

Shengyue Shan

Department of Food Science and Technology
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EDUCATION

- The Ohio State University, Columbus, OH, **Food Science and Technology, PhD, expected 2022**
 - Ph.D candidate (April 2021)
 - Advisor: Dr. Osvaldo H. Campanella
 - The Application of Numerical Methods and Rheology in Enhancing the Physical Properties of Frozen Bread Dough and Gluten-Free Dough (tentative working title)
- Committee Members: Dr. Sudhir K. Sastry, Dr. Macdonald P. Wick, Dr. Dennis R. Heldman, Dr. Edward Overman, Dr. Senay Simsek
- The Ohio State University, Columbus, OH, **Food Science and Technology, MS, 2019**
- Sichuan University, Chengdu, Sichuan, China, **Food Science and Engineering, BE, 2017**

RESEARCH EXPERIENCE

Research Interests:

- Rheology and texture analysis
- Scientific computation
- Plant-based proteins (wheat gluten and its substitutes)

Graduate Research Associate

Columbus OH

OSU Campanella Lab: Department of Food Science and Technology

August 2020 – Present

- Lead and assist multiple research projects which have yielded high-quality scientific publications
- Probe the effects of yeast-inclusion and freeze-thaw cycles on the mechanical properties of frozen bread dough via thorough rheological characterization, including shear and extension studies
- Investigate the feasibility of applying fibrillar whey proteins as a gluten replacer in gluten-free bread dough development through fundamental rheological studies and microstructural characterization
- Develop the method of physical property characterization for the plant-based whole muscle meat analogue and performed the measurements
- Advance a mathematical simulation model of the ice recrystallization behavior in frozen food
- Communicate with interdisciplinary team on a weekly basis to discuss project progress

Graduate Research Associate

Columbus, OH

OSU Heldman Lab: Department of Food Science and Technology

August 2017 – August 2020

- Assess needs and established project goals, activities, timeframe, and potential evaluation
- Measured the physical properties of pork muscle and adipose tissues under non-destructive and destructive conditions
- Simulated the temperature profile during the phase-change-involved heat transfer process through numerical analysis

- Coupled the experimental data and mathematical model to predict the physical property distribution within the muscle-adipose pork product
- Illustrated the influence of the external and internal factors on the tempering efficiency of the product through a series of in silico experiments
- Wrote report communicating and disseminating results about project for the project sponsor

Undergraduate Research Assistant

Chengdu, Sichuan, China

Sichuan University – He Lab: Department of Food Science and Engineering May – September 2016

- Designed orthogonal experiments to study the deodorization of fish protein powder through Maillard reactions
- Measured the enzyme activity by utilizing the ultraviolet – visible spectroscopy

Undergraduate Research Assistant

Chengdu, Sichuan, China

Sichuan University - Zhang Lab: Department of Light Chemical Engineering Sept – Dec 2015

- Investigated the antimicrobial characteristics of a leather coating
- Prepared the antimicrobial coating of gallic acid and nanosilver through layer-by-layer self-assembly method
- Characterized the coating through Scanning Electron Microscopy (SEM) and Dynamic Light Scattering (DLS)
- Assessed the antimicrobial effect of the coating on *Staphylococcus aureus* and *Escherichia coli* thorough antibacterial property assay and cell morphology characterization

PUBLICATIONS

1. Shan, S., Heldman, D. R., Campanella, O. H.. The comparison of specific smoothing methods for numerical heat transfer analysis involved phase change in food. (In Progress)
2. Shan, S., Campanella, O. H.. The Effects of Freeze-Thaw Cycles on the Rheological Properties of Yeasted and Non-Yeasted Frozen Bread Doughs. (In Review)
3. Shan, S., Da Chen, E. F., Jones, O. G., & Campanella, O. H. (2022). The Effects of Whey Protein Fibrils on the Linear and Non-Linear Rheological Properties of a Gluten-Free Dough. *Frontiers in Nutrition*, 1622.
4. Chen, D., Rocha-Mendoza, D., Shan, S., Smith, Z., ..., & Campanella, O. (2022). Characterization and Cellular Uptake of Peptides Derived from In Vitro Digestion of Meat Analog Produced by a Sustainable Extrusion Process. *Journal of Agricultural and Food Chemistry*.
5. Shan, S., & Heldman, D. R. (2021). The Influence of Operation Parameters and Product Properties on Time-to-Temper for Frozen Raw Meat Based on Simulation. *Food Engineering Reviews*, 13(1), 225-235.

CONFERENCES

1. Shan, S. (2022). The Effects of Whey Protein Fibrils on the Linear and Non-Linear Rheological Properties of a Gluten-Free Dough. Institute of Food Technologists Annual Meeting Student Research Oral Competition.
2. Shan, S. (2021). The Influence of Operation Parameters and Product Properties on Time-to-Temper for Frozen Raw Meat Based on Simulation. Institute of Food Technologists Annual Meeting Student Research Poster Competition – Food Engineering Division

RESEARCH AWARDS

- Institute of Food Technologists Annual Meeting Student Research Oral Competition – Product Development Division, 2nd place, 2022
- Institute of Food Technologists Annual Meeting Student Research Poster Competition – Food Engineering Division, Golden Ticket to Journal of Food Science, 2019

RESEARCH GRANTS

- Institute of Food Technologists Annual Meeting Student Research Oral Competition – Product Development Division, 2nd place, 2022 (Collaborator)
- College of Food, Agricultural, and Environmental Sciences Internal Grants Program (IGP) Graduate Competition, 2020 (Runner Up)

TEACHING EXPERIENCE

Courses assisted in teaching: Introduction to Food Processing, Science of Food, Food Analysis, Food Plant Management

Graduate Teaching Associate

Columbus OH

OSU Department of Food Science and Technology

SP18, SP19, SP20, AU20, AU21, AU22

- Assisted in teaching courses ranging from undergraduate to graduate level
- Communicated with departmental teaching lab and pilot plant managers to ensure the in-practice learning process
- Prepared the protocol and materials for lab sessions
- Graded students' homework and exams to ensure acquisition of learning process
- Consulted with professor about students' feedback

LEADERSHIP & UNIVERSITY SERVICE

President: Buckeye Chapter of Phi Tau Sigma, Columbus, OH, July 2021 – August 2022

- Planned and organized the annual 5K Fun Run, which broadly attracted participation of students, staff, and faculty from the Food Science Department at OSU
- Reformed chapter leader board defining leadership roles and improving leadership experience
- Increased the number of new inductees by 30% and doubled member retention by improving the member recruitment experience and adding value to the membership
- Integrated the involvement of faculty members to further raise the chapter stature

Treasurer: Buckeye Chapter of Phi Tau Sigma, Columbus, OH, May 2019 – July 2021

- Acquired funding from the university Student Organization and purchased rewards for members
- Organized workshops to help peer students improve career development skills
- Strengthened communication between Buckeye Chapter and the Food Science Department at OSU
- Established and maintained the organization website, designed posters and promoted events
- Maintained the connection with Phi Tau Sigma National by submitting newsletter articles and joining the monthly discussion of Chapter Affairs Committee

Public Relations Chair: College of Light Industry, Textile and Food Engineering Student Union at Sichuan University, June 2014 – June 2016

- Supervised 4 functional communication teams with 30+ members
- Edited and approved the newsletter articles, posters, college magazines, and digital marketing
- Initiated a series of workshops to improve student workers' professional skills, including photography, Adobe Photoshop among other Adobe products
- Maintained an email-based request form system to accommodate the need of marketing and promotion from the other 13 departments in the Student Union on a weekly basis
- Planned and led the advertising campaigns on college special events (e.g. College Fashion Show, New Student Welcome Reception, Graduation Banquet) with 500+ audience and the interviews of excellent students and alumni
- Debriefed in front of the college administrative personnel each semester

PROFESSIONAL EXPERIENCE

Research Assistant Intern

Sichuan Huiji Food Co., Ltd

Chengdu, Sichuan, China

June – August 2015

- Participated in the product formula change in response to a change in food regulation
- Inspected product quality and production equipment function in the production line
- Practiced teamwork, public speaking and critical thinking through inter-departmental and cross-departmental communication and collaboration

Quality Inspector Intern

Anhui Yumeic Bakery Food, Co., Ltd

Wuhu, Anhui, China

December 2014 – February 2015

- Practiced normal quality inspection in bakery goods production

ADDITIONAL SKILLS

- Programming languages: MATLAB, Python
- Data analysis and visualization: JMP, R
- Foreign Language: Native Mandarin Chinese

HONORS & AWARDS

- Sichuan University First Class Scholarship Recipient, 2014 – 2016
- Challenge Cup National College Student Business Plan Competition of Sichuan University, Third Prize, 2016
- Panpan Food Cup National Bakery Originality Competition, Third Prize, 2015

PROFESSIONAL AFFILIATIONS

- Institute of Food Technologists (2018 – Present), Active member
- Phi Tau Sigma: The Food Science and Technology Honor Society (2019 - Present), Active member

PROFESSIONAL LEADERSHIP

- Phi Tau Sigma (ΦΤΣ) Chapter Affairs Committee. (2020 – 2021)

REFERENCES

Oswaldo H. Campanella, Ph.D.

Professor, Carl E. Haas Endowed Chair in Food Industries

Department of Food Science and Technology, The Ohio State University

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PhD dissertation advisor