

Quarterly Newsletter

Vol. 2, Issue 3,
December 31, 2018

A report on Scholarship and Academic Activities of Interdepartmental Food Science Graduate Program (IFSGP)



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Welcome to Food Science new faculty and graduate students!!



Yaohua "Betty" Feng
Assistant Professor



Lavanya Reddivari
Assistant Professor



Yiwen Bao
M.S.
Huang Lab



Brianna Britton
Ph.D.
Oliver Lab



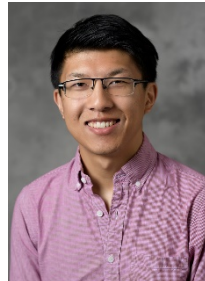
Alyssa Kelley
M.S.
Jones Lab



Joseph King
M.S.
Liceaga Lab



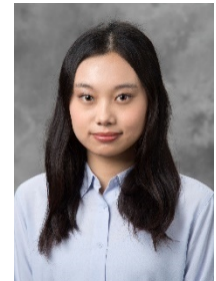
Geraldine Tembo
M.S.
Kokini Lab



Adley Tong
M.S.
TBD Lab



Travis Woodbury
M.S.
Maur Lab



Luping Xu
M.S.
Bhunias Lab

Peer-reviewed Publications

1. Agama-Acevedo, Edith, Bello-Perez, L.A., **Lim, J.**, **Lee, B.H.** and **Hamaker, B.R.** 2018. Pregelatinized starches enriched in slowly digestible and resistant fractions. *LWT*. 97:187-192.
2. Ameri, S., **A. J. Deering**, and K. T. McNamara. 2018. The economic benefits of small-holder use of hermetic storage for wheat in Afghanistan. *International Journal of Food and Agricultural Economics* 6(3):33-46.
3. Benston, S. and **B. Farkas**. 2018. Mediation and Millennials: A Dispute Resolution Mechanism to Match a New Generation. *Journal of Experiential Learning* 2(2):3
4. **Bonilla, J.**, **Ryan, V.**, **Yazar, G.**, **Kokini, J.L.** and **Bhunias, A.K.** 2018. Conjugation of Specifically Developed Antibodies for High- and Low-Molecular-Weight Glutenins with Fluorescent Quantum Dots as a Tool for Their Detection in Wheat Flour Dough. *Journal of Agricultural and Food Chemistry*, 66(16): 4259-4266.
5. Ebner, P. D., **A. Deering**, M. Mojadady, Z. Rahimi, R. Amini, M. Popal, N. Eshaqzai, S. Barak, S. Amini, and E. Azizi. 2018. Capacity Building through Water Quality and Safety Analyses in Herat, Afghanistan. *Journal of Food Protection* 81(9):1467-1471.
6. Horky, P., S. Skalickova, I. Caslavova, **A. J. Deering**, P. Nevrkla, P. Slama, V. Trojan, and J. Skladanka. 2018. Effect of fungicidal treatment and storage condition on content of selected mycotoxins in barley. *Kvasny Prum.* 64(5).
7. Klurfeld, D.M., Davis, C.D., Karp, R.W., Allen-Vercoe, E., Chang, E.B., Chassaing, B., Jr., G.C.F., **Hamaker, B.R.**, Holscher, H.D., Lampe, J.W., Marette, A., Martens, E., O'keefe, S.J., Rose, D.J., Saarela, M., Schneeman, B.O., Slavin, J.L., Sonnenburg, J.L., Swanson, K.S., Wu, G.D., and Lynch, C.J. 2018. Considerations for best practices in studies of fiber or other dietary components and the intestinal microbiome. *American Journal of Physiology-Endocrinology and Metabolism* 315: E1087-E1097.
8. **Maldonado, L.** and **Kokini, J.** 2018. An optimal window for the fabrication of Edible Polyelectrolyte Complex Nanotubes (EPCNs) from bovine serum albumin (BSA) and sodium alginate. *Food Hydrocolloids*, 77:336-346.
9. **Martinez, M. M.**, C. Li, M. Okoniewska, I. Mukherjee, D. Vellucci, and **B. Hamaker**. 2018. Slowly digestible starch in fully gelatinized material is structurally driven by molecular size and A and B1 chain lengths. *Carbohydrate Polymers* 197:531-539

10. Misra, N.N., **Yepez, X., Xu, L.** and **Keener, K.**, 2018. In-package cold plasma technologies. *Journal of Food Engineering*. 125:131-138.
11. **Novoa Rama, E., M. Bailey,** D. R. Jones, R. K. Gast, K. Anderson, **J. Brar, R. Taylor, H. F. Oliver,** and **M. Singh.** 2018. Prevalence, Persistence, and Antimicrobial Resistance of *Campylobacter* spp. from Eggs and Laying Hens Housed in Five Commercial Housing Systems. *Foodborne Pathogens and Disease* 15(8):506-516.
12. **Reddivari, L.,** T. Wang, B. Wu, and S. Li. 2018. Potato: an Anti-Inflammatory Food. *American Journal of Potato Research*:1-6.
13. Rosnow, J. J., S. Hwang, B. J. Killinger, Y.-M. Kim, R. J. Moore, **S. R. Lindemann,** J. A. Maupin-Furlow, and A. T. Wright. 2018. Cobalamin activity-based probe enables microbial cell growth and finds new cobalamin-protein interactions across domains. *Applied and Environmental Microbiology* 84:e00955-18.
14. **Rouf, T.B., Schmidt, G.** and **Kokini, J.L.** 2018. Zein–Laponite® nanocomposites with improved mechanical, thermal and barrier properties. *Journal of Materials Science*, 53:7387-7402.
15. **Singh, A.K., Bai, X.,** Amalaradjou. M.A.R., and **Bhunia, A.K.** 2018. Antilisterial and antibiofilm activity of peptide functionalized gold nanoparticles. *Frontier Sustainable Food System*. 2:74.
16. Thorat, A. A., L. Forny, V. Meunier, L. S. Taylor, and **L. J. Mauer.** 2018. Effects of Mono-, Di-, and Tri-Saccharides on the Stability and Crystallization of Amorphous Sucrose. *Journal of Food Science* 83(11):2827-2839.
17. **Tuncil, Y. E., R. D. Thakkar, S. Arioglu-Tuncil, B. R. Hamaker,** and **S. R. Lindemann.** 2018a. Fecal microbiota responses to bran particles are specific to cereal type and in vitro digestion methods that mimic upper gastrointestinal tract passage. *Journal of Agricultural and Food Chemistry*. 66 (47):12580–12593.
18. **Tuncil, Y. E., R. D. Thakkar, A. D. R. Marcia, B. R. Hamaker,** and **S. R. Lindemann.** 2018b. Divergent short-chain fatty acid production and succession of colonic microbiota arise in fermentation of variously-sized wheat bran fractions. *Scientific Reports* 8(1):16655.
19. **Turasan, H., Barber, E., Malm M.** and **Kokini, J.L.** 2018. “Mechanical and spectroscopic characterization of crosslinked zein films cast from solutions of acetic acid leading to a new mechanism for the crosslinking of oleic acid plasticized zein films”. *Food Research International*, 108: 357-367.
20. **Voelker, A. L., J. Miller, C. A. Running,** L. S. Taylor, and **L. J. Mauer.** 2018. Chemical stability and reaction kinetics of two thiamine salts (thiamine mononitrate and thiamine chloride hydrochloride) in solution. *Food Research International* 112:443-456.
21. **Weaver, C.M.,** Stone, M.S., Lobene, A.J., **Cladis, D.P.** and Hodges, J.K. 2018. What is the Evidence Base for a Potassium Requirement? *Nutrition Today* 53(5): 184-195.
22. **West, A. M., C. A. Nkemngong,** M. G. Voorn, T. Wu, X. Li, P. J. Teska, and **H. F. Oliver.** 2018. Surface area wiped, product type, and target strain impact bactericidal efficacy of ready-to-use disinfectant Towelettes. *Antimicrobial Resistance & Infection Control* 7(1):122.
23. Zhu, X., **D. Liu, A. K. Singh, R. Drolia, X. Bai, S. Tenguria,** and **A. K. Bhunia.** 2018. Tunicamycin Mediated Inhibition of Wall Teichoic Acid Affects *Staphylococcus aureus* and *Listeria monocytogenes* Cell Morphology, Biofilm Formation and Virulence. *Frontiers in Microbiology* 9:1352.

Miscellaneous Publications

1. Teska, P., M., J. Howarter, **H. Oliver,** C. Jim Gauthier, K. Bixler, and X. Li. 2018. Characteristics of an Ideal Surface Damage Testing Protocol. *Infection Control Today* (<https://www.infectioncontroltoday.com/environmental-hygiene/characteristics-ideal-surface-damage-testing-protocol>).

Book Chapters

1. **Rouf T.B.** and **Kokini J.L.** 2018. Natural Biopolymer-Based Nanocomposite Films for Packaging Applications. In: Jawaid M., Swain S. (eds) *Bionanocomposites for Packaging Applications*. Springer, Cham. pp 149-177.

Presentations

1. **Bhunia, A.K.** (Keynote speaker) 2018. Next-generation bioengineered probiotic approach in preventing enteric pathogen infection. Symposium on “Beneficial Bacteria: Manipulating the Little Machines for Better Life”. National Research Center. Dokki, Giza, Egypt. Nov 11, 2018.
2. **Bhunia, A.K.** 2018. Impact of Environmental and Host Induced Stress on Detection and Pathogenesis of Bacterial Pathogens, National Research Center, Dokki, Giza, Egypt. Nov 12, 2018.
3. **Bhunia, A.K.** 2018. Global Food Safety Issues, and Antilisterial and antibiofilm activities of Pediocin and LAP Functionalized Gold Nanoparticles”, Assiut University, Assiut, Egypt, Nov 14-15, 2018

4. **Bonilla, J.C.**, Schaber, J.A., **Bhunia, A.K.** and **Kokini, J.L.**, 2018. Simultaneous fluorescent detection of gliadins, LMW, and HMW glutenins in wheat dough using specifically developed antibodies-quantum dots complexes. Wheat gluten technical session. AACCI annual meeting. London, U.K. October 2018. Oral presentation
5. **Bonilla, J.C.**, Schaber, J.A., **Bhunia, A.K.** and **Kokini, J.L.**, 2018. 'In situ' fluorescent detection of gliadins, LMW glutenins, and HMW glutenins in wheat dough using antibodies-quantum dots complexes. Global Food Science Student Competition at Jiangnan University. Wuxi, China. November 2018
6. **Bonilla, J.C.**, Schaber, J.A., **Bhunia, A.K.** and **Kokini, J.L.** Fluorescent Imaging of Gliadins, Low Molecular Weight Glutenins, and High Molecular Weight Glutenins in Wheat Flour Dough. IFT annual meeting, *oral competition* - Protein division. Chicago, Illinois, July 2018.
7. **Bonilla, J.C.**, Schaber, J.A., **Bhunia, A.K.** and **Kokini, J.L.** Fluorescent Imaging of Gliadins, Low Molecular Weight Glutenins, and High Molecular Weight Glutenins in Wheat Flour Dough. IFT annual meeting. Chicago, Illinois. July 2018. *Poster presentation*.
8. **Chapa, J., M. B. Salazar**, S. Kipp, H. Cai and **J.-Y. Huang**. 2018. "A comparative life cycle assessment of fresh imported and frozen domestic organic blueberries consumed in Indiana". 11th International Conference on Life Cycle Assessment of Food. Bangkok, Thailand, October 17-19, 2018.
9. **Chegeni, M., Hayes, A.M.R.**, Gonzalez, T.D., Manderfeld, M.M., Menon, R., Holschuh, N., **Lim, J.** and **Hamaker, B.** (2018, October 21-23). Slowly digestible carbohydrates reduce gastric emptying in humans suggesting activation of the ileal brake. Cereals & Grains 18. AACC International Meeting, London, UK. (*Poster presentation by Hayes, A.M.R.*)
10. **Cladis, D.P.** (2018) Minerals and Phenolics from Diets in Seven Countries for International Breast Cancer and Nutrition Project. *8th International Breast Cancer Prevention Symposium: Engineering, Technology and Data Science for Primary Prevention*. West Lafayette, IN, October 9, 2018
11. **Kokini, J.L.**, Liu, G.L., Gezer, G., **Barber, E., Turasan, H.**, Jia, F. and Ma, X. Biodegradable Biosensor platforms from gold coated zein nanophotonic films and fibers to detect food allergens and toxins. *International Forum of Marine Foods and Molecular Nutrition (III): Advanced Technologies in Food Processing*. November 8, 2018. Jingdao, China
12. **Kokini, J.L., Duvarci, O., Yazar, G.** and **Yildirim, M.** The LAOS behavior of food materials and its importance in quality and processing history. *1st Conference on the Rheology and Texture of Foods*. October 17-21, 2018. Istanbul, Turkey.
13. **Kokini, J.L.** Fundamentals of Rheology: An Overview. AACCI Dough Rheology Short Course. March 13-14, 2018.
14. **Lu, J., C. Corvalan** and **J.-Y. Huang**. 2018. Modeling of coalescence of surfactant-laden microbubbles. Conference of Food Engineering. Minneapolis, USA, September 9-12, 2018.
15. **Lu, J.** and **J.-Y. Huang**. 2018. (Invited Speaker) "Physical approach for reducing environmental footprints of Ccean-in-place process". Institute of Food Technologists Annual Meeting. Chicago, USA, July 15-18, 2018.
16. **Malm, M.** and **Kokini, J.L.** "Fabrication of biodegradable corn zein films with varying hydrophobic/hydrophilic balance using different techniques". AIChE International Conference, Pittsburgh, PA. Oral presentation.
17. **Malm, M.** and **Kokini, J.L.** Modulating the Surface Properties of Zein Films for Improved Food Packaging. IFT, 15-18 July, Chicago, Illinois.
18. **Rouf, T.** and **Kokini, J.L.** "Graphene oxide reinforced zein nanocomposites with improved mechanical, thermal, barrier and surface properties". Institute of Food Technologists 2018 Annual Meeting, July 17th, Chicago, Illinois.
19. **Rouf, T.B.** and **Kokini, J.L.** "Mechanistic understanding of the fabrication and characterization of graphene oxide reinforced zein nanocomposites with improved mechanical, barrier and thermal properties". Birck Nanotechnology center, SMART Films Consortium Workshop, Poster Presentation. November 14th, 2018, West Lafayette, Indiana.
20. **Rouf, T.B.** and **Kokini, J.L.** "Eco-friendly fabrication and characterization of mechanically strong, thermally stable, largely impermeable and biodegradable zein-graphene oxide nanocomposites". American Institute of Chemical Engineers 2018 Annual Meeting, October 30th, 2018, Pittsburgh, Pennsylvania. Oral Presentation.
21. **Salazar, M. B.**, H. Cai, Bailey, R. and **J.-Y. Huang**. 2018. "Defining nutritionally and environmentally healthy dietary choices of omega-3 fatty acids". 11th International Conference on Life Cycle Assessment of Food. Bangkok, Thailand, October 17-19, 2018.
22. **Torres-Aguilar, P., Yopez, X., Hayes, A.M.R., Martínez, M.M.** and **Hamaker, B.R.** (2018, October 21-23). Effect of pearl millet extrusion on the formation of amylose-lipid complexes and their slow digestion property. Cereals & Grains 18. AACC International Meeting, London, UK. (*oral presentation by Torres-Aguilar, P./Hamaker, B.R.*)
23. **Turasan, H., Cakmak, M.** and **Kokini, J.L.** "Fabrication and decoration of zein-based electrospun nanofiber platforms for SERS detection" Birck Nanotechnology center, SMART Films Consortium Workshop, Poster Presentation, November 14th, 2018, West Lafayette, Indiana.
24. **Turasan, H., Cakmak, M.** and **Kokini, J.L.** (2018). Creating biodegradable corn protein-based electrospun nanofiber platforms for SERS detections. Donald Danforth Plant Science Center Fall Symposium, St. Louis, MO. Oral presentation.
25. **Turasan, H., Cakmak, M.** and **Kokini, J.L.** (2018). Fabrication and decoration of zein-based electrospun nanofiber platforms for SERS detection. AIChE International Conference, Pittsburgh, PA. Oral presentation.

26. **Yildirim, M., Turasan, H. and Kokini, J.L.** The effect of instrumental inertia on large amplitude oscillatory shear (LAOS) testing of starch suspensions, Society of Rheology Conference, 14-18 October, Huston, Texas.
27. **Yildirim, M., Turasan, H., Gao, M., Duvarci, O. and Kokini, J.L.** LAOS (Large Amplitude Oscillatory Shear) rheological characteristics of shear thickening corn starch as a model for shear thickening rheology, IFT, 15-18 July, Chicago, Illinois.
28. **Zhang, B. Y., Y. Tong, S. Singh, H. Cai and J.-Y. Huang.** 2018. (Invited Speaker) "Life cycle environmental impacts of nano-packaging considering food waste reduction". Green Food Tech. Quebec City, Canada, October 2-3, 2018.
29. **Zhang, B. Y., J. Lu and J.-Y. Huang.** 2018. (Keynote Speaker) "Fouling behavior of sweetened protein solutions". Conference of Food Engineering. Minneapolis, USA, September 9-12, 2018.
30. Zhao, M., S. D. Amaya, **A. J. Deering**, L. Stanciu, G. T.-C. Chiu, and J. P. Allebach. 2018. Inkjet Printing platforms for DNA-based pathogen detection. Pages 107-112 in Proc. NIP & Digital Fabrication Conference. Society for Imaging Science and Technology.

Graduated Students with Thesis/Dissertation Titles

Fall 2018

1. **Chris Cheng-PhD (Jones):** Novel Applications for Zein Nanoparticles
2. **Rishi Drolia-PhD (Bhunja):** Cellular and Molecular Mechanism of *Listeria* Adhesion Protein-Mediated Bacterial Crossing of the Intestinal Barrier
3. **Marwa El Hindawy-PhD (Hamaker):** Maltooligosaccharide Chemosensation by Intestinal Enteroendocrine L-cells Regulates the Endogenous Release of Gut Hormones and may affect Weight Gain
4. **Collin Felten-MS (Mauer):** Food Materials Science: Effects of Polyphenols on Sucrose Crystallization and Characterization and Creation of Alternative Salts of Thiamine
5. **Kelly Higgins-PhD (Mattes):** Differential Effects of Chronic Low Calorie Sweetener Consumption on Body Weight, Glycemia, and Ingestive Behavior
6. **Andrew Hirsch-MS (Jones):** Functional Properties of Protein and Chitin from Commercial Cricket Flour
7. **Cheng Lu-MS Non-Thesis (Huang):** Coursework Review and Membrane Filtration in Juice Processing
8. **Anbuhkani Muniandy-MS (Mishra):** Application of Temperature-Dependent Thermal Properties in Food Thermal Process Simulation and Selection of Product Formulation
9. **Xingyun Peng-PhD (Hamaker):** Advanced Characterization of Glucan Particulates: Small-granule Starch, Retention of Small Molecules, and Local Architecture Defined by Molecular Rotor
10. **Seda Tuncil-PhD (Mauer):** Investigating Stability in Amorphous Solid Dispersion: A Study of the Physical and Chemical Stability of Two Salt Forms of Thiamine and the Physical Stability of Citric Acid.
11. **Lei Xu-PhD (Tao):** Interactions of High Voltage Atmospheric Cold Plasma With Microorganisms and Protein in Food Systems
12. **Ximena Yepez (Kokini):** Characterization and Analysis of High Voltage Atmospheric Cold Plasma Treatment of Soybean Oil

Graduate Student/Post Doctorate Achievements/Awards

1. **Jose Bonilla**-First Place, Global Food Science Student Competition, Jiangnan University, Wuxi, China, 2018
2. **Jose Bonilla**-First place, Oral competition - Protein division, Institute of Food Technologists, Chicago, IL, 2018
3. **Dennis Cladis**-Catherine Peachy Presentation Award for promising graduate students with demonstrated excellence in breast cancer research, 2018
4. **Fang Fang**-American Association of Cereal Chemists (AACC) International. Texture Technologies Quality Research Award, London, U.K. October 2018
5. **Anna Hayes**-Cereals & Grains 18 (AACC International Meeting), Nutrition Division Best Student Research Award, 2018
6. **Morgan Malm**-Second place in IFT18 Poster Competition in the Packaging Division, 2018
7. **Arianna Marcia Romero**-Third Place, Global Food Science Student Competition, Jiangnan University, Wuxi China, 2018
8. **Belen Salazar Tijerino**-International Conference of Life Cycle Assessment Food 2018. Second Place. Defining nutritional and environmentally healthy dietary choices of omega-3 fatty acids. Bangkok, Thailand. October 17-19, 2018
9. **Maria Belen Salazar Tijerino**-Purdue Graduate Student Government (PGSG) Travel Grant, 2018
10. **Hazal Turasan**-Purdue Graduate Student Government Travel Award, West Lafayette, IN, 2018
11. **Hazal Turasan**-Donald Danforth Plant Science Center Fall Symposium Travel Award, St. Louis, MO, 2018