Spagnolo, Nicolò IB-P.2 MON,
CF/IE-4.4 SUN Sorokina, Irina CF/IE-4.4 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CD-1.2 SUN Sorvajärvi, Tapio CD-1.2 SUN Soto-Crespo, José-Maria JIII-2.4 WED Sotor, Jaroslaw CD-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Soukoulis, Costas IP-13 WED Soukoulis, Costas M IH-6.4 THU Sow, Papa Lat Tabara CB-2.4 SUN, ID-P.6 MON Sozzi, Michele CM-P.7 SUN Spagnolo, Nicolò IB-P.2 MON, •IA-2.5 MON
CF/IE-4.4 SUN Sorokina, Irina T CP-I.2 SUN Sorokina, Irina T CD-1.2 SUN Sorvajärvi, Tapio CD-1.2 SUN Soto-Crespo, José-Maria JSIII-2.4 WED Soto, Marcelo CD-P.47 TUE Sotor, Jaroslaw CJ-P.30 WED Souhaité, Grégoire CD-5.4 MON Soukoulis, Costas M IH-6.4 THU Sow, Papa Lat Tabara CB-2.4 SUN, ID-P.6 MON Sozzi, Michele CM-P.7 SUN Spagnolo, Nicolò IB-P.2 MON, •IA-2.5 MON
CF/IE-4.4 SUN Sorokina, Irina

Sevienshale Cuerthan CR 10.4 THU
Springholz, GuntherCD-10.4 THO
Springholz, GuntherCB-10.4 THUSrivathsan, BharathIA-6.3 WED
Stabrawa, Artur IF-3.1 SUN
Stace Tom ID_P.5 MON
Standter David CE/IE 10.3 THU
Statuter, DavidCr/IE-10.5 THO
Staedter, David CF/IE-10.3 THU Stafast, Herbert CD-P.49 TUE Stagira, Salvatore CF/IE-5.5 MON, CG-1.3 TUE, CF/IE-P.16 WED,
Stagira, Salvatore CF/IE-5.5 MON,
CG-1.3 TUE, CF/IE-P.16 WED,
•CF/IE-10.3 THU, CF/IE-10.5 THU
Staliunas, Kestutis CK-P.13 MON,
CK-P.19 MON, CK-P.25 MON,
CB-P.38 MON, IG-2.4 WED,
•IG-P.10 THU
Stanislauskas, Tomas •CF/IE-P.4 WED,
CG-5.2 THU
Stankevičiute, KarolinaCM-P.12 SUN
Stankeviciute, KarolinaCivi-P.12 SUN
Stanojevic, Jovica IA-1.4 MON
Staude, IsabelleII-4.2 THU
Staude, Isabelle
Steel Michael IB-1.3 MON IB-2.5 TUE
Steen Cerwin CE/IE 10.4 THU
Steen, Gerwin
Steenberge, Geert CM-P.22 SUN
Steer, Matthew JCB-1.2 SUN
Štefaňák, MartinIB-2.3 TUE
Stefani, Alessio
Steen, Gerwin
Stelanov, AndreIF-P.12 SUN,
IB-P.14 MON, IA-P.9 THU, •IB-8.5 THU
Steger, MarkIG-3.5 WED
Steiger, OlivierCH-P.6 THU
Steinberg, Aephraim MIC-2.2 TUE,
IG-3.5 WED, IB-6.2 THU
Steinke, Michael
Steinke, Sven CF/IE-4.5 SUN
Steinlechner, Fabian O •IB-1.2 MON
Steinnern, Fabian O•IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED
Steinnern, Fabian O•IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED
Steinnern, Fabian O•IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED
Steinnechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinnetz, Alexander CA-9.4 WED Steinnever Günter IF-1.5 SUN
Steinnechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinnetz, Alexander CA-9.4 WED Steinnever Günter IF-1.5 SUN
Steinlechner, Fabian OIB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU,
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU
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Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU
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Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Steponkevičius, Kestutis•CC-P.11 SUN Stepn, Jeffery A
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Steponkevičius, Kestutis•CC-P.11 SUN Stepn, Jeffery A
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Steponkevičius, Kestutis•CC-P.11 SUN Stepn, Jeffery A
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Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Steponkevičius, Kestutis•CC-P.11 SUN Stepn, Jeffery A
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, Birgit CP-P.14 TUE, CI-3.2 WED
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, Birgit CP-P.14 TUE, CI-3.2 WED
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, Birgit CP-P.14 TUE, CI-3.2 WED
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Stepniewski, Grzegorz CJ-P.30 WED Stepnewski, Grzegorz CJ-P.30 WED Stepnewski, Grzegorz CJ-P.30 WED Stepnekvičius, Kestutis •CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stilfter, David CD-P.19 TUE Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stingl, Johannes CF/IE-13.1 THU Stock, Erik
Steinlechner, Fabian O •IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stephen, Ryszard CJ-P.30 WED Stepniewski, Grzegorz CJ-P.30 WED Stepnekevičius, Kestutis •CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-9.42 WED Stifler, David CP-19 TUE Stifler, Birgit •CI-P.14 TUE, CI-3.2 WED Stigl, Johannes CF/IE-13.1 THU Stock, Erik CG-4.4 THU
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepinewski, Grzegorz CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stiller, Birgit CF/IE-13.1 THU Stoll, Johannes CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stoll, A
Steinlechner, Fabian O •IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Stepniewski, Grzegorz CJ-P.30 WED Stepnekvičius, Kestutis•CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, David CF/IE-13.1 THU Stiller, Birgit .•CI-P.14 TUE, CI-3.2 WED Stingl, Johannes CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stolker, Thomas CK-P.18 MON Stope, Greg CK-P.8 MON, CD-P.35 TUE
Steinlechner, Fabian O •IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Stepniewski, Grzegorz CJ-P.30 WED Stepnekvičius, Kestutis•CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, David CF/IE-13.1 THU Stiller, Birgit .•CI-P.14 TUE, CI-3.2 WED Stingl, Johannes CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stolker, Thomas CK-P.18 MON Stope, Greg CK-P.8 MON, CD-P.35 TUE
Steinlechner, Fabian O •IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Stepniewski, Grzegorz CJ-P.30 WED Stepnekvičius, Kestutis•CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, David CF/IE-13.1 THU Stiller, Birgit .•CI-P.14 TUE, CI-3.2 WED Stingl, Johannes CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stolker, Thomas CK-P.18 MON Stope, Greg CK-P.8 MON, CD-P.35 TUE
Steinlechner, Fabian O •IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stephan, Frank CA-P.1 SUN Stepien, Ryszard CJ-P.30 WED Stepniewski, Grzegorz CJ-P.30 WED Stepnekvičius, Kestutis•CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Sterr, UweID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stifler, David CF/IE-13.1 THU Stiller, Birgit .•CI-P.14 TUE, CI-3.2 WED Stingl, Johannes CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stolker, Thomas CK-P.18 MON Stope, Greg CK-P.8 MON, CD-P.35 TUE
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Stern, Jwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Thomas CF/IE-13.1 THU Stock, Erik
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Stern, Jwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Thomas CF/IE-13.1 THU Stock, Erik
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Stern, Jwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Thomas CF/IE-13.1 THU Stock, Erik
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Stern, Jwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Thomas CF/IE-13.1 THU Stock, Erik
Steinlechner, Fabian O IB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey CF/IE-6.1 MON, CG-P.6 THU Stepine, Ryszard CJ-P.30 WED Steponkevičius, Kestutis CC-P.11 SUN Stern, Jeffery A JSV-1.1 TUE Stern, Jwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Stewart, Paul CF/IE-P.42 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Birgit CI-P.14 TUE, CI-3.2 WED Stiller, Thomas CF/IE-13.1 THU Stock, Erik
Steinlechner, Fabian O. MB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey Stepinewski, Grzegorz CJ-P.30 WED Stepine, Ryszard CJ-P.30 WED Stepinewski, Grzegorz CJ-P.30 WED Steponkevičius, Kestutis •CC-P.11 SUN Stern, Jeffery A. JSV-1.1 TUE Sterv, Uwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Steingl, Johannes CF/IE-P.42 WED Stiller, Birgit •CI-P.14 TUE, CI-3.2 WED Stiller, Birgit •CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stoll, A. CK-P.18 MON Stoll, A. CK-7.3 WED Stout, Brian IH-P.1 THU Stout, Brian IH-P.1 THU Strain, Michael J. CB-6.3 TUE Strain, Michael John •CK-2.1 SUN, •CK-P.17 MON, CB-3.1 MON, CD-P.10 TUE, CB-6.1 TUE,
Steinlechner, Fabian O. MB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey Stepinewski, Grzegorz CJ-P.30 WED Stepinen, Ryszard CJ-P.30 WED Stepinewski, Grzegorz CJ-P.30 WED Stepnewski, Grzegorz CJ-P.30 WED Stepnewski, Grzegorz CJ-P.30 WED Stepnewski, Grzegorz CJ-P.30 WED Stern, Jeffery A. JSV-1.1 TUE Sterr, Uwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Steingl, Johannes CF/IE-P.42 WED Stiller, Birgit •CI-P.14 TUE, CI-3.2 WED Stiller, Birgit •CI-P.14 TUE, CI-3.2 WED Stiller, Boxid •CH-P.13 ITHU Stock, Erik CK-7.2 THU Stollker, Thomas CF/IE-13.1 THU Stolker, Frik CJ-7.3 WED Stout, Brian IH-P.1 THU Stout, Brian IH-P.1 THU Strain, Michael John CK-2.
Steinlechner, Fabian O. MB-1.2 MON Steinmann, Andy CF/IE-9.3 WED Steinmetz, Alexander CA-9.4 WED Steinmeyer, Günter IF-1.5 SUN, •CF/IE-3.6 SUN, CE-1.1 MON, CF/IE-6.5 MON, CG-5.1 THU, CG-5.2 THU, IG-5.1 THU, IG-5.2 THU Stepanov, Andrey Stepinewski, Grzegorz CJ-P.30 WED Stepine, Ryszard CJ-P.30 WED Stepinewski, Grzegorz CJ-P.30 WED Steponkevičius, Kestutis •CC-P.11 SUN Stern, Jeffery A. JSV-1.1 TUE Sterv, Uwe ID-1.2 MON, ID-1.3 MON Stevenson, R. Mark PD-B.3 WED Steingl, Johannes CF/IE-P.42 WED Stiller, Birgit •CI-P.14 TUE, CI-3.2 WED Stiller, Birgit •CF/IE-13.1 THU Stock, Erik CK-7.2 THU Stoll, A. CK-P.18 MON Stoll, A. CK-7.3 WED Stout, Brian IH-P.1 THU Stout, Brian IH-P.1 THU Strain, Michael J. CB-6.3 TUE Strain, Michael John •CK-2.1 SUN, •CK-P.17 MON, CB-3.1 MON, CD-P.10 TUE, CB-6.1 TUE,

Charles Cartefield	
Strasser, Gottfried	CB-1.4 SUN,
Strasser, Gottfried CB-2.3 SUN, CC-P.3 SUN	J
CB/CC-1.3 MON, CB/CC	-1.6 MON.
IH-P.10 THU	,
Strassner, Johannes	CE-1 3 MON
Stratakis, Emmanuel	•CM-2.2 SUN
•CM-P.2 SUN	
•CIVI-F.2 JUIN	
Strauß, Max Streed, Erik Streicher, O.	
Streed, Erik	IA-4.1 WED
Streicher, O.	. CK-P.18 MON
Strekalov, Dmitry V	CE-9.3 WED
Strudley, Thomas	.•CK-P.6 MON
Strudley, Tom	IH-P.19 THU
Strzoda, Rainer	CH-2.5 TUE
Strudley, Tom Strzoda, Rainer Stützer, Simon CD-8.4 TU	JE, CI-2.5 TUE,
•JSIII-1.4 WED, •CK-8.3	THU
Stutzki, Fabian CJ-3.2 MON, CJ-3.3 MO	N
CJ-3.4 MON, •CJ-10.1 T	HU
Stylianakis Minas M	
Stylianakis, Minas M Su, Liangbi	
Suarez, Noslen	
Subramaniam, Vinod	CL-P.9 SUN,
IH-2.3 WED	
Suche, Hubertus	
Suda, Akira Sudau, Kai	CL-4.4 MON
Sudau, Kai	CB-6.5 TUE
Suddapalli, Chaitanya Kuma	r
•CD-P.12 TUE, •CD-9.1 7	ΓUE
Südmeyer, Thomas	CA-5.1 TUE
Südmeyer, Thomas Sudyka, Julia	IF-P.11 SUN
Suganuma, Akiko	CA-5.2 TUE.
CE-P.9 TUE	,
Sugden, Kate	CI-P.3 TUE
Sugimoto, Yoshimasa Sugita, Atsushi	CK-P 23 MON
Curite Atauchi	
	•CF-7 4 WFD
Sugiyama Sei-ichi	. •CE-7.4 WED
Sugiyama, Sei-ichi	. •CE-7.4 WED . CJ-P.27 WED
Sugiyama, Sei-ichi Sugiyama, Sei-ichi Sugny, Dominique	. •CE-7.4 WED . CJ-P.27 WED CI-3.1 WED
Sugiyama, Sei-ichi Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A	. •CE-7.4 WED . CJ-P.27 WED CI-3.1 WED IA-P.13 THU
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A Sukow. David W	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Šulc, Jan•CA-P.17 SUN	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Šulc, Jan•CA-P.17 SUN Sulimov, Vladimir	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, Jan Sulimov, Vladimir CE-P.31 TUE	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE,
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, Jan Sulimov, Vladimir CE-P.31 TUE	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE,
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, Jan Sulimov, Vladimir CE-P.31 TUE	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE,
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Šulc, Jan•CA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumida, Shin Sumf, Bernd	. CJ-P.27 WED CI-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CJ-P.15 SUN,
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumida, Shin CB-P.17 MON, CB-P.30 I	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Devan	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, .: CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Devan	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, .: CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Šulc, Jan•CA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumida, Shin Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Deyan Sun, Handong	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, F/IE-11.2 THU CJ-5.2 WED . CL-P.15 SUN, MON CA-P.2 SUN CA-P.2 SUN CE-9.1 WED
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumida, Shin Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Handong Sun, Jian	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN CE-9.1 WED CD-P.38 TUE
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca CB-P.17 MON, CB-P.30 I Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Haixuan Sun, Jian Sun, Jian	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CE-9.1 WED CD-P.38 TUE CF/IE-2.3 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Šulc, Jan •CA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, LucaC Sumida, Shin Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Handong Sun, Jian Sun, Jinghua Sun, Wenfeng	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED . CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CE-9.1 WED CF-P.38 TUE CF/IE-2.3 SUN CC-2.5 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Šulc, Jan •CA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, LucaC Sumida, Shin Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Handong Sun, Jian Sun, Jinghua Sun, Wenfeng	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED . CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CE-9.1 WED CF-P.38 TUE CF/IE-2.3 SUN CC-2.5 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Handong Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Xiao	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CP-9.38 TUE CF/IE-2.3 SUN CC-2.5 SUN CB-P.15 MON II-3.5 THU
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Handong Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Xiao	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CP-9.38 TUE CF/IE-2.3 SUN CC-2.5 SUN CB-P.15 MON II-3.5 THU
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Haixuan Sun, Jian Sun, Jian Sun, Jinghua Sun, Wenfeng Sun, Xiao Sun, Xiao Sun, Yue Sun, ZhipeiCB-4.6 TUE	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CJ-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CC-P.13 WED CP-P.13 WED CC-2.5 SUN CC-2.5 SUN CL-P.39 WED
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulimov, Vladimir CE-P.31 TUE Sulimoni, Luca Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Handong Sun, Jian Sun, Jinghua Sun, Xiao Sun, Xiao Sun, Yue Sun, Zhipei CB-4.6 TUE Sundaram, Ravi S.	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CJ-5.2 WED CA-P.10 SUN CA-P.10 SUN CA-P.10 SUN CA-P.10 WED CP-P.38 TUE CF/IE-2.3 SUN CC-2.5 SUN CB-P.15 MON II-3.5 THU E, CJ-P.39 WED CB-4.6 TUE
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 f Sun, Deyan Sun, Handong Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Zhipei .CB-4.6 TUE Sundaram, Ravi S.	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CA-P.2 SUN CE-9.1 WED CL-P.38 TUE CF/IE-2.3 SUN CE-9.1 WED CB-P.15 MON II-3.5 THU i, CJ-P.39 WED CB-4.6 TUE CE-P.3 TUE
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 f Sun, Deyan Sun, Handong Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Zhipei .CB-4.6 TUE Sundaram, Ravi S.	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CA-P.2 SUN CE-9.1 WED CL-P.38 TUE CF/IE-2.3 SUN CE-9.1 WED CB-P.15 MON II-3.5 THU i, CJ-P.39 WED CB-4.6 TUE CE-P.3 TUE
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 f Sun, Deyan Sun, Handong Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Zhipei .CB-4.6 TUE Sundaram, Ravi S.	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CA-P.2 SUN CE-9.1 WED CL-P.38 TUE CF/IE-2.3 SUN CE-9.1 WED CB-P.15 MON II-3.5 THU i, CJ-P.39 WED CB-4.6 TUE CE-P.3 TUE
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Xiao Sun, Xiao Sun, Zhipei CB-4.6 TUE Sundaram, Ravi S. Suntsov, Sergey Suomalainen, Soile Siptitz, W.	. CJ-P.27 WED Cl-3.1 WED Cl-3.1 WED CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CA-P.15 SUN CA-P.1 WED CD-P.38 TUE CF/IE-2.3 SUN CC-9.1 WED CC-9.1 SUN CC-2.5 SUN CB-P.15 MON CB-P.15 MON CB-P.15 MON CB-P.3 TUE CE-P.3 TUE CE-P.3 TUE CE-1.1 MON F-1/LIM.2 TUE CM-P.8 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Xiao Sun, Zhipei CB-4.6 TUE Sundaram, Ravi S. Suntsov, Sergey Suomalainen, Soile Siptitz, W. Sur, Tigore	. CJ-P.27 WED Cl-3.1 WED Cl-3.1 WED CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CA-P.15 SUN CA-P.1 WED CD-P.38 TUE CF/IE-2.3 SUN CC-9.1 WED CC-9.1 SUN CC-2.5 SUN CB-P.15 MON CB-P.15 MON CB-P.15 MON CB-P.3 TUE CE-P.3 TUE CE-P.3 TUE CE-1.1 MON F-1/LIM.2 TUE CM-P.8 SUN
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumjf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Handong Sun, Handong Sun, Handong Sun, Jian Sun, Jian Sun, Jian Sun, Wenfeng Sun, Xiao Sun, Xiao Sun, Xiao Sun, Xiao Sun, Zhipei Sun, Sergey Sundaram, Ravi S. Suntsov, Sergey Suomalainen, Soile Süptitz, W. Surmenko, Elena Suruceanu, Grigore CB-8.5 THU	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CP-9.38 TUE CF/IE-2.3 SUN CC-2.5 SUN CB-P.15 MON II-3.5 THU E, CJ-P.39 WED CB-4.6 TUE CE-1.1 MON F-1/LIM.2 TUE CM-P.8 SUN CM-P.8 SUN CB-8.2 THU,
Sugiyama, Sei-ichi Sugny, Dominique Sukhorukov, Andrey A. Sukow, David W. Sulc, JanCA-P.17 SUN Sulimov, Vladimir CE-P.31 TUE Sulmoni, Luca Sumpf, Bernd CB-P.17 MON, CB-P.30 I Sun, Deyan Sun, Haixuan Sun, Haixuan Sun, Haixuan Sun, Jian Sun, Jian Sun, Jian Sun, Xiao Sun, Xiao Sun, Xiao Sun, Xiao Sun, Xiao Sun, Xiao Sun, Xiao Sun, Zhipei Sundaram, Ravi S. Suntsov, Sergey Suomalainen, Soile Suruceanu, Grigore CB-8.5 THU Sushkevich, Konstantin	. CJ-P.27 WED Cl-3.1 WED IA-P.13 THU CB-5.5 TUE I, CA-P.30 SUN . CE-P.21 TUE, CJ-5.2 WED CL-P.15 SUN, MON CM-P.10 SUN CA-P.2 SUN CC-9.1 WED CP-9.38 TUE CF/IE-2.3 SUN CC-2.5 SUN CC-2.5 SUN CB-P.15 MON II-3.5 THU CB-P.15 MON CB-P.15 MON CB-P.15 MON CB-P.3 TUE CE-P.3 TUE CE-P.3 TUE CE-P.3 SUN CB-8.2 THU, CB-8.2 THU
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Tamarat, Philippe	•IH-6.1 THU
Tame, Mark	IB-8.2 THU
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Tanabe, Takasumi	. CK-P.7 MON,
Tanaka, Hitoshi C	F/IE-5.4 MON
Tanaka Takashi (F/IE-5 4 MON
Tang Cuang	CM DO SUN
Tang, Guang	. •CIVI-P.9 30IN
CH-3.3 WED Tanaka, Hitoshi C Tanaka, Takashi C Tang, Guang Tani, Francesco	. CD-3.6 SUN,
$\bullet(E/1E-P_{14}VVE_{1})$	
Taniuchi, Tsutomu Tanner, Michael	CG-P.9 THU
Tanner, Michael	CL-6.2 TUE.
JSII-1.2 WED	
Tannar Michael C	
Tanner, Michael G	. JSV-P.I TUE
Tantillo, Giuseppina	CM-1.1 SUN
Tantillo, Giuseppina Tanzi, Luca	•IC-1.2 TUE
Tarin. Cristina	II-3.4 THU
Tarin, Cristina Tarisien, Medhi	ISI-1 3 MON
Taroni, Paola	
Taschin, Andrea	
Tasco, Vittorianna	CB-P.13 MON
Tassin, Philippe	IH-6.4 THU
Tavast, Miki CB-P.2 MON	CB-10.2 THU
Tavast, Milli CD 1.2 Mon	
Tavernarakis, Alexandros . Taverne, Mike	
Taverne, Mike	CK-P.28 MON
Tayeb Naimi, Sepideh	•CI-3.4 WED
Tayebati, Parviz	-1/LIM.1 TUE
Taylor Jacob	CH-6.3 THU
Tayeb Naimi, Sepideh Tayebati, Parviz TF Taylor, Jacob Taylor, Michael	10 5 1 W/ED
Taylor, Ivlichael A CL-1	
	/LCDO.2 JON
Teddy-Fernandez, Toney	. CE-P.19 TUE
Taylor, Michael ACL-1 Teddy-Fernandez, Toney Tei, Kazuyoku	CJ-5.2 VVED
Iel. Nazuvoku	CJ-5.2 VVED
Iel. Nazuvoku	CJ-5.2 VVED
Iel. Nazuvoku	CJ-5.2 VVED
Teichmann, Stephan Teissier, Jean Tejedor, Carlos	IA-P.20 THU IA-P.20 THU
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz	IA-P.20 THU IA-P.20 THU
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU •CH-2.3 TUE,
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU •CH-2.3 TUE,
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU •CH-2.3 TUE,
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU •CH-2.3 TUE,
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU •CH-2.3 TUE,
Teichmann, Stephan Teischmann, Stephan Teiseier, Jean Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T Teppitaksak, Achaya Terzaki, Konstantina Tesio, EnricoIF-3.2 SU	CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 MON CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Teppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico Thai, Alexandre IF-1.2 SUN	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CF/IE-7.3 MON II-P.13 WED N, •IG-1.4 TUE, V, CG-1.4 TUE,
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU
Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU
Teichmann, Stephan Teicsier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Tezpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N.	CJ-3.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON
Tei, KaZUyoku Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico Thai, Alexandre OF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.28 MON IA-4 4 WED
Tei, KaZUyoku Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico Thai, Alexandre OF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.28 MON IA-4 4 WED
Tei, KaZUyoku Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico Thai, Alexandre OF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.28 MON IA-4 4 WED
Teichmann, Stephan Teickimann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-3.2 SUI Thai, Alexandre IF-1.2 SUN • CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.28 MON IA-4 4 WED
Teichmann, Stephan Teichmann, Stephan Tejseir, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terzaki, Konstantina Terzaki, Konstantina CJ-10.5 Thalmamer, Christof Tharanga, S.H.N. Thayne, Iain G Theg, Thomas CJ-8.5 WED	CG-12.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN, CJ-1.2 SUN,
Tei, Na2Uyoku Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theg, Thomas CJ-8.5 WED Thévenaz. Luc	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED IA-4.4 WED CB-1.2 SUN CD-P.47 TUE
Tei, Na2Uyoku Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theg, Thomas CJ-8.5 WED Thévenaz. Luc	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED IA-4.4 WED CB-1.2 SUN CD-P.47 TUE
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thayne, Iain G Theg, Thomas CJ-8.5 WED Thévenaz, Luc Thevenet, Maxence Thévenin Jérémie	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU CK-P.20 MON IA-4.4 WED CB-1.2 SUN, CJ-1.2 SUN, CJ-1.2 SUN, CD-P.47 TUE JSIII-P.3 WED CH-2 7 TUE
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thayne, Iain G Theg, Thomas CJ-8.5 WED Thévenaz, Luc Thevenet, Maxence Thévenin Jérémie	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU CK-P.20 MON IA-4.4 WED CB-1.2 SUN, CJ-1.2 SUN, CJ-1.2 SUN, CD-P.47 TUE JSIII-P.3 WED CH-2 7 TUE
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina Terzaki, Konstantina CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thayne, Iain G Theg, Thomas CJ-8.5 WED Thévenaz, Luc Thevenet, Maxence Thévenin Jérémie	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU CK-P.20 MON IA-4.4 WED CB-1.2 SUN, CJ-1.2 SUN, CJ-1.2 SUN, CD-P.47 TUE JSIII-P.3 WED CH-2 7 TUE
Tei, Na2Uyoku Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thevenet, Maxence Thévenin, Jérémie Thiel, Markus Thiel, Michael Che	CD-P.47 TUE JSIII-P.3 WED CK-P.26 THU IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN CD-P.47 TUE JSIII-P.3 WED CH-2.7 TUE SIII-P.3 WED CH-P.16 SUN I-3/LIM.3 TUE ID-P.1 MON
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. CE, Stephitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-3.2 SUI thai, Alexandre CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thevenet, Maxence Thévenin, Jérémie Thiel, Markus Thiel, Michael CM	CD-P.47 TUE JSIII-P.3 WED CK-P.26 THU IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN CD-P.47 TUE JSIII-P.3 WED CH-2.7 TUE SIII-P.3 WED CH-P.16 SUN I-3/LIM.3 TUE ID-P.1 MON
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. CE, Stephitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-3.2 SUI thai, Alexandre CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thevenet, Maxence Thévenin, Jérémie Thiel, Markus Thiel, Michael CM	CD-P.47 TUE JSIII-P.3 WED CK-P.26 THU IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CA-P.16 SUN II-P.13 WED N, •IG-1.2 TUE N, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN CD-P.47 TUE JSIII-P.3 WED CH-2.7 TUE SIII-P.3 WED CH-P.16 SUN I-3/LIM.3 TUE ID-P.1 MON
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-3.2 SUI Thai, Alexandre IF-3.2 SUI Thai, Alexandre IF-3.2 SUI CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thévenat, Luc Thévenit, Jérémie Thiel, Markus Thiel, Michael CM Thiel, Valerian Thiem, Hendrick Thien, Hendrick	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, CG-1.2 TUE J. CG-1.4 TUE, THU CK-P.20 MON CK-P.18 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN, CD-P.47 TUE JSIII-P.3 WED CH-2.7 TUE CM-P.16 SUN I-3/LIM.3 TUE ID-P.1 MON CB-P.17 MON CB-5.2 TUE,
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. CEPpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thévenaz, Luc Thévena, Jérémie Thiel, Markus Thiel, Markus Thiel, Markus Thien, Hendrick Thienpont, Hugo CJ-P.44 WED, IG-P.17 Th	CD-P.47 TUE JSIII-P.3 WED CB-P.17 MON CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. CEPpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thévenaz, Luc Thévena, Jérémie Thiel, Markus Thiel, Markus Thiel, Markus Thien, Hendrick Thienpont, Hugo CJ-P.44 WED, IG-P.17 Th	CD-P.47 TUE JSIII-P.3 WED CB-P.17 MON CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. CEPpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thévenaz, Luc Thévena, Jérémie Thiel, Markus Thiel, Markus Thiel, Markus Thien, Hendrick Thienpont, Hugo CJ-P.44 WED, IG-P.17 Th	CD-P.47 TUE JSIII-P.3 WED CB-P.17 MON CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON CB-P.27 TUE CB-P.17 MON
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. Creppitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thévenaz, Luc Thevenet, Maxence Thévenin, Jérémie Thiel, Michael Thiel, Michael Thiel, Michael Thiel, Michael Thiel, Michael Thiel, Michael Thiel, Michael CJ-P.44 WED, IG-P.17 TH Thijs, Peter Thijssen, Arthur C.T. Thilsted, Anil	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN, CD-P.47 TUE JSIII-P.3 WED CH-2.7 TUE JSIII-P.3 WED CH-2.7 TUE JSIII-P.3 WED CH-2.7 TUE CH-2.16 SUN I-3/LIM.3 TUE ID-P.1 MON CB-P.17 MON CB-P.5 MON IA-P.12 THU IIA-P.12 THU
Teichmann, Stephan Teichmann, Stephan Teissier, Jean Tejedor, Carlos Tenderenda, Tadeusz CH-P.8 THU Tenner, Vasco T. CEPpitaksak, Achaya Terzaki, Konstantina Tesio, Enrico IF-3.2 SUI Thai, Alexandre IF-1.2 SUN •CF/IE-9.6 WED, CJ-10.5 Thalhammer, Christof Tharanga, S.H.N. Thau, Natalie Thayne, Iain G Theeg, Thomas CJ-8.5 WED Thévenaz, Luc Thévenaz, Luc Thévena, Jérémie Thiel, Markus Thiel, Markus Thiel, Markus Thien, Hendrick Thienpont, Hugo CJ-P.44 WED, IG-P.17 Th	CJ-5.2 WED CF/IE-3.5 SUN IA-P.26 THU IA-P.20 THU CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, CH-2.3 TUE, II-P.13 WED N, •IG-1.2 TUE J, CG-1.4 TUE, THU •CK-P.20 MON CK-P.18 MON IA-4.4 WED CB-1.2 SUN, CD-P.47 TUE JSIII-P.3 WED CH-2.7 TUE JSIII-P.3 WED CH-2.7 TUE JSIII-P.3 WED CH-2.7 TUE CH-2.16 SUN I-3/LIM.3 TUE ID-P.1 MON CB-P.17 MON CB-P.5 MON IA-P.12 THU IIA-P.12 THU

Thomas, Antoni IA-7.3 THU
Thomas, Gabrielle CA-2.6 SUN, CA-P.16 SUN
Thomas, Jens UCJ-1.3 SUN, CM-7.6 THU
Thomas John Tharavil CE-6.3 THE
Thomas-Peter, Nicholas
Thomas Sebastian •CG-7.1 THU
Thommes Jan CL P 2 SUN
Thommes, Jan CL-F.2 JUN
Thompson, Mark IA-6.6 WED, PD-B.5 WED
Thompson, Mark G IA-P.12 THU Thomsen, Carsten L IF-P.10 SUN, CD-P.45 TUE, JSIII-P.6 WED
Thomsen, Carsten L IF-P.10 SUN,
CD-P.45 TUE, JSIII-P.6 WED
Thomson, M.G
Thomson, Mark
Thon Susanna M IH-6.6 THU
Thongrattanasiri Sukosin II-1.4 WED
Thongrattanasiri, SukosinII-1.4 WED Thumbs, J
Thyrrestrup, Henri
Tibai, ZoltánCG-P.21 THU
Tibai, ZoltánCG-P.21 THU Tiberi, MarcoCH-7.1 THU
Tielrooij, Klaas-Jan •CF/IE-13.4 THU
Tieß, Tobias CH-1.4 MON
Tielrooij, Klaas-Jan •CF/IE-13.4 THU Tieß, Tobias CF/IE-13.4 THU Tilma, Bauke
Tino, Guglielmo MariaID-1.3 MON Tipsmark, AndersIA-P.7 THU
Tinsmark Anders IA-P 7 THU
Tisa, Simone IA-3.1 MON, CK-10.5 THU,
IB-8.3 THU
Tisch, John •SH-9.1 MON, CG-3.3 WED,
CG-5.4 THU, CG-P.2 THU,
CG-P.16 THU
Titova, Lyubov CF/IE-12.5 THU
Titova, Lyubov CF/IE-12.5 THU Tiwari, Anjani Kumar•CK-P.34 MON
Titova, Lyubov CF/IE-12.5 THU Tiwari, Anjani Kumar•CK-P.34 MON Tlidi, Mustapha
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Titova, LyubovCF/IE-12.5 THU Tiwari, Anjani Kumar•CK-P.34 MON Tlidi, Mustapha•IG-P.12 THU, IG-P.17 THU Toda, YasunoriIF-P.14 SUN, CF/IE-P.34 WED Todaro, Maria TeresaCB-P.13 MON Todor, SebastianCF/IE-8.1 WED Todorov, FilipCF/IE-8.1 WED Togashi, TadashiCF/IE-5.4 MON, CH-P.18 THU
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Tomlin, Nathan A IB-1.1 MON
Tondusson, MarcCE-P.24 TUE
Tondusson, Marc
Tonello, Alessandro
Tong, Limin CD-P.22 TUE Tonin, Mario IH-6.5 THU
Toomey, Joshua•CB-P.39 MON
Töpper, Tino
Torii Kousuke CB-9.4 THU
Torii, KousukeCB-9.4 THU Torlina, Lisa•CG-P.13 THU
Tormen, Massimo CK-5.2 MON
Torre, Renato CC-2.6 SUN
Torregrosa, Adrián J CA-2.1 SUN,
•CD-P.17 TUE
Torres, IgnacioCE-P.16 TUE Torres, Juan PIB-1.2 MON
Torres-Mapa, Maria Leilani
 •CL-2/ECBO.2 SUN
Torres-Peiró Salvador •CM-P 21 SUN
Torres-Peiró, Salvador•CM-P.21 SUN Torres, TomasCF/IE-10.4 THU Tosi, Alberto .IA-3.1 MON, CH-4.3 THU,
IB-8.3 THU
Tosi, Daniele•CH-3.5 WED,
•CH-P.7 THU, •CH-6.4 THU Tóth, György CC-4.6 SUN, CG-P.21 THU
Táth György CC 4.6 SUN CC P.21 THU
Tóth, László D.•CK-P.11 MONToupin, PerrineCD-1.3 SUN
Toupin, Perrine
Tourte, Christian CB-P.16 MON
Toyoda, Kohei CM-5.4 WED
Trabattoni, Andrea CF/IE-1.4 SUN,
CG-2.2 TUE, CG-P.1 THU
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Traenkle, Guenther CB-P.1 MON
Tran, TruongIG-P.9 THU
Traenkle, GuentherCB-P.1 MON Tran, TruongIG-P.9 THU Tran, VietCL-5.5 TUE
Tranchant Laurent IH P 13 THU
Trönkla Cünthan CL D 15 SUN
Tranchant, Laurent IH-P.13 THU Tränkle, Günther CL-P.15 SUN,
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CB-P.23 MON, CB-P.30 MON Trapani, AdrianaCM-1.1 SUN Trapani, GiuseppeCM-1.1 SUN Traub, MartinCI-P.7 TUE Travers, JohnCD-3.6 SUN, CF/IE-P.14 WED Travers, John CCD-3.5 SUN, CF/IE-6.6 MON Travis, ChristopherCD-26 TUE Treadwell, PaulCG-P.20 THU Trebino, RickCF/IE-3.6 SUN Tredicce, Jorge RIG-5.3 THU Tredici, Salvatore Maurizio .CM-P.3 SUN Tredicucci, AlessandroCC-2.3 SUN, CC-2.6 SUN
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CB-P.23 MON, CB-P.30 MON Trapani, Adriana
CB-P.23 MON, CB-P.30 MON Trapani, AdrianaCM-1.1 SUN Trapani, GiuseppeCM-1.1 SUN Traub, MartinCl-P.7 TUE Travers, JohnCD-3.6 SUN, CF/IE-P.14 WED Travers, John CCD-3.5 SUN, CF/IE-6.6 MON Travis, ChristopherCD-3.5 SUN, CF/IE-6.6 MON Travis, ChristopherCD-2.6 TUE Treadwell, PaulCG-P.20 THU Trebino, RickCF/IE-3.6 SUN Tredicce, Jorge RIG-5.3 THU Tredici, Salvatore Maurizio .CM-P.3 SUN Tredicic, AlessandroCF/IE-11.3 THU Treps, Nicolas ID-1.6 MON, ID-P.1 MON, IA-5.2 WED Trifonov, AntonCA-P.7 SUN, CA-P.9 SUN Trikshev, AntonCJ-P.33 WED Trillo, StefanoIF-P.4 SUN, CD-11.1 WED, IG-5.4 THU Trinité, VirginieJSII-1.5 WED, JSII-P.3 WED Trisorio, AlexandreCF/IE-P.21 WED,
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CB-P.23 MON, CB-P.30 MON Trapani, Adriana

Tropper, Anne C CB-P.25 MON
Trubetskov, Michael•CF/IE-5.6 MON,
CF/IE-P.3 WED
Trügler, AndreasIH-5.4 THU
Trull, JoseCK-P.13 MON Trull, JosepCK-P.25 MON
Trull, JosepCK-P.25 MON
Trusiak, Maciei
Trusiak, Maciej
Tsal, Din Ping . II-P.14 WED, II-S.2 THU
Isakiris, GeorgeCG-P.11 THU
Tsai, Din Ping .II-P.14 WED, II-3.2 THU Tsakiris, George
Isekrekos, Christos
Tsiatmas, AnagnostisCF/IE-11.4 THU Tsilipakos, Odysseas•CD-P.14 TUE Tsironis, Giorgos PJSIII-P.3 WED
Tsilinakos Odysseas •CD-P 14 TUF
Tsironis Ciorgos P ISIII P3 WED
Tsui, Ying CF/IE-12.5 THU
Tsuji, NorihiroCA-1.1 SUN Tsujimoto, MCC-3.4 SUN Tsukamoto, KojiCJ-P.34 WED
Tsujimoto, MCC-3.4 SUN
Tsukamoto, KojiCJ-P.34 WED
Tsukamoto Masahiro CI-P 34 WED
Tsukamoto, Masahiro CJ-P.34 WED Tsvetkov, Vladimir CE-P.21 TUE,
CE-P.31 TUE, CJ-P.33 WED,
CE-P.31 TUE, CJ-P.33 WED,
CJ-7.6 WED
Tu, Haohua CF/IE-8.4 WED
Tualle-Brouri, RosaIA-1.4 MON
Tudorovskava, Maria
Tukker, Teus W.CE-9.4 WEDTulli, Domenico•CE-2.1 MON,
Tulli Domonico
CE-2.2 MON
Tünnermann, Andreas IF-2.1 SUN,
CJ-1.3 SUN, CJ-3.1 MON, CJ-3.2 MON,
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CD-6.5 MON, CJ-4.3 MON,
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CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turrisyn, Sergey CJ-9.3 THU, IG-P.18 THU Turribull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CH-P.10 THU Turbill, Peter G CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turrisyn, Sergey CJ-9.3 THU, IG-P.18 THU Turribull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CH-P.10 THU Turbill, Peter G CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtisyn, Sergei CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turitsyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtisyn, Sergei CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turitsyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtisyn, Sergei CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turitsyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-8.2 WED Tussiwand, Giuseppe CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey CD-6.1 MON
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtisyn, Sergei CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turitsyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-8.2 WED Tussiwand, Giuseppe CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey CD-6.1 MON
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CJ-9.1 THU Turchetti, Giorgio CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turisyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CF/IE-P.4 TUE Türsivanan, Pierre PD-B.2 WED Tussivand, Giuseppe CH-P.10 THU Tuthill, Peter G CF/IE-P.42 WED Tuthill, Peter G CH-6.1 THU Tyzahev, Aleksey
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtisyn, Sergei CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turitsyn, Sergey CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-8.2 WED Tussiwand, Giuseppe CF/IE-9.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey CD-6.1 MON Tyler, N IA-2.1 MON Tyrtx, Mateusz Amadeusz CM-6.4 THU Tvrtvshow, Valentin CE-8.5 WED
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchiti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtsyn, Sergei CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turitsyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CF/IE-P.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey CM-6.1 MON Tyler, N IA-2.1 MON Tyrk, Mateusz Amadeusz CM-6.4 THU Tzortzakis, Stelios CC-P.14 SUN,
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turchetti, Giorgio CJ-9.1 THU Turchetti, Giorgio CJ-9.1 THU Turchetti, Giorgio CJ-9.1 THU Turchetti, Giorgio CJ-9.1 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtsyn, Sergei CJ-P.10 WED, C.J-P.20 WED, CI-5.6 WED, IG-4.3 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CI-P.4 TUE Turschmann, Pierre CP-IE-P.42 WED Tuthill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey IA-2.1 MON Tyler, N IA-2.1 MON Tyrk, Mateusz Amadeusz CM-6.4 THU Tyrtyshny, Valentin CE-8.5 WED Tzortzakis, Stelios CC-P.14 SUN, IG-P.14 THU
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turconi, Margherita IG-P.11 THU Turchetti, Siorgio CJ-9.1 THU Turchetti, Giorgio CJ-P.10 WED, CJ-P.20 WED, CI-5.6 WED, IG-4.3 THU Turribull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre CB-P.25 MON Turner, Peter S CH-P.4 TUE Türschmann, Pierre CH-6.7 THU Tuzson, Bela CH-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey IA-2.1 MON Tyler, N IA-2.1 MON Tyrk, Mateusz Amadeusz CM-6.4 THU Tyrtyshnyy, Valentin CE-8.5 WED Tzortzakis, Stelios CJII-9.3 WED
CJ-5.3 WED, CA-9.4 WED, JSIII-P.5 WED, JSIII-1.4 WED, CJ-7.2 WED, CG-4.5 THU, CJ-10.1 THU, CK-8.3 THU, CM-6.1 THU, CM-6.6 THU, IA-P.13 THU, CM-7.6 THU, CG-6.2 THU, CM-8.5 THU Tünnermann, Henrik CE-4.2 TUE, •CJ-8.5 WED Tünnermann1, Andreas CJ-9.1 THU Turchetti, Giorgio CG-P.18 THU Turchetti, Giorgio CG-P.18 THU Turchinovich, Dmitry CF/IE-8.4 WED Turconi, Margherita IG-P.11 THU Turtsyn, Sergei CJ-P.10 WED, C.J-P.20 WED, CI-5.6 WED, IG-4.3 THU Turtsyn, Sergey CJ-9.3 THU, IG-P.18 THU Turnbull, Andrew P CB-P.25 MON Turner, Peter S IB-6.2 THU Turpin, Alex CI-P.4 TUE Türschmann, Pierre PD-B.2 WED Tussiwand, Giuseppe CI-P.4 TUE Tutsill, Peter G CM-6.7 THU Tuzson, Bela PD-A.9 WED, CH-P.14 THU Tyazhev, Aleksey IA-2.1 MON Tytrk, Mateusz Amadeusz CM-6.4 THU Tyrtyshny, Valentin CE-8.5 WED Tzortzakis, Stelios CC-P.14 SUN, IG-P.14 THU

CF/IE-2.2 SUN
Uebel, PatrickIH-1.5 SUN
Uechi, Shinya CE-P.5 TUE
Ueda, Ken-ichiCJ-8.6 WED
Ueda, TsutomuCA-8.6 WED
Uechi, Shinya
Unlendort, Kristina
Ukai, Ryuji IB-P.1 MON, IA-P.6 THU
Ullrich, JoachimCG-1.4 TUE Ulysse, ChristianCK-7.4 THU,
Ulysse, Christian CK-7.4 THU,
ÎH-P.7 THU
Umbriaco, Gabriele CK-P.12 MON Umezawa, Toshimasa•CI-2.1 TUE
Umezawa, Toshimasa•CI-2.1 TUE
Unger, Peter
Unger, Sonja
Unlu, Mehmet BurcinCL-P.16 SUN Unsleber, SebastianIB-5.1 THU Unterkofler, SarahCH-6.1 THU Unterrainer, KarlCC-P.3 SUN, CC-4.1 SUN, CC-4.4 SUN,
Unsieber, Sebastian
Unterkofler, SarahCH-6.1 THU
Unterrainer, Karl CC-P.3 SUN,
CC-4.1 SUN, $CC-4.4$ SUN,
CE-5.5 TUE
Uozumi, Shin-ichi CF/IE-P.33 WED
Uphoff, Manuel IA-1.5 MON Uppu, Ravitej •CK-8.4 THU Urbach, Paul CH-3.4 WED Ursin, Rupert IB-7.3 THU
Urbach, Paul
Ursin, RupertIB-7.3 THU
Usami, KojiCH-6.3 THU
Usovich, Olga CE-P.21 TUE,
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CK-P.26 MON, CM-4.2 WED
Vadimova, Olga
Valente, Joao
Valentin, Constance CJ-11.3 THU
Valkunas Leonas ISIV-1.4 MON
Valkunas, Leonas JSIV-1.4 MON Valla, Matthieu
Vallée Fabrice IH-P 15 THU
Vallée, Fabrice
Vallet Marc •CH-27 TUE IG-P5 THU
Vallon, Raphaël
Valmorra, Federico
Vamvakaki, Maria
CH-3.2 WED, CM-8.4 THU
Van Campenhout, JorisCK-9.2 THU
van Dalfsen, Koop CE-6.1 TUE,
•PD-A 4 WFD
van den Dool, Teun CH-3.4 WED
van der Beek, TimmoIH-P.20 THU
van den Dool, Teun CH-3.4 WED van der Beek, Timmo IH-P.20 THU Van der Sande, Guy CB-5.4 TUE,
IG-P.7 THU
van der Slot, Peter CK-2.5 SUN
van der Tol, JosCl-P.12 TUE,
CK-9.1 THU
van der Werf, Kees O CL-P.9 SUN
van Dijk, Paulus CI-2.4 TUE
van Dongen, KoenCH-3.4 WED
Van Dorpe, Pol . II-P.1 WED, II-P.4 WED
van Driel, Henry M IG-3.5 WED
van Driel, Henry MIG-3.5 WED van Grondelle, Rienk JSIV-P.1 MON,
JSIV-1.2 MON Van Hulst, NiekIH-3.5 THU van Hulst, Niek FJSIV-1.5 MON, IH-3.2 THU
Van Hulst, Niek IH-3.5 THU
van Hulst, Niek F•JSIV-1.5 MON,
van Loock, Peter IB-P.1 MON,
IB-4.4 TUE

van Mechelen, JacobusCH-P.6 THU
von Button Elbort CL 2/ECRO 1 SUN
van Putten, ElbertCL-2/ECBO.1 SUN van Stokkum, IvoJSIV-P.1 MON
Van Stokkum, IVOJSIV-P.1 MON
Van Thourhout, Dries•SH-11.1 TUE
Van Zanten, Thomas IH-3.5 THU
Van Thourhout, Dries•SH-11.1 TUE Van Zanten, ThomasIH-3.5 THU Vandecasteele, BjörnCM-P.22 SUN
Vanderbruggen Thomas •IC-P3 TUE
Vangeleyn Matthieu IA 4.6 WED
Vangeleyn, Matthieu IA-4.6 WED Vanhotsker, Moshe CJ-P.29 WED Vannahme, Christoph CB-6.5 TUE, II-P.5 WED, •CK-7.5 THU
Vanhotsker, Moshe CJ-P.29 WED
Vannahme, Christoph CB-6.5 TUE,
II-P.5 WED, •CK-7.5 THU
Varanavicius, Arunas CD-P.6 TUE,
CF/IE-P.4 WED, CG-5.2 THU
Varoli, Vincenzo CG-P.18 THU
Varshney, ShailendraCJ-P.23 WED
Vasa, ParindaIH-4.2 THU
Vasilantonakis, NikosII-P.13 WED
Vasilantonakis, Nikos II-P.13 WED Vasilyev, SergeyCB-2.7 SUN Vatnik, IlyaCJ-P.19 WED Vatnik, SergeiCA-2.3 SUN, CA-3.5 SUN
Vatnik IIva
Vatnik, Sergel . CA-2.3 SUN, CA-3.5 SUN
Vayshenker, IgorJSV-1.1 TUE Vázquez-Córdova, Sergio ACE-6.1 TUE
Vázquez-Córdova, Sergio A CE-6.1 TUE
Veber, Alexander CE-P.21 TUE,
Veber, Alexander CE-P.21 TUE, •CE-P.31 TUE
Veber Philippe CA 4 2 SUN
Veber, PhilippeCA-4.2 SUN Vedadi, ArmandCD-P.47 TUE Vedin, IvanCA-3.5 SUN
Vedadi, ArmandCD-P.47 TUE
Vedin, Ivan CA-3.5 SUN
Vedral, VlatkoIB-6.6 THU
Veiga-Gutiérrez, Manoel CL-P.7 SUN
Vedral, Vlatko IB-6.6 THU Veiga-Gutiérrez, Manoel CL-P.7 SUN Veissier, Lucile
Veisz, Laszlo CG-3.2 WED, •CG-4.3 THU,
CG-P.11 THU
Veitch, PeterCA-7.1 TUE
Velardi, LucianoCM-P.3 SUN,
Veitch, PeterCA-7.1 TUE Velardi, LucianoCM-P.3 SUN, CG-P.18 THU
Velazquez, MatiasCA-4.2 SUN Velmiskin, VladimirCJ-12.1 THU Venkitesh, DeepaCD-P.20 TUE
Velmiskin Vladimir CI 12 1 THU
Venkitech Deene CD D 20 THE
Venkitesh, Deepa
Vercshuuren, Marc AII-P.15 WED
Vercshuuren, Marc AII-P.15 WED Vercetennicoff, IrinaIH-6.4 THU
Verheyen, PeterCK-9.2 THU Verhoef, Aart CJ-2.5 SUN, •CG-1.2 TUE,
Verhoef, Aart CJ-2.5 SUN. •CG-1.2 TUE.
CA-8.2 WED, •CJ-6.4 WED
Verhoof Aart Jan CLP 21 WED
Verhoef, Aart JanCJ-P.21 WED Verlot, PierrePD-B.4 WED, IA-P.26 THU, CH-7.2 THU
Verlot, PierrePD-B.4 WED,
IA-P.26 THU, CH-7.2 THU
Verma, Varun BJSV-1.1 TUE Vernac, LaurentIC-2.4 TUE
Vernac, Laurent
Vernaleken Andreas •ID-P 2 MON
Vernaleken, Andreas•ID-P.2 MON Vernhet, Dominique CF/IE-P.7 WED
Verniet, Dominique CF/IE-P.7 WED
Veronesi, Stefano CA-3.3 SUN,
CE-6.3 TUE
Verschaffelt, Guy CB-5.4 TUE,
CB-6.2 TUE
Vershinin, Oleg CE-P.18 TUE
Versteeren Maud
Versteegen, Maud JSI-1.3 MON Vescovi, Paolo CM-P.7 SUN
Vescovi, Paolo
Vespini, Veronica CK-5.4 MON,
CE-P.14 TUE, CE-P.26 TUE,
CL-6.6 TUE
Vest, Benjamin
Vest, Gwenaelle
Vetter, Christian CM-6.1 THU,
•CH-7.5 THU
Vezzoli, Stefano CE-9.6 WED Viana, Bruno .CA-5.2 TUE, CE-P.9 TUE,
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Vicario, Carlo
Visancia Dadwine A ISUL 1.4 WED
Vicencio, Rourigo A JSIII-1.4 WED
Vidal, Xavier CK-3.4 SUN, •CK-6.1 WED
Vié Véronique CE-4.6 THE
Vienne, Guillaume
Viktorov, Evgeny A CB-3.4 MON
Vila Planas Jordi CE 4 5 THE
Vilaseca, Ramon CK-P.25 MON
Vilchez E Javier CI-P 5 TUE
Vicencio, Rodrigo A JSIII-1.4 WED Vidal, Xavier CK-3.4 SUN, •CK-6.1 WED Vié, Véronique CE-4.6 TUE Vienne, Guillaume CD-P.22 TUE Viktorov, Evgeny A CB-3.4 MON Vila-Planas, Jordi CE-4.5 TUE Vilaseca, Ramon CK-P.25 MON Vilchez, F. Javier CB-P.32 MON Vilchez, Luis Guillermo CH-9.3 TUE
Villanueva, Luis Guillermo CH-6.3 THU
Villares Gustavo •CH-1.2 MON
Villanueva, Luis Guillermo CH-6.3 THU Villares, GustavoCH-1.2 MON Villeneuve, Alain•CJ-P.13 WED Vincent, PascalCH-7.2 THU Vincenti, HenriCG-3.5 WED Vinet Fric
Vincent, Pascal
Vincenti Henri CC 2 E W/ED
Vinet, EricCB-9.5 THU
Vinogradov Alexev P CK-P 31 MON
Vinet, Fric
Virkki, Matti CL-P.8 SUN, •CE-7.5 WED
Virte Martin CB 5 2 THE AC P 15 THU
Viskontas, Karolis CF/IE-P.19 WED Vitali, David . IB-P.5 MON, •IA-7.2 THU,
Vitali David IB-P.5 MON •IA-7.2 THU
•IA-7.6 THU
Vitanov, NikolayIA-P.10 THU
Vitanov, NikolayIA-P.10 THU Vitelli, Chiara IB-P.2 MON, IA-2.5 MON,
IA-5.5 WED
Viti, Leonardo
Vitialla Miniara C
Villello, Ivilriam 5 CC-2.5 501V
Vitiello, Miriam Serena CC-2.6 SUN
Vivien Laurent •CL-2.3 TUE
Vizet, Jeremy•CL-5.0 TUE
Vladimirov, AndreiCB-P.27 MON,
IG-P.12 THU, IG-P.17 THU
Vladimiray Andrai C CE/IE D 27 W/ED
Vo, TrungIB-1.3 MON
Vodopvanov Konstantin CE/IE-5.6 MON
Vodopyanov, Konstantin CF/IE-5.6 MON
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, BorisCG-6.5 THU
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, BorisCG-6.5 THU Vogelsang, JanIH-5.3 THU
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, Boris
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, BorisCG-6.5 THU Vogelsang, JanIH-5.3 THU Vogl, UlrichIH-5.3 THU
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, Boris
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, BorisCG-6.5 THU Vogelsang, JanIH-5.3 THU Vogl, UlrichIB-P.16 MON Voicu, FlaviusCA-9.5 WED Voigt, KarstenCI-1.2 MON
Vodopyanov, Konstantin CF/IE-5.6 MON Vodungbo, BorisCG-6.5 THU Vogelsang, JanIH-5.3 THU Vogl, UlrichIB-P.16 MON Voicu, FlaviusCA-9.5 WED Voigt, KarstenCI-1.2 MON Voietländer Christian CL-1.3 SUN
Vitelli, Chiara IB-P.2 MON, IA-2.5 MON, IA-5.5 WED Viti, Leonardo CC-2.3 SUN Vitiello, Miriam S CC-2.3 SUN Vitiello, Miriam Serena CC-2.3 SUN Vitiello, Miriam Serena CC-2.3 SUN Vitiello, Miriam Serena CC-2.3 TUE Vizet, Jérémy •CL-5.6 TUE Vladimirov, Andrei CB-P.27 MON, IG-P.12 THU, IG-P.17 THU Vladimirov, Andrei G. .CF/IE-P.27 WED Vo, Trung
Voisin, Paul
CM-7.5 THU Voisin, Paul
CM-7.5 THU Voisin, Paul
CM-7.5 THU Voisin, Paul
CM-7.5 THU Voisin, Paul
Voisin, Paul
CM-7.6 THU Voisin, Paul
Voisin, Paul
Voisin, Paul
Voisin, Paul
Voisin, Paul
CM-7.6 THU Voisin, Paul
Voisin, Paul

Vozzi, Caterina CF/IE-5.5 MON, CG-1.3 TUE, CF/IE-10.3 THU,
•CF/IE-10.5 THU
Vrakking, MarcCG-2.2 TUE Vtyurina, DariaCE-P.21 TUE
Vtyurina, Daria CE-P.21 TUE
Vu Nghiem CB-P 30 MON
Vu, NghiemCB-P.30 MON Vynck, KevinCK-5.2 MON,
CK-P.35 MON
Waasem, Niklas•CE-7.3 WED
Waasem, Niklas•CE-7.3 WED Wabnitz, StefanCK-2.2 SUN,
CI-3.1 WED, CD-11.6 WED,
CD-12.4 WED, JSIII-2.1 WED,
IG-P.3 THU, IG-4.5 THU
Wabnitz, Stefano•JSIII-P.2 WED
Wackerow, Stefan•CM-P.5 SUN,
•CE-P.30 TUE
Wada, Satoshi IF-4.3 SUN, CD-P.13 TUE
Wada, Saloshi IF-4.5 SUN, CD-P.15 TUE
Waddie, AndrewCK-P.27 MON,
•CK-10.5 THU
Wadsworth, WilliamIA-P.16 THU,
IB-8.2 THU
Wadsworth, William JCE-4.1 TUE
Waeselmann, Sven-Henning •CE-P.1 TUE
Wagner, Florian•CG-4.4 THU
Wagner, Florian
Wagner, Joachim
Wagner, JoachimCD-4.5 TUE,
JSII-2.2 WED, JSII-P.2 WED,
CB-10.5 THU
Wagner, Steven
Wagner, StevenCH-P.16 THU Wahl, DietmarCB-8.4 THU
Wahlbrink, Thorsten CE-P.11 TUE,
CK-9.4 THU Waitz, Reimar CF/IE-12.2 THU
Waitz. Reimar CF/IE-12.2 THU
Wakamiya Kouii CI-4.4 WED
Wakamiya, KoujiCl-4.4 WED Waks, EdoIA-6.1 WED
Waks, EdoIA-0.1 WED
Wakui, KentaroIB-P.10 MON Walasik, WiktorIF-P.6 SUN Walbaum, TillCD-P.1 TUE,
Walasik, WiktorIF-P.6 SUN
•CD-P.2 TUE, CJ-8.3 WED
•CD-P.2 TUE, CJ-8.3 WED
•CD-P.2 TUE, CJ-8.3 WED Walborn, StephenIB-P.4 MON Waldow, MichaelCE-P.11 TUE,
•CD-P.2 TUE, CJ-8.3 WED Walborn, StephenIB-P.4 MON Waldow, MichaelCE-P.11 TUE,
•CD-P.2 TUE, CJ-8.3 WED Walborn, StephenIB-P.4 MON Waldow, MichaelCE-P.11 TUE, CK-9.4 THU
•CD-P.2 TUE, CJ-8.3 WED Walborn, StephenIB-P.4 MON Waldow, MichaelCE-P.11 TUE, CK-9.4 THU Wale, M.JCB-3.3 MON
•CD-P.2 TUE, CJ-8.3 WED Walborn, StephenIB-P.4 MON Waldow, MichaelCE-P.11 TUE, CK-9.4 THU Wale, M.JCB-3.3 MON
•CD-P.2 TUE, CJ-8.3 WED Waldorn, Stephen
• CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen IB-P.4 MON Waldow, Michael CE-P.11 TUE, CK-9.4 THU Wale, M.J
• CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen IB-P.4 MON Waldow, Michael CE-P.11 TUE, CK-9.4 THU Wale, M.J
• CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen IB-P.4 MON Waldow, Michael CE-P.11 TUE, CK-9.4 THU Wale, M.J
• CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen IB-P.4 MON Waldow, Michael CE-P.11 TUE, CK-9.4 THU Wale, M.J CB-3.3 MON Wale, Mike J • CK-9.5 THU Walk, Nathan .IB-P.3 MON, IB-5.4 THU Walker, Graeme IF-P.13 SUN Waller, Erik CM-3/LIM.3 TUE, II-4.2 THU
•CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen CE-P.11 TUE, CK-9.4 THU Wale, M.J. Wale, M.J. Wale, Mike J. Walk, Nathan BP-3 MON, IB-5.4 THU Walker, Graeme FF-13 SUN Waller, Erik Waller, Erik CM-3/LIM.3 TUE, II-4.2 THU Walker, Graeme CH-4 5 THU
• CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldorn, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldorn, Stephen
• CD-P.2 TUE, CJ-8.3 WED Walborn, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldown, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldown, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldom, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldom, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldom, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldown, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldown, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldom, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldom, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldom, Stephen
• CD-P.2 TUE, CJ-8.3 WED Waldown, Stephen

Wang, Hongjie	Wentsch, Katrin SarahCA-5.4 TUE,	W
Wang, JIA-2.1 MON	•CA-5.5 TUE	W
Wang, Ke CL-4.1 MON	Wenzel, Hans CB-P.28 MON,	
Wang, Li	CB-P.29 MON, CB-P.30 MON,	W
Wang, Lifeng	CB-9.1 THU, CB-9.2 THU	
Wang, Lihong V •CL-1/ECBO.1 SUN	Werhahn, Jasper C •CF/IE-12.4 THU	W
Wang, Lihua CH-2.7 TUE, IG-P.5 THU	Werner, Albrecht	W
Wang, PuCJ-P.24 WED	Werner, Christoph	W
Wang, Qingpu CA-P.5 SUN	Werner, Marcel	W
Wang, ShaofeiCD-3.2 SUN,	Weßels, Peter CJ-1.6 SUN, CE-4.2 TUE,	W
•CJ-P.11 WED Wang, WeiIH-4.2 THU	CJ-P.16 WED, CJ-8.5 WED	W
	Wesemann, VolkerCA-5.4 TUE Wessels, PeterCH-6.5 THU	W
Wang, Weitao CA-P.5 SUN Wang, Wenhan IB-P.19 MON	West, Kenneth WIG-3.5 WED	Ŵ
Wang, Xiao CL-4.3 MON	Westbergh, Petter	Ŵ
Wang, Xiaoli	Westbrook, ChrisIC-P.6 TUE	Ŵ
Wang, Xinke	Westbrook, Paul	•••
Wang, YiminIA-4.5 WED	Westerberg, Niclas IF-P.4 SUN	W
Wang, Yu-Ting CF/IE-P.38 WED,	Westerveld, Wouter•CH-3.4 WED	Ŵ
CF/IE-12.3 THU	Wetzel, BenjaminJSIII-2.2 WED,	Ŵ
Wang, ZiyaoCB-6.5 TUE	•IG-5.5 THU	W
Wangüemert-Pérez, J. Gonzalo	Wheeler, JonathanCG-3.5 WED	
CK-9.3 THU	White, Andrew IB-P.9 MON, IB-2.5 TUE,	
Warburton, Richard JJSV-P.1 TUE	IB-6.1 THU	W
Ward, Martin B PD-B.3 WED	Whittaker, S.R IA-2.1 MON	W
Warm, StefanCD-P.24 TUE	Wichmann, Matthias CC-3.1 SUN	W
Wasiak, MichalCB-P.34 MON,	Wicht, Andreas CB-P.1 MON	W
CB-P.40 MON	Wiedmann, Jörg CB-P.17 MON	W
Wasilewski, Wojciech IA-P.19 THU	Wiegele, Sarah•CL-6.3 TUE	W
Wasley, Nicholas AIA-P.12 THU	Wienhold, TobiasCL-6.3 TUE	W
Wasserscheid, Peter	Wiersma, Diederick CK-5.2 MON	W
Watabe, Mizuki•CM-5.1 WED	Wiersma, Diederik S CK-P.35 MON,	W
Watanabe, C CC-3.4 SUN	IH-P.20 THU	W
Watanabe, Shuntaro CG-6.3 THU	Wieser, Wolfgang CF/IE-8.1 WED,	W
Watanabe, Takahiro CF/IE-5.4 MON	PD-A.8 WED	W
Watarai, Toshiharu	Wilcox, Keith G CB-P.25 MON	W
Watts, ReganCD-P.20 TUE, •CI-3.5 WED	Wildermuth, Stephan•CH-P.6 THU Wilk, Tatjana	w
Webb, KarenIF-2.2 SUN	Wilkes, C IA-2.1 MON	Ŵ
Weber, Markus	Wilkes, Joe	Ŵ
Weber, Sébastien•CF/IE-10.2 THU,	Williams, Robert J CM-8.5 THU	Ŵ
•CG-P.2 THU	Willke, Benno	
Wegener, MartinCK-7.1 THU	Wilson, Brian	W
Weger, MatthiasCG-1.1 TUE,	Windeler, Robert	Ŵ
ČG-7.3 THU	Winkelmann, Lutz CH-6.5 THU	Xa
Wei, HaoyunCH-2.6 TUE	Winkler, KarolIH-P.10 THU	Xi
Wei, Wei CA-P.5 SUN	Winter, David CG-P.20 THU	Xi
Weichelt, BirgitCA-5.2 TUE,	Wipfler, Alexander•CD-4.1 SUN	Xi
•CA-5.4 TUE, CA-5.5 TUE, CA-9.3 WED	Wise, Frank•SH-12.1 TUE,	Xi
Weig, Thomas CF/IE-11.2 THU	CF/IE-P.11 WED, CF/IE-8.5 WED	Xi
Weigand, Rosa IF-1.1 SUN	Withford, Michael CH-1.6 MON,	Xi
Weihs, Gregor IA-2.2 MON, IA-2.3 MON,	IB-2.5 TUE, CF/IE-P.42 WED,	
IB-3.5 TUE, IH-P.9 THU, IH-P.10 THU	CJ-12.6 THU	Xi
Weimann, Steffen	Withford, Michael J CM-6.3 THU,	Xi
Weinfurter, HaraldIB-P.12 MON,	CM-6.7 THU, CM-7.2 THU,	Xι
IB-3.2 TUE, IB-5.1 THU, IB-8.4 THU	CM-8.5 THU	XL XL
Weingart, Oliver JSIV-2.4 MON Weis, StefanCK-10.1 THU	Witte, Stefan•CF/IE-7.3 MON, CA-8.3 WED	Χι Χι
Weiss, ClemensCK-6.4 WED	Witting, Tobias•CG-3.3 WED,	XL
Weiss, Matthias CE-3.5 MON	CG-5.4 THU, CG-P.2 THU,	
Weiss, Thomas	CG-P.16 THU	Xι
Welikow, Katrin CI-2.2 TUE,	Wittmann, Bernhard IB-7.3 THU	XL
•CE-P.29 TUE	Wittmann, TiborCG-3.2 WED,	Χι
Wellens, ThomasJSIV-2.1 MON	CG-4.3 THU	XL
Wen, FangfangCK-6.5 WED	Wittrock, Ulrich	Χι
Wenger, Jérôme	CA-P.22 SUN	
Wentsch, KatrinCA-5.2 TUE	Wittwer, Valentin JCB-4.6 TUE	Χι

M/Hanna MALaharah	
Witzan, Michael	
Wixforth, Achim	CE-3.5 MON,
IH-6.6 THU	
Woerdemann, Mike	CL-P7 SUN
CL-3.4 MON	
Woerner, MichaelCF Woggon, Ulrike	/IE-13.1 THU
Woggon, Ulrike	IH-6.3 THU
Wojciechowski, Adam	IF-3.1 SUN
Wolf, Jean-Piere	
	. CD-1.1 JUN
Wolf, Johanna M.	. •CB-2.2 SUN
Wolf, Martin	.F/IE-4.1 SUN
Wolfgramm, Florian	•IA-5.5 WED
Wollenhaunt Matthias	E/IE 1 1 SUIN
Wollenhaupt, Watchas	
vvolinoten, Richard	CIVI-4.6 VVED
Wollenhaupt, MatthiasC Wollhofen, Richard Wolterink, Tom A.W	IA-P.3 THU
Wolters, Janik	•IA-3.2 MON,
Wolters, Janik CK-7.1 THU	,
Wolters, Ulrike	
Wolters, Ulrike	•CA-8.5 WED
Wondraczek, Lothar	CD-1.3 SUN
Wong, Gordon	. CK-4.1 SUN
Wörhoff Kerstin	CL-P9 SUN
CL-6.1 TUE, CK-10.2 THU	,
CK-10.3 THU, CK-10.6 TH	10
Wouters, Johan	. CK-9.2 THU
Wouters, Johan	•CE-P.4 TUF
Wu, David S.	
Wu, David S	.•CI-5.5 WED
Wu, Kan Wu, Sida	.•CI-5.2 WED
Wu, Sida	CJ-P.24 WED
Wu, Tian	IA-P16 THU
Wu, Tian Wu, Xiao	CM P 10 SUN
Wu, Xiaodong Wu, Xuejian Wu, Zhenguo	. CA-P.2 50N
Wu, Xuejian	•CH-2.6 TUE
Wu, Zhenguo	. CA-P.5 SUN
Wubs, Martijn Wuite, Gijs	IH-2.3 WED
Wuite Cilc	
	. CL-3.3 WON
Wulf, Matthias	
	\dots II-P.5 VVED,
•CK-8.1 THU, •CF/IE-11.5	THU
Wulf, Matthias •CK-8.1 THU, •CF/IE-11.5 Wünsche, Martin	THU . CH-4.4 THU
•CK-8.1 THU, •CF/IE-11.5 Wünsche, Martin	THU . CH-4.4 THU
Wünsche, Martin Wurnam, Marcel	. CH-4.4 THU . CJ-7.3 WED
Wünsche, Martin Wurnam, Marcel Wurtz Greg	. CH-4.4 THU . CJ-7.3 WED CK-5 3 MON
Wünsche, Martin Wurnam, Marcel Wurtz Greg	. CH-4.4 THU . CJ-7.3 WED CK-5 3 MON
Wünsche, Martin Wurnam, Marcel Wurtz Greg	. CH-4.4 THU . CJ-7.3 WED CK-5 3 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE,
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wyatt, Adam	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, •CG-5.4 THU
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wystt, Adam Wysocki, Gerard	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, •CG-5.4 THU . CH-1.3 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wystt, Adam Wysocki, Gerard	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, •CG-5.4 THU . CH-1.3 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wystt, Adam Wysocki, Gerard	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, •CG-5.4 THU . CH-1.3 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wyatt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, •CG-5.4 THU . CH-1.3 MON . CB-5.4 TUE . CK-4.1 SUN
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wyatt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming Xia, Yuangin	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, •CG-5.4 TUE . CH-1.3 MON CB-5.4 TUE CK-4.1 SUN •CG-P.19 THU
Wünsche, Martin Wurta, Greg Wurtz, Greg	. CH-4.4 THU .CJ-7.3 WED .CK-5.3 MON . CE-5.4 TUE, .CG-5.4 THU .CH-1.3 MON CB-5.4 TUE CK-4.1 SUN CG-P.19 THU .CM-1.4 SUN
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wystt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming Xiao, J. Xiao, Limin	. CH-4.4 THU . CJ-7.3 WED .CK-5.3 MON . CE-5.4 TUE, .CG-5.4 TUE CH-1.3 MON CB-5.4 TUE CK-4.1 SUN CG-P.19 THU .CM-1.4 SUN CD-P.30 TUE
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wystt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming Xiao, J. Xiao, Limin	. CH-4.4 THU . CJ-7.3 WED .CK-5.3 MON . CE-5.4 TUE, .CG-5.4 TUE CH-1.3 MON CB-5.4 TUE CK-4.1 SUN CG-P.19 THU .CM-1.4 SUN CD-P.30 TUE
Wünsche, Martin Wurta, Greg Wurtz, Greg	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CK-4.1 SUN . CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE
Wünsche, Martin Wurta, Greg Wurtz, Greg	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CK-4.1 SUN . CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE
Wünsche, Martin Wurta, Greg Wurtz, Greg	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CK-4.1 SUN . CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE
Wünsche, Martin Wurta, Greg Wurtz, Greg	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CK-4.1 SUN . CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wystt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming Xia, Yuanqin Xiao, J. Xiao, Limin Xiao, Sanshui Xie, Xinhua •CG-1.5 TUE CG-P.4 THU Xiong, Chunle IB-1.3 MON	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 THU . CH-1.3 MON CB-5.4 TUE CK-4.1 SUN . CG-P.19 THU . CD-P.30 TUE II-1.1 WED , CG-2.3 TUE, F/IE-5.3 MON . CE-3.2 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wyatt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xia, Yuanqin Xiao, J. Xiao, Sanshui Xiao, Sanshui CG-P.4 THU Xin, Ming Xiong, Chunle IB-1.3 MON	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CH-1.3 MON CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE II-1.1 WED , CG-2.3 TUE, F/IE-5.3 MON , CE-3.2 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wyatt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xia, Yuanqin Xiao, J. Xiao, Sanshui Xiao, Sanshui CG-P.4 THU Xin, Ming Xiong, Chunle IB-1.3 MON	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CH-1.3 MON CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE II-1.1 WED , CG-2.3 TUE, F/IE-5.3 MON , CE-3.2 MON
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wyatt, Adam Wysocki, Gerard Xaveer Leijtens, Xaveer Xia, Yuangin Xiao, J. Xiao, Sanshui Xiao, Sanshui Xie, Xinhua •CG-1.5 TUE CG-P.4 THU Xin, Ming •CI Xu, Chang-Qing Xu, Charis	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CH-1.3 MON CB-5.4 TUE CK-4.1 SUN CG-P.19 THU . CK-1.4 SUN CD-P.30 TUE II-1.1 WED , CG-2.3 TUE, F/IE-5.3 MON , CE-3.2 MON . CD-P.38 TUE CL-4.1 MON
Wünsche, Martin Wurtan, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming Xiao, J. Xiao, Limin Xiao, Sanshui Xie, Xinhua •CG-1.5 TUE CG-P.4 THU Xin, Ming Xiong, Chunle IB-1.3 MON Xu, Chang-Qing Xu, Chang-Aing	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CH-1.3 MON CB-5.4 TUE CK-4.1 SUN . CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE II-1.1 WED , CG-2.3 TUE, F/IE-5.3 MON , CE-3.2 MON . CL-9.38 TUE CL-4.1 MON . CK-9.3 THU
Wünsche, Martin Wurnam, Marcel Wurtz, Greg Wurtz, Gregory IH-P.18 THU, IH-5.2 THU Wysocki, Gerard Xaveer Leijtens, Xaveer Xi, Xiaoming Xia, Juanqin Xiao, Limin Xiao, Sanshui Xie, Xinhua •CG-1.5 TUE CG-P.4 THU Xin, Ming Xu, Chang-Qing Xu, Chris Xu, Chris Xu, Cang Xu, Gang Xu, Gang Xu, Cang	. CH-4.4 THU . CJ-7.3 WED . CK-5.3 MON . CE-5.4 TUE, . CG-5.4 TUE . CH-1.3 MON . CB-5.4 TUE . CK-4.1 SUN CG-P.19 THU . CM-1.4 SUN CD-P.30 TUE II-1.1 WED , CG-2.3 TUE, F/IE-5.3 MON , CE-3.2 MON CD-P.38 TUE . CL-4.1 MON . CK-9.3 THU CD-11.2 WED
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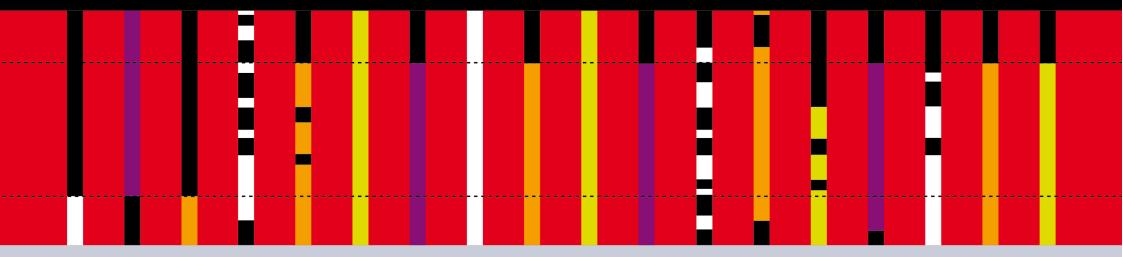
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Image: Evolution of activity patterns on correlated networks (adapted from Menche et al EPL 89 (2010) 18002).



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