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EMPLOYMENT

- 2014- Regents Professor, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- 2016-2020 Chair, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- 2012- Distinguished Chair of Food Engineering, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- 2003- Professor, Food Engineering, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- 2000-03 Associate Professor, Food Engineering, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- 1995-00 Assistant Professor, Food Engineering, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- 1994-95 Assistant Professor, Food and Biomaterial Engineering, Department of Agricultural and Biological Engineering, South Dakota State University, Brookings, SD.
- 1991-94 Assistant Professor of Food Engineering, Department of Food Science and Technology, Acadia University, Wolfville, NS, Canada.

EDUCATION

- 1987-91 Ph.D., Agricultural/Food Engineering, University of Saskatchewan, Saskatoon, SK, Canada.
- 1985-87 M.S., Agricultural/Food Engineering, University of Guelph, Guelph, ON, Canada.
- 1978-82 B.S., Mechanical Engineering, Central South China University, Hunan, China.

LEADERSHIP IN RESEARCH

- 2016-2021 Director of USDA AFRI Center of Excellence for Food Safety Using Microwave Energy (\$4M from USDA NIFA CAPs Program).
- 2011-2015 Principal Investigator of \$5M, 5-year project supported by USDA NIFA “Control of food-borne bacterial and viral pathogens using microwave technologies” for frozen and refrigerated meals. The team consists of scientists from WSU, University of Tennessee, North Carolina State University, US Army Natick Soldier Center, USDA ARS Eastern Regional Center, companies/trade organizations (<http://microwavepasteurization.wsu.edu/>).
- 2001-2010 Director of Microwave Sterilization Consortium. Consortium members included WSU, Nestle, Pepsi-Cole, General Mills, Hormel, Bush Brothers, Print-Pack, Rexam Containers, Del Monte, Ocean Beauty Seafood, AmeriQual, and Wornick Foods (current budget: ~\$0.6 M/year - fees collected from consortium members) (<http://microwaveheating.wsu.edu/>). Developed and patented a single-mode 915 MHz microwave sterilization technology for

military and civilian uses; received FDA acceptance of a process for a homogenous food: mashed potato in trays on Oct. 07, 2009 - first ever in USA for industrial microwave sterilization process; received FDA acceptance of our second process (for a non-homogenous food: salmon fillets in pouches) on Dec. 15, 2010. The outcomes of the research established scientific, engineering, and regulatory foundation for commercial application of this new technology.

2000-2008 Washington State University IMPACT Research Fellow of Food Processing Technology – one of three IMPACT fellows.

MAJOR RESEARCH IMPACTS

1. Developed and patented 915 MHz Single-Mode Microwave Thermal Sterilization (MATS™) Technologies (for shelf-stable foods) and Microwave Assisted Thermal Pasteurization Systems (MAPS™) for chilled ready-to-eat meals, received acceptance from FDA and USDA FSIS, licensed to 915 Labs (a company of TATA Group) for global commercialization. The research created long-term collaborations with US Army Natick Soldier Center, NASA Food Laboratory, and trained scientists from 50 food processing, equipment and packaging companies, research institutions and regulatory agencies worldwide. Batch pilot scale systems of MATS are installed in USA (Campbell Soup, AmeriGual Foods, and Wornick), Australia (Defence Food Lab), South Korea, and India for R&D activities. Commercial continuous microwave systems of different capacities (e.g., 30, 42, and 50 meals per min) are installed in India and Singapore for commercial production. 915 Labs is designing much larger capacities for companies in USA and Australia.
2. Pioneered research on thermal control of food pathogens in low moisture foods, established scientific foundation for food companies to develop effective thermal processes to ensure food safety of ready-to-eat low moisture foods.
3. Pioneered research and established scientific foundation for industrial application of thermal treatments as post-harvest control of pests in low moisture commodities, developed and validated treatment protocols in food plants, leading to industrial applications.
4. Pioneered research on radio frequency (RF) heating, leading to global research on use of RF energy for a wide range of food and agricultural applications including drying, pathogen control, pest control, and thawing. In particular, WSU former students and visiting professors established 10 research laboratories on RF heating (2 in USA, 1 in Mexico, 7 in China/Taiwan).

ACHEIEVMENTS/AWARDS/HONORS

- 2022 **Fellow, US National Academy of Inventors**
- 2021 **Member, US National Academy of Engineering**, elected for “invention and commercialization of electromagnetic spectrum wave-based food processes”
Technology with Impactful Contribution to Society Award, WSU
- 2019 **Member, Washington State Academy of Sciences**
Life Time Achievement Award, International Association for Engineering and Food
- 2018 **President’s Distinguished Award for Innovation and Entrepreneurship**, Washington State University (the inaugural recipient)
IFT Tannar Award - for the Most-Cited Paper of 2015 published in the Food Engineering and Materials Science Section of Journal of Food Science -- *Unlocking Potentials of Microwaves for Food Safety and Quality*
- 2017 **Professional Achievement Award** – for Advancing Food Science and Technologies, Chinese American Food Society.

- Distinguished Career Award**, Oversea Chinese Society of Agricultural, Biological Systems and Food Engineers.
- 2014 **Fellow**, Institute of Food Technologists.
- Fellow**, American Society of Agricultural and Biological Engineers.
- Freezing Research Award**, International Association for Food Protection/Frozen Food Foundation.
- 2013 **Fellow**, International Microwave Power Institute.
- Assist Ameriquial Foods Receiving **FDA Acceptance** of one process based on MATS (March)
- 2012 **International Food Engineering Award**, American Society of Agricultural and Biological Engineers & Nestle, “for breakthrough engineering design and development of microwave/radio frequency thermal processing technologies, and outstanding leadership and education of food engineering professionals”.
- G. Malcolm Trout Visiting Scholar**, Michigan State University.
- Letter of No-objection from USDA FSIS** for microwave sterilization of packaged low acid foods containing more than 2% of poultry, egg and meat ingredients.
- 2010 **FDA Acceptance of Microwave Sterilization Process** for Packed Salmon Fillets in Pouch (12-15-2010) filed by my laboratory - the first FDA accepted filing for microwave sterilization of packaged low acid **non-homogeneous** foods in USA.
- 2010 **IFT Research and Development Award**, “for Development of FDA Accepted Microwave Sterilization Process”.
- 2009 **FDA Acceptance of Microwave Sterilization Process** for Packaged Mashed Potato (10-07-09) filed by my laboratory – the **first ever** for microwave sterilization of packaged low acid foods in USA. Only three new food processing technologies received FDA approval over the past 20 years in USA.
- 2008 **Anjan Bose Outstanding Researcher Award**, College of Engineering and Architecture, WSU (the highest research honor the college can bestow) .
- 2005 **Distinguished Food Engineering Professor**, Southern Yangtze University (SYU), Wuxi, China (SYU selects only one outstanding food engineer worldwide per year to visit and lecture at SYU for one month).
- 2005 **Graduate and Professional Student Outstanding Advisor Award** (one of two awardees at WSU in 2005), Washington State University Graduate and Professional Student Association.
- 2004 **ASAE Superior Paper Award**.
- 2004 **NASA Faculty Fellow**, Advanced Food Technology Program, Johnson Space Center, Houston, TX – selected to work on package and processing solutions for long-duration manned space missions.
- 2004 **Outstanding Research Faculty**, Department of Biological Systems Engineering, WSU.
- 2003 **USDA Secretary’s Honor Group Award** for increasing the efficiency, security, sustainability, and profitability of the fruit and vegetable industry through applications of the technologies developed.
- 2002 **Award for Excellence**, Northeastern Regional Association of State Agricultural Experimental Station Directors.

- 2002 **Faculty Excellence in Research Award**, College of Agriculture and Home Economics, WSU.(1 out of 350 faculty members).
- 2001 **ASAE Superior Paper Award** ($\leq 2.5\%$ of published papers in the Trans. of the American Society of Agricultural Engineers and Applied Agric. Engineering in 2000).
- 1994 **IFT George F. Stewart International Research Paper Competition Award** (1st place).

TEACHING AND GRADUATE STUDENT EDUCATION

Major advisor of 50 Ph.D. students (46 graduated), 3 M.S. students, over 50 post-doctoral research associates and visiting professors. Graduate students in my group have received 4 awards at national conferences, 15 regional awards, and two university awards over the past 8 years for their research activities or in paper competition.

Taught the following courses at WSU: BsysE Professional Development (BsysE 215), Introduction to Food Engineering Labs (AgTM/FSHN 434), Food Plant Design (BsysE 487/587), Thermal Processing (BsysE584), Advanced Physical Properties of Foods (30-45% of BsysE 581), and Senior Project Design (75% of BsysE 311). Advisor of certified undergraduate students in food engineering track (1995-2002).

Taught Food Engineering I&II, Food Processing Technologies in the Department of Food Science and Technology, Acadia University (Canada).

GRANTS AND CONTRACTS

Awarded \$28 million as **PI** and \$18 million as CO-PI, including one grant (in 2001 for microwave sterilization) from Department of Defense (DoD) Dual Use Scientific and Technology (DUST) Program (only three ever awarded for food related projects, the other two DUST projects were for PEF in 1999 and HHP in 2000), eight contracts from US Army Natick Soldier Center/COARENT, five grants from USDA National Research Initiative Competitive Grant Program (NRICGP), a \$5M grant from USDA NIFA, a \$4M Center of Excellence grant from USDA NIFA, a \$1.2 M grant from USDA President's Initiative for Future Agriculture and Food Systems (IFAFS) program, three USDA National Needs grants, one BARD grant, one DoE grant, and National Science and Engineering Research Council Foundation and Equipment grants (Canada).

Listed below are grant awards for the past 18 years, as PI:

- 2021 **Tang, J.** *Optimizing Human Health and Nutrition: From Soil to Society*, USDA AFRI SAS Program, led by Mulphy, K., WSU (\$491,000, part of \$10M, 2022-2027).
 Tang, J., Humid hot Air Pasteurization Processes for Spice & Herbs-Phase II. McCormick& Company (\$130,000, 2022-2023).
- 2020 (\$1,053,059) **Tang, J.** Preheating of Biomass Using RF Energy. DoE through Forest Concept, Inc. (\$116,621, 2020-2021).
 Tang, J., Humid hot Air Pasteurization Processes for Spice & Herbs. McCormick& Company (\$180,438, 2020-2022).
 Tang, J., Microwave assisted oil frying to reduce oil uptake. USDA AFRI, subcontract from UIUC (\$220,000, 2020-2024).
 Tang, J Sustainable, Systems-Based Solutions for Ensuring Low-Moisture Food Safety, USDA AFRI SAS Program, led by Bradley Marks, Michigan State University (\$483,000, part of \$9.8M, 2021-2026).

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| | Tang, J., Sablani, S. Special test agreement for MAPS, Gadre Marine Export PVT, LTD. (\$53,000). |
| 2019 (\$100,760) | Tang, J., Initiating Collaboration with WSU Medical School, from WSU Office of Vice President for Research (\$40,000). Tang, J., Enhancing productivity and safety of Oregon hazelnuts through technology innovation. Specialty Crop Block Program (\$20,760). Contracts with companies for MATS and MAPS testing (\$40,000) |
| 2018 (\$260,000) | Tang, J. , Validating 4 MATS processes for NASA Space Program (\$150,000), Industrial Contracts (\$110,000) |
| 2017 (\$200,000) | Tang, J. Industrial Contracts (\$200,000) |
| 2016 (\$4,200,000) | Tang, J. Industrial Contract Work (\$200,000) Tang, J. et al. Center of Excellence for Advanced Microwave Processing Technologies for Food Safety. USDA NIFA CAPs Program (\$4,000,000, 2016-2021, Grant#2016-68003-24840). |
| 2015 (\$600,000) | Tang, J. Contracts with food companies. |
| 2014 (\$1,288,000) | Tang, J. Zhu, M. 2014-2019. Enhancing Low-Moisture Food Safety by Improving Development and Implementation of Pasteurization Technologies, USDA NIFA CAP program (\$5M, led by Bradley Marks, Michigan State University, WSU \$ 935,018, 2014- 2021, 2015-68003-23415). Tang, J. , Sterilization of packaged foods using MATS (\$320,000), Food Companies F, C, W, A. Tang, J. , Zhu, M., Sablani, S., Ganjyal, G., Shah, D. Understanding of food and microbiological properties at elevated temperatures to improve low-moisture food safety, WSU Agricultural Research Center (\$33,000). |
| 2013 (\$279,343) | Tang, J. , Sterilization of packaged foods using MATS (\$180,000), Food Company. Tang, J. , Pasteurization of packaged foods using microwave energy (MAP) (\$50,000), Food Company. Tang, J. , Zhu, M., Sablani, S., Ganjyal, G., Shah, D. Understanding of food and microbiological properties at elevated temperatures to improve low-moisture food safety. WSU Agricultural Research Center (\$49,343). |
| 2012 (807,486) | Tang, J. , Rob Penney, Determining and improving the energy efficiency of microwave sterilization & pasteurization technologies. Bonneville Power Administration, DoE, 2012-2015 (\$643,000). Tang, J. , Wang S. 2012-2015. Factors affecting pasteurization efficacy for Salmonella in low-moisture foods, USDA NIFA, as part of a project for Marks, B. (Michigan State U.), Tang, J., Ryser, E., Wang, S., Jeong, S. (total \$496,514; WSU \$164,486). |
| 2011 (5,419,869) | Tang, J. , Davidson, P. M., Rasco, B., Sablani, S., D'Souza, D., Dunne, P., Yang, T., Huang, L., Gray, D. O. Control of food-borne bacterial and viral pathogens using microwave technologies, USDA National Institute of Food and Agriculture (NIFA Grant number #2011-68003-20096) (\$5,000,000, 2011-2016). |

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| | <p>Tang, J., Sablani, S., Barbosa-Canovas, G.V., Davis, D. Educating food engineers to develop high-performance integrated processing and packaging technologies that enhance food safety and quality. 2012-2016. USDA NIFA National Needs Graduate and Postgraduate Fellowships Program (\$238,500).</p> |
| 2010 (\$1,600,000) | <p>Tang, J., Wang S. 2012-2015. Improving Process Validation Methods for Multiple Pasteurization Technologies Applied to Low-Moisture foods. USDA NIFA, as part of a project for Marks, B. (Michigan State U.), Tang, J., Ryser, E., Wang, S., Jeong, S. (total \$542,824; WSU \$181,369).</p> <p>Tang, J. Microwave sterilization for packaged foods, DoD/Print-pack, Co. (\$400,000).</p> <p>Tang, J. Microwave Consortium II membership fees from consortium members (\$1,200,000, 2010-2012).</p> |
| 2009 (\$465,555) | <p>Tang, J. Dry pea and lentil processing. USDA Cool Food Legume Program 2009-2010 (\$35,555).</p> <p>Tang, J. Microwave sterilization technology–FDA approval. DoD (\$430,000).</p> |
| 2008 (\$991,344) | <p>Tang, J., Sablani, S, Powers, J., Chow, B. Enhancing nutrition contents in value added processing of agricultural products. WSU ARC Emerging Issue Program (\$63,000).</p> <p>Tang, J. Dry pea and lentil processing. Cool Food Legume Program (\$38,455).</p> <p>Tang, J., Kang, H, Wang, S. 2008 Abbot Laboratories, OH, RF control of food pathogens in infant formula (\$57,000).</p> <p>Wang, S., Tang, J. Johnson, J. Non-chemical Postharvest Insect Control in Pulse Crops Using Radio Frequency Energy. USDA-Western Regional IPM Competitive Grants Program (\$160,889).</p> <p>Tang, J. Microwave sterilization technology – FDA approval. DoD (\$600,000).</p> <p>Tang, J. Quality influenced by emerging technologies, USDA NRI (\$65,000, a part of a \$750,000 project led by Sastry, S., Ohio State U.).</p> |
| 2007 (\$998,423) | <p>Tang, J., Sablani, S, Powers, J., Chow, B. Enhancing nutrition contents in value added processing of agricultural products. WSU ARC Emerging Issue Program (\$63,000).</p> <p>Tang, J., Patil, R. Value-added processes for potato. WA Potato Commission (\$30,000).</p> <p>Tang, J., Rasco, B., Clark, S., Pitts, M., Cavalieri, R, Yin, H. MW Sterilization, Department of Defense (\$833,423).</p> <p>Tang, J., Powers, J., 07. Processes to produce shelf-stable mushroom soups. WTC and company (\$72,000).</p> |
| 2006 (\$715,190) | <p>Tang, J., Swanson, B., Patil, R. Value-added processes for lentils and dry peas, Cool Season Food Legume Research Program (\$54,614).</p> <p>Tang, J., Patil, R. Value-added processes for potato. WA Potato Commission (\$27,576).</p> <p>Tang, J. WSU IMPACT Fellow Support (\$20,000).</p> <p>Tang, J. Microwave Sterilization: Rexam Containers (\$20,000), Masterfoods (\$100,000), Kraft Foods (\$150,000), US Army Natick Soldier Center (\$250,000).</p> <p>Tang, J., Nindo, C. Refractance Window Drying, USDA SBIR (\$30,000).</p> <p>Tang, J., Nindo, C., Powers. Strategies for Antioxidant Retention and Recovery</p> |

- of Pigments from Press Cake, WSU IMPACT Center (\$30,000).
Tang, J., Patil, R., Swanson, B.G., McCluskey, 2006-007. Consumer acceptability and nutraceutical benefits of legume-based extruded snacks and breakfast cereal-type products, WSU IMPACT Center (\$33,000).
- 2005 (\$1,328,532) **Tang, J.**, Rasco, B., Clark, S., Pitts, M., Cavalieri, R. Microwave (MW) Sterilization for MREs, US Army Natick Soldier Center (\$272,401).
Tang, J., Nindo, C., Powers, J. Quality and shelf-life of reflectance window dried fruit, vegetable and herbal products, Washington Technology Center (\$122,131).
Tang, J., Optimization of RF systems for shelf-stable group rations, US Army Natick Soldier Center (\$175,000).
Tang, J., Wang, S. Improve quarantine treatments for tropic fruit using thermal energy, USDA NRI (\$335,000).
Tang, J. Advanced thermal processing technology for salmon, USDA Special Program through University of Alaska (\$309,000).
Tang, J., Swanson, B., Patil, R. Value-added processes for lentils and dry peas, Cool Season Food Legume Research Program (\$65,000).
Tang, J., Patil, R. Value-added processes for potato. WA Potato Commission (\$30,000).
Tang, J., WSU IMPACT Fellow Support (\$30,000).
- 2004 (\$1,227,726) **Tang, J.** Microwave Dual Use Project, DoD (\$250,000).
Tang, J., Wang, S. Radio frequency energy as an alternative to methyl bromide fumigation for controlling pests in stone fruits and nuts. USDA Methyl Bromide Transitions Program (\$445,881).
Tang, J., Pitts, M., Kang, H.C., Clark, S. Optimization of RF Sterilization of Polymeric Trays, US ARMY Natick Soldier Center (\$246,831).
Tang, J., Swanson, B., Cheng, M. Value-added processes for lentils and dry peas. Cool Season Food Legume Research Program (\$66,964).
Tang, J., Powers, J., Swanson, B.G. Value-added processes for asparagus, USDA (\$43,000).
Tang, J., Ben Li. Computer models for microwave/RF heating, WSU IMPACT Center (\$30,050).
Tang, J. WSU IMPACT Fellow Support (\$30,000).
Tang, J. Microwave Sterilization: Masterfoods (\$30,000), Hormel (\$30,000), Rexam Containers (\$20,000), Graphic Packaging, (\$10,000), Ocean Beauty Seafoods (\$25,000), Ferrite Component, Inc. (\$43,000).
- 2003 (\$1,050,696) **Tang, J.**, Barbosa-Canovas, G., Clark, S., and Kang D.H, 2003-05. Thermal stabilizing of shelf-stable egg products based on radio frequency energy technology. DoD (\$248,505).
Tang, J. Microwave Sterilization: Masterfoods (\$60,000), Kraft (\$50,000).
Tang, J., Clark, S., McCurdy, A., Kang, D.H. 2003-07. Safety of foods processed by four Alternative Processing Technologies, USDA CREES, (\$250,082, as a part of \$1.7 million grant led by Sastry S., Ohio State Univ.).
Tang, J. Microwave Dual Use Project, US ARMY Natick Soldier Center (\$258,191).
Tang, J., Pitts, M., Kang, H.C., Clark, S. Optimization of RF Sterilization of Polymeric Trays, US ARMY Natick Soldier Center (\$223,233).

Tang, J., Ben Li. Computer models for microwave/RF heating, WSU IMPACT Center (\$30,050).

Tang, J., Powers, J., Swanson, B. Value-added processes for asparagus, USDA (\$47,000).

Tang, J., Berrios, J.D., Swanson, B. Value-added processes for dry peas and lentils, Cool Season Food Legume Research Center (\$30,000).

Tang, J. RF pest control for tropic fruits. Department of Agri., CA (\$30,000).

Tang, J. Equipment enhancement grant. US ARMY Natick Soldier Center (\$50,000).

1997-2002 As PI (\$4,200,000) and as Co-PI (1,052,000).

INVITED/KEYNOTE / PLENARY SPEAKER/Webinars (past 17 years)

- 2022 Plenary Speech (40 min) "Microwave & RF Heating for Industrial Food Processing: Challenges and Opportunities" The 4th Global Congress on Microwave Energy Application. Organized by Chinese Association of Microwave Power Applications, in collaboration with International Microwave Power Institute, Japanese Association of Microwave Power Application and European Associations of Microwave Power Application, August 17-20.
Gave webinar (1.5 hr) "Advanced Thermal Processing Technologies for Ready-to-eat Meals: MATS and MAPS" for companies in HongKong organized by HongKong Economic Development Office, March 23, 2022.
Invited talk (30min) USDA AFRI Center of Excellence for Food Safety: Bridging Valley of Death. USDA NIFA SAS/CAPS Project Directors Meeting, April 18-20, Kansas City.
- 2021 Invited Talk to **US National Academy of Engineering, Section 12**, Addressing Challenges in Sustainable Food Systems: Novel Preservation Technologies for Food Supply Chains, June 16, 2021.
4-hr Booth (invited by USDA NIFA) at USDA Food Loss and Waste Innovation Fair (Virtual), Advancing Technology to Extend Shelf-Life and Control Pathogens for Ready-to-Eat Meals, May 28, 2021.
<https://events.labroots.com/event/USDAFoodLossandWasteInnovationFair/en-us#!/WSUHighQuality>
Webinar (1 hr) for **International Microwave Power Engineer (IMPI) Food Processing Webinar Series**, Control of Bacterial and Viral Pathogens Using Microwaves, April 29, 2021.
- 2020 **Open Speech (45 min) at e-Latin Food 2020: Advancing Food Safety Technologies for Ready-to-Eat Meals**. Nov. 11. 2020.
Invited Talk (15 min) at 2020 Research and Development Association for Military Food and Packaging 2020 Virtual Fall Meeting: Update on Microwave Assisted Sterilization and Pasteurization Technologies for Ready-to-Eat Meals, Nov. 18, 2020.
Webinar (45 min) for USDA FSIS: Control of Bacterial and Viral Pathogens Using Advancing Thermal Processing Technologies, Oct, 7, 2020.
Keynote (35 min): Principles of microwave heating and application in the food industry. Seventh Jinshan Food Physical Processing Conference, China, Sept. 19, 2020.
Invited lecture (120 min): Agricultural Engineering Research and Graduate Education in USA. College of Engineering. China Agricultural Engineering, Sept. 20, 2020.
- 2019 **Invited Lecture (60 min): Advanced Thermal Processing Technologies for Ready-to-Eat Meals**. University of Tasmania, Australia, Sept 19, 2019.
Invited Lecture (60 min): Advances in Thermal Processing Technologies for Safe Foods. Australia Defence Food Laboratory. Scottsdale, Australia., Sept.18, 2019.

- Invited Lectures (45x3 min):** Sustainability in Food Systems, Food Dehydrations, Advanced Thermal Processing. International Symposium: Resilience in the Global Food System. Hokkaido University, Japan, May 6, 2019.
- 2018 **Keynote Speaker (60 min):** Advanced Thermal Processing Technologies for Ready-to-Eat Meals. International Symposium: Resilience in the Global Food System. Hokkaido University, Japan Oct.3-4, 2018.
- Keynote Speaker (30 min):** Advances in Thermal Processing Technologies for Safe Foods. 2018 International Forum on Food Science and Health, Changsha, China, Sept. 4-5.
- 2017 **Speaker for General Session (30 min):** Challenges and Opportunities in Developing and Applying Smart Technologies for the Food Industry. ASABE/IEEE SmartAg International Symposium Dec. 3-6, 2017, East Lansing, MI.
- Speaker for General Session (30 min):** Advancing Food Safety Technologies to Meet Consumer Needs. International Forum on Food Technologies. Nov. 4-5th. YangLing, China (200 attendees).
- Keynote Speaker (60min).** Theory and Application of RF Heating in Industrial Applications. Novel Drying Technologies Workshop, Taiwan, February 24 (180 attendees).
- Guest lecture (2 hr)** on microwave heating principles and technology development to **Cornell** graduate students.
- 2016 **Invited Speaker,** 2016 International Conference on Food Safety Applications. September 29-30. Kaohsiung, Taiwan, Presentation title: Novel in-package thermal processing technologies based on microwave energy for food safety (40 min, 400 people).
- Panel Speaker, Food Engineering Research – Opportunities and Challenges,** 2016 Conference of Food Engineering, September 12-14, Columbus, OH (120 people).
- Invited Speaker,** IFTPS (Institute for Thermal Processing Specialists) Conference: Responsibilities of Processing Authorities in the Implementation of Alternative Processing Technologies. Presentation Title: Microwave Sterilization of Packaged Foods (60 min).
- Invited Speaker,** 3rd Global Congress on Microwave Energy Applications. Presentation title: Bridging Gaps in Microwave Technologies for Industrial Production of Safe Foods. July 25-29, Cartagena, Spain. Member of Scientific Committee for the Congress, Chair of Technical Sessions.
- Panel Speaker:** When microwave heating technologies become main stream operations in the food industry. 3rd Global Congress on Microwave Energy Applications. July 25-29, Cartagena, Spain.
- Steering Committee and Presenter:** NSF Food-Energy-Water Nexus Workshop: Transformative Food Technologies to Enhance Sustainability. Feb 22-24. Lincoln, Nebraska.
- 2015 **Keynote Speaker (60 min):** Thermal Processing Technologies based on Microwave Energy. Kuraray Symposium for South America, Houston, TX, Nov. 19-20.
- Invited Speaker (45 min):** Innovative Thermal Processing (Microwave, RF) to Control Pathogens and Spoilage Microorganisms, 10th International Conference for Food Safety and Quality, San Francisco, Nov. 10-12.
- Invited Speaker:** A New Microwave Pasteurization Technology to Control Bacterial and Viral Pathogens in Packaged Foods. *Annual Conference of American Society of Agricultural and Biological Systems Engineers.* New Orleans, July 27-29.
- Featured Speaker (30 min):** Control of food borne bacterial and Viral Pathogens Using Microwave Energy, USDA National Institute of Food and Agriculture Project Directors Conference, Portland, OR, July 24.
- 2014 **Keynote Speaker (45 min):** Microwave Assisted Pasteurization and Sterilization

- Technologies, 2nd Southeast Asia Technical Outreach Seminar, Bangkok, Thailand, Nov. 4-5
- Invited Speaker (45 min):** A New Microwave Pasteurization Technology to Control Bacterial and Viral Pathogens in Packaged Foods. *Annual Conference of Institute for Thermal Processing Specialists*, Orlando, March 11-13
- Invited Speaker (30 min):** A Novel Pasteurization Technology for Packaged Foods. *Conference of Food Engineering*, Omaha, April 8-10.
- 2013 **Key Speaker (40 min):** Innovative Thermal Processes to Control Pathogens and Spoilage Microorganisms. *8th International Conference for Food Safety and Quality*, Las Vegas, Nov. 5-6.
- Invited Speaker (45 min):** Microwave technologies for packaged foods- challenges and opportunities for packaging industry. *Thin Wall Packaging Conference 2013*. Cologne, Germany, Dec. 3-5.
- Keynote Speaker (40 min):** Bridging Gaps between Academic Research and Food Industry in Microwave and RF Applications at opening of *International Microwave Power Annual Symposium*, Providence, RI, June 26/27.
- Guest Lectures** on Microwave Heating Principles, Cornell University, March 2013.
- 2012 **Keynote Speaker (30 min):** Microwave Sterilization Technology for Commercial Production of Safe Foods. *2nd Global Congress on Microwave Energy Applications*, Long Beach, CA July 25.
- Panellist** for DOE Energy Session: Microwave and Radio Frequency as Enabling Technologies for Advanced Manufacturing. *2nd Global Congress on Microwave Energy Applications*, Long Beach, CA, July 25.
- Invited Speaker (35 min):** *Conference of Food Engineers*, April 2-4, Washington DC. Presentation Title: Microwave sterilization technology – a case study from technology development to commercialization.
- G. Malcolm Trout Visiting Scholar Lecture**, Michigan State University, March 21, Title: “Microwave Technology for Food Safety – The Path from Research to FDA Approval”.
- 2011 **Invited Speaker (45 min):** *Institute for Thermal Processing Specialists (IFTPS) Third European Conference*, 4-5 Oct. 2011, Budapest, Hungary. Presentation Title: Microwave sterilization: a potential technology for production of safe and high quality food products.
- Keynote Speaker (50 min):** Chinese Bio-resources Application Association Meeting, Sept. 3, Taipei, Taiwan. Presentation Title: *Microwave sterilization for packaged foods*.
- 2010 **Keynote Speaker (60 min):** MREs, Military Rations and Packages R&D Annual Meeting, Lake Tahoe, 25 October 2010. Presentation Title: *Microwave sterilization, a potential technology for MREs*.
- Invited Speaker (45 min):** 2010 International Association of Refrigerated Warehouses (IARW) - World Food Logistics Organization (WFLO) Annual Convention & Expo, Westin Kierland Resort, Scottsdale, Arizona, April 24, 2010. Presentation Title: *Microwave energy for food safety*.
- Invited Speaker (60 min):** *International Forum for Future Agricultural Engineering Research and Education*, and at Shanghai Ocean University (July 5, 2010); Zhejiang University (July 6, 2010); Yangling (July 9, 2010), China. Presentation Title: Microwave energy for food safety, Microwave/RF energy in food and agricultural processing applications.
- 2009 **Keynote Speaker (35 min):** International Symposium on Safety Assessment of Food Products and Processing–Forefront of Food Safety Technology and 39th Annual Conference of Taiwan Association for Food Science Technology, Ilan City, Taiwan, 25-27 November 2009.

Presentation Title: Food safety issues related to microwave sterilization technology.

Plenary Speaker: Food Safety Summit, 27-29 April 2009 Washington, DC. *Presentation Title: Thermal Processing Using Microwave Energy: a possible fourth dimension for food safety and quality challenges.*

Plenary Speaker (30 min): American Associate of Cereal Chemists (AACC) International Meeting, 13-16 2009, Baltimore, MD. *Presentation Title: Novel Thermal processing based on microwave and radio frequency energy for packaged foods.* A panel member in Symposium: Advances in Delivery of Food Nutrients - Tailoring Process Operations for Health and Wellness.

Plenary Speaker (45 min): International Forum on Emerging Technologies in Food Processing, 13-16 Sept. 2009, University of Illinois, Urbana-Champaign IL. *Presentation Title: Microwave Heating Applications and Food Processing.*

2008 **Plenary Speaker (45min):** 14th World Congress of Food Science and Technology, Shanghai, China, 20-23 October 2008 Presentation Titles: 1) Hot Topics in Food Engineering- Microwave and Radio Frequency Sterilization, Plenary Symposium: Food Engineering: Past and Future Directions; and 2) Computer Simulation in Design of Microwave and Radio Frequency Systems. Food Processing Equipment – Computer Aided Design and Energy Saving Technologies.

Anjan Bose Outstanding Researcher Award Lecture (40 min): College of Engineering and Architecture, WSU, 20 April 2008. *Presentation Title: Multi-disciplinary research in developing emerging food technologies.*

Keynote Speaker (45 min): 2008 Global Congress on Microwave Energy Applications - Global Perspective on Microwave Technology in 21st Century, Lake Biwa, Otsu, Japan, August 5-7, 2008. *Presentation Title: US Development of Single-Mode 915 MHz Microwave Sterilization Technology for Packaged Foods.*

Plenary Speaker: IFT Symposium–Safety of Food Processed Using Four Alternative Processing Technologies, Part I: Thermal processing, IFT Annual Meeting, New Orleans, 29 June 2008. *Presentation Title: In package microwave processing.*

Plenary Speaker: IFT Symposium – Historical Developments of Novel and Nonthermal Processing, IFT Annual Meeting, New Orleans, 1 July 2008. *Presentation Title: Historic development of microwave and radio-frequency processing.*

Plenary Speaker: IFT Symposium – Innovation in Numerical Modeling of Emerging Technologies, Part II-Microwave and Ohmic Heating, IFT Annual Meeting, New Orleans, 1 July 2008. *Presentation Title: Microwave induced temperature patterns in food packages.*

2007 Product Collaboration on WTC Projects. Discover WSU Workshop, organized by Washington Technology Center, WSU Grant Office, and SIRT. April 10, 2007.

How to write multi-disciplinary proposal, WSU OGRD Workshop for New Faculty. March 20, WSU.

2006 Microwave Sterilization Technology, USDA Short Course on Advanced Processing Technologies, University of California, Davis, March, 5-6, 2006

Novel Thermal Processing Technologies for Military, Space, and Retail Markets. Zhejiang University, HongZhou, August 10, 2006.

Principles of MW and RF Sterilization Processes. South YangZie University, Wuxi, China, August 5, 2006.

- 2005 **Keynote Speaker**(40 min): 6th International Conference on Food Science and Technologies, Gongzhou, China, 6-10 November 2006. *Presentation Title*: Development of advanced thermal processing technologies in USA.
- Plenary Speaker**: 39th Annual Microwave Symposium of the International Microwave Power Institute, Seattle, WA, , 13-15 July 2005. *Presentation Title*: Microwave and RF sterilization technologies for packaged foods.
- Plenary Speaker**: USDA Emerging Processing Technologies Symposium. Washington DC, 26-27 May 2005. *Presentation Title*: Microwave and RF sterilization technologies.
- By special invitation*: Multi-disciplinary and institution research at WSU in addressing challenges in food and agriculture engineering. To USDA CSREES and NRI National Program Leaders, Washington DC, February 17.
- Plenary Speaker**: Pacific Northwest Farm Forum, Spokane, WA, 12 January 2005. *Presentation Title*: Extruded snack foods from legumes.
- 2004 **Plenary Speaker**: USA Dry Pea and Lentil Council, Western Pea and Lentil Grower Association, 2004 Annual Meeting “Pulse Outlook 2005”, Moscow, Idaho, 8 December 2004. *Presentation Title*: Puffed lentils-the future of extruded legume snack, Market Outlook Feature Presentation.
- By special invitation*: How To Write Scientific Papers – China Agricultural University, Beijing, China, 13 October 2004.
- Research Strategy and Methods for Developing Thermal Quarantine and Phytosanitary Treatment for Postharvest Pest Control. U.S. Pacific Basin Agricultural Research Center, Hilo, Hawaii, 4 May 2004.
- Engineering in Food Industry and New Technology Development at WSU. Chemical Engineering, Department, WSU, 4 April 2004.
- Advanced Thermal Processing Technology Development at Washington State University Northwest Food Processors Association Annual Meeting, Portland, OR, 15-16 January 2004.
- 2003 **Plenary Speaker**: Northwest Food Safety and Sanitation Conference, Portland, OR, Oct. 21-22. *Presentation Title*: Emerging Food Processing Technologies.
- Plenary Speaker**: *Conference of Food Engineering*, AIChE Annual Meeting - Tutorial on Engineering Properties of Biological Materials, San Francisco, CA, 16-21 November 2003. *Presentation Title*: Dielectric Properties Related to Radio Frequency and Microwave Heating.

CONSULTING ACTIVITIES

- Invited speech on Current and Emerging Technologies in Fruit and Vegetable Processing, PepsiCo Fruit and Vegetable Research and Innovation Summit (2008, 2009, 2010).
- RF Drying Technology for Low Oil Potato Chips, Fritolay, TX (2007)
- PepsiCo International R&D Center, UK, Microwave Processing, (2009)
- ConAgra, Microwavable foods (2012-)
- McCormick, Low Moisture Food Safety (2015-)
- E&J Gallo Winery, Drying Technologies (2017-)

PROFESSIONAL SERVICES

Editorial Boards:

- Editorial Boards for
- 1) J. Food Engineering (2010-2018),
 - 2) International Journal of Food Engineering (2004-)
 - 3) Journal of Food Processing and Preservation (2008-)
 - 4) Journal of Microwave Power and Energy (2010-)
- Section Editor and Vice Chair of Editorial Board, International Journal of Agricultural and Biological Engineering (2008)
 - Associate Editor, J. Applied Engineering in Agriculture, Food & Process Engineering Institute of the American Society of Agricultural Engineers (2000-2012)
 - Associate Editor, Transactions of the ASAE, Food & Process Engineering Institute of the American Society of Agricultural Engineers (2000-present)
 - Contributing Editor, Advances in Agricultural Science and Technology Series Vol. 1: Advances in Bioprocessing Engineering (1998-2002)

Advisory Boards:

Scientific Advisory Board for American Institute of Frozen Foods (2014-).

LEADERSHIP IN PROFESSIONAL ORGANIZATIONS:

- ***International Microwave Power Institute***
 - **President** (2009-2010)
 - Board of Governors (2005-present)
 - Annual Symposium Committee Chair (2006-2011)
 - Organizing Committee Member, 2nd World Congress on Microwave Energy Applications for 2012 (2008- present)

Institute of Food Technologists (member ID, 00042272), Food Engineering Division

- **Chair** (2010-2011), Executive Officer (2006- 2010)
- ***American Society of Agricultural and Biological Engineers***
 - Fellows Screening Committee (2017-2021)
 - Co-Chair, Task-Force for Revitalization of Food Engineering within ASABE (2014-)
 - Technical Paper Awards Committee, Food & Process Engineering Institute of ASAE (1999 - present; Chair, 2000-01)
 - Publication Committee, Food & Process Engineering Institute of ASAE (2000 - ; Chair,2001-02)
 - Organizer of technical sessions on microwave and radio frequency heating at ASAE annual meetings (1999-2007)

- ***Association of Overseas Chinese Agricultural, Biological and Food Engineers***

President (2004-05), **Board of Directors** (2002- 2010), **AOC Foundation Board of Directors** (2005-2012), **Organizing Committee** (2001), **Chair** of Meetings and Conference Committee (2002-04).

OTHER PROFESSIONAL SERVICES

Initiator and Key Organizer: Advances in Thermal Processing Technologies for Safe Foods. 2018 International Forum on Food Science and Health, Changsha, China, Sept. 4-5, 2018, Sponsored by Hunan Agricultural University, Hunan, China and Chinese America Food Society (CAFS).

Leader of Five Member International Team: External review of the graduate program in the College of Food Science, China Agriculture University, Beijing, China. May 11-15, 2018, to fulfil the guidance of the Chinese Ministry of Education for top ranked Chinese graduate programs.

Member of Organization Committee: 2018 Conference of Food Engineering, Minneapolis, MN, Sept. 16-19, 2018.

Member of Organization Committee: SmartAg Strategic Planning Workshop, Sponsored by ASABE and IEEE, Detroit, MI. August 2, 2018.

LEADERSHIP AND SERVICES AT WASHINGTON STATE UNIVERSITY

- University Committees: 1) President's Distinguished Award for Innovation and Entrepreneurship (2018-2020); 2) V. Lane Rawlins Distinguished Lifetime Service Award (2017-, **Chair**, 2020-); 3) Regents Professor Nomination Review Committee (2018-2020); Panelist for multi-disciplinary grant competition (2021).
- Co-Chair for University 2014-2015 Strategic Planning - Outreach, Engagement and Economic Development Sub-team (2014-2015).
- Associate Chair, Department of Biological Systems Engineering (2011-2016); **Chair** (2016-2020).
- Food Engineering Area Leader, Department of Biological Systems Engineering (2000-2013, 2021-).
- Co-Chair, Department of Chemical Engineering and Department of Biological Systems Engineering Re-organization Committee (2007).
- Promotion and Tenure Advisory Committee, College of Agriculture and Home Economics, WSU (2002-2003, 2021, **Chair**, 2004-05).
- Chair, Graduate Committee, Department of Biological Systems Engineering (2004-2016).
- Chair, Postharvest/Food Engineering/Food Science Strategic Planning Team for the College of Agriculture and Home Economics (2000-01).
- Chair, WSU Food Processing Pilot Plant Committee (2000-02).
- Chair, Scholarship Committee, Department of Biological Systems Engineering (1997-01).
- Advisor of Biological Systems Engineering Student Club (1996-1998).

JOURNAL ARTICLES (*corresponding author or major advisor of graduate students who are first authors)

- 430. Zhou, X., Pedrow, P.D., Bohnet, S., Sablani, S.S., Tang, J.*, 2023. Heating performance of microwave ovens powered by magnetron and solid-state generators. *Innovative Food Science & Emerging Technologies* 83: 103210, <https://doi.org/10.1016/j.ifset.2022.103240>.
- 429. Shen, X., Su, Y., Hua, Z., Zhu, H., GÜnlü, G., Ross, C., Mendoza, M., Hanrahan, I., Tang, J., Zhu, M.J. 2023. *Listeria monocytogenes* cross-contamination during apple waxing and subsequent survival under different storage conditions, *Food Microbiology* 110:104166, <https://doi.org/10.1016/j.fm.2022.104166>.
- 428. Sun, S., Xie, Y., Yang, R., Zhu, M.J., Sablani, S., Tang, J.* 2023. The influence of temperature and water activity on thermal resistance of *Salmonella* in milk chocolate. *Food Control*, 109292,

- <https://doi.org/10.1016/j.foodcont.2022.109292>.
427. Rane, B., Lacombe, A., Guan, J., Lucero, L., Bridges, D.F., Sablani, S., Tang, J., Wu, V.C., 2023. Reduction of *Aspergillus flavus* and aflatoxin on almond kernels using gaseous chlorine dioxide fumigation. *Food Chemistry*, 402, <https://doi.org/10.1016/j.foodchem.2022.134161>.
 426. Yildiz, S., Shin, G.Y., Franco, B., Tang, J., Sablani, S.S., Barbosa-Canovas, G.V., 2022. Equivalent processing for pasteurization of a pineapple juice-coconut milk blend by selected nonthermal technologies. *J. Food Sci.*, <https://doi.org/10.1111/1750-3841.16403>.
 425. Albahr, Z., Al-Ghamdi, S., Tang, J., Sablani, S.S. 2022. Pressure-assisted thermal sterilization and storage stability of avocado puree in high barrier polymeric packaging. *Food Bioprocess Technol.*, 15, 2616–2628, <https://doi.org/10.1007/s11947-022-02904-2>.
 424. Parhi, A., Zhang, C., Sonar, C., Sankaran, S., Rasco, B., Tang, J., Sablani, S.S. 2022. Finding a carbohydrate gel-based oxygen indicator for expedited detection of defects in metal-oxide coated food packaging, *Food Packaging and Shelf-life*, 34, 100972, <https://doi.org/10.1016/j.fpsl.2022.100973>.
 423. Yang, R., Lombardo, S.P., Conway, W.F., Tang, J.* 2022. Inactivation of *Salmonella Enteritidis* PT 30 on black peppercorns in thermal treatments with controlled relative humidities. *Food Research International* 162:112101. <https://doi.org/10.1016/j.foodres.2022.112101>.
 422. Inanoglu, S., Barbosa-Canovas, G.V., Sablani, S.S., Zhu, M.J., Keener, L., Tang, J.* 2022. High-pressure pasteurization of low-acid chilled ready-to-eat food. *Comprehensive Reviews in Food Science and Food Safety*, <https://doi.org/10.1111/1541-4337.13058>.
 421. Low, M., Scharff, R., Tang, J., Grasso-Kelley, E.M., Feng, Y. 2022. Food handling practices of apple drying in home kitchens in the United States: a survey, *J. Food Protection*, 85(10):1418-1430. <https://doi.org/10.4315/JFP-22-106>.
 420. Ahmad, N., Hildebrand, J.M., Pickens, S.R., Vasquez, S., Jin, Y., Liu, S., Halik, L.A., Tsai, H.C., Lau, S.K., D'Souza, R.C., Kumar, S., Sabbiah, J., Thippareddi, H., Zhu, M.J., Tang, J., Anderson, N.M., Grasso-Kelley, E.M., Ryser, E.T., Marks, B. 2022. Interlaboratory evaluation of enterococcus faecium NRRL B-2354 as a *Salmonella* surrogate for validating thermal treatment of multiple low-moisture foods. *Journal of Food Protection*, 85(11):1538-1552, <https://doi.org/10.4315/JFP-22-054>.
 419. Zhou, X., Zhang, S., Tang, Z., Tang, J.*, Takhar, P.S. 2022. Microwave frying and post-frying of French fries. *Food Research International*, 159, 111663, <https://doi.org/10.1016/j.foodres.2022.111663>.
 418. Yang, R., Wei, L., Dai, J., Tang, J.* 2022. Thermal death kinetics of *Salmonella* Enteritidis PT30 in peanut butter as influenced by water activity. *Food Research International*. 157: 111288, <https://doi.org/10.1016/j.foodres.2022.111288>.
 417. Yao, Y., Han, R., Li, F., Tang, J., Jiao, Y. 2022. Mass transfer enhancement of tuna brining with different NaCl concentrations assisted by ultrasound, *Ultrasonics Sonochemistry* <https://doi.org/10.1016/j.ultsonch.2022.105989>.
 416. Xie, Y., Zhang, S., Sun, S., Zhu, M.J., Shyam, S.S., Tang, J.* 2022. Survivability of *Salmonella* and *Enterococcus faecium* in chili, cinnamon and black pepper powders during storage and isothermal treatments. *Food Control* 137: 108935, <https://doi.org/10.1016/j.foodcont.2022.108935>.
 415. Quintanilla, A., Mencia, A., Powers, J., Rasco, B., , Tang, J., Sablani, S.S. 2022. Developing vacuum-impregnated dehydrofrozen red raspberries with improved mechanical properties, *Drying Technology* 40 (2), 299-309.
 414. Pokhrel, P., R., Boulet, C., Yildiz, S., Sablani, S.S., Tang, J., Barbosa-Cánova, G.V., 2022. Effect of high hydrostatic pressure on microbial inactivation and quality changes in carrot-orange juice blends at varying pH, *LWT*, 159, 113219, <https://doi.org/10.1016/j.lwt.2022.113219>.

413. Lin, Y., Liu, Y.H., J. Tang, Wang, S., Qao Z.J. 2022. Dielectric loss mechanism of powdered infant formula milk. *Innovative Food Science & Emerging Technologies* 76, 102950. <https://doi.org/10.1016/j.ifset.2022.102950>.
412. Yang, R., Cheng, T., Hong, Y., Wei, L., Tang, J.* 2022. The effect of dry headspace on the thermal resistance of bacteria in peanut oil and peanut butter. *Food Control*. <https://doi.org/10.1016/j.foodcont.2022.108851>.
411. Sonar, C.R., Tang, J., Sablani, S.S. 2022. Polymer packaging for in-pack thermal pasteurization technologies. *Food Engineering Innovations Across the Food Supply Chains*, 307-322.
410. Xu, J., Xie, Y., Paul, N.C., Roopesh, M.S., Shah, D.H., Tang, J.*, 2022, Water sorption characteristics of freeze-dried bacteria in low-moisture foods. *International Journal of Food Microbiology*, <https://doi.org/10.1016/j.ijfoodmicro.2021.109494>.
409. Inanoglu, S., Barbosa-Canovas, G.V., Tang, Z., Liu, F., Sablani, S.S., Zhu, M.J., Tang, J.* 2022. Qualities of high pressure and microwave-assisted thermally pasteurized ready-to-eat green beans during refrigerated storage at 2 and 7°C, *Food and Bioprocess Technology*, <https://doi.org/10.1007/s11947-021-02736-6>.
408. Liu, S., Wei, X., Tang, J.*, Qin, W., Wu, Q. 2022. Recent developments in low-moisture foods: microbial safety and thermal process. *Food Research International* 155, 111072 <https://doi.org/10.1016/j.foodres.2022.111072>.
407. Liu, S., Wei, X., Tang, J.*, Qin, W., Wu, Q. 2021. Recent developments in low-moisture foods: microbial validation studies of thermal pasteurization processes. *Critical Reviews in Food Science and Nutrition*, <https://doi.org/10.1080/10408398.2021.2016601>.
406. Guan, J., Lacombe, A., Rane, B., Tang, J.*, Sablani, S.S., Wu, V.C.H., 2021. A review: gaseous interventions for listeria monocytogenes control in fresh apple cold storage. *Frontiers in Microbiology* 12:782934, <https://doi.org/10.3389/fmicb.2021.782934>.
405. Zhang, Y., Li, F., Yao, Y., He, J., Tang, J., Jiao, Y. 2021. Effects of freeze-thaw cycles of Pacific white shrimp (*Litopenaeus vannamei*) subjected to radio frequency tempering on melanogenesis and quality. *Innovative Food Science and Emerging Technologies*. <https://doi.org/10.1016/j.ifset.2021.102860>.
404. Gezahegn, Y.A. Tang, J.*, Sablani, S.S., Pedrow, P.D., Hong, Y.K., Lin, H., Tang, Z., 2021. Dielectric properties of water relevant to microwave assisted thermal pasteurization and sterilization of packaged foods. *Innovative Food Science & Emerging Technologies*, 74, 102837, <https://doi.org/10.1016/j.ifset.2021.102837>.
403. Cao, F., Zhang, R., Tang, J., Li, F., and Jiao, Y. 2021. Radio frequency combined hot-air (RF-HA) drying of tilapia (*Oreochromis niloticus*, L.) fillets. Drying kinetics and quality analysis. *Innovative Food Science & Emerging Technologies*, 74, 102791, <https://doi.org/10.1016/j.ifset.2021.102791>.
402. Garrido, D., Gallardo, K., Carolyn, Ross, Maria Laura, M., Tang, J., 2021. Does the order of preparation of extrinsic and intrinsic quality attributes matter when eliciting willingness to pay? *Journal of Food Science*, <https://doi.org/10.1111/1750-3841.15825>.
401. Garrido, D., Gallardo, K., Carolyn, Ross, Maria Laura, M., Tang, J., 2021. The effect of intrinsic and extrinsic quality on the willingness to pay for a convenient meal: a combination of home-use-test with online auctions. *Journal of Sensory Studies*, <https://doi.org/10.1111/joss.12682>.
400. Nitin, D., Tang, J., Zhu, M.J. 2021. Thermal inactivation of *Salmonella*, *Listeria monocytogenes*, and *Enterococcus faecium* NRRL B-2354 in desiccated shredded coconut, *LWT*, 149, 111851, <https://doi.org/10.1016/j.lwt.2021.111851>.
399. Qu, Z., Tang, J.*, Sablani, S.S., Ross, C.F., Sankaran, S., Shah, D.H., 2021. Quality changes in chicken livers during cooking. *Poultry Science* 100:101316, <https://doi.org/10.1016/j.psj.2021.101316>.

398. Ballom, K.F., Dhowlaghar, N., Tsai, H.C., Yang, R., Tang, J., Zhu, M.J. 2021. Radiofrequency pasteurization against *salmonella* and *Listeria monocytogenes* in cocoa powder. *LWT-Food Science and Technology* 145, 111490, <https://doi.org/10.1016/j.lwt.2021.111490>.
397. Perez-Reyes, M.E., Tang, J.*, Zhu, M.J., Barbosa-Canovas, G.V. 2021. The influence of elevated temperatures and composition on the water activity of egg powders. *Food Processing and Preservation*, <https://doi.org/10.1111/jfpp.15269>.
396. Cheng, T., Tang, J*, Yang, R., Xie, Y., Cheng, L., Wang, S. 2021. Methods to obtain thermal inactivation date for pathogen control in low moisture foods. *Trends in Food Science & Technology*, 112. 174-187, <https://doi.org/10.1016/j.tifs.2021.03.048>.
395. Yao, Y., Zhu, Y., He, J., Li, F., Tang, J., Koral, T., Wongsangasri, P., Jiao, Y. 2021. Radio frequency tempering of frozen pacific sauries (*Cololabis saira*) under batch and continuous mode: Temperature distribution and energy consumption evaluation. *Food Processing Engineering* <https://doi.org/10.1111/jfpe.13595>.
394. Sun, X., Li, X., Tang, J., Lai, K., Rasco, B.A., Huang, Y. 2021. Formation of protein-bound N^ε-carboxymethyllysine and N^ε-carboxyethyllysine in ground pork during commercial sterilization as affected by the type and concentration of sugars, *Food Chemistry* 336, <https://doi.org/10.1016/j.foodchem.2020.127706>.
393. Zhu, M.J., Song, X., Tsai, H.C., Shend, X., Taylor, M., Tang, J. 2021. Desiccation and thermal resistance of *Salmonella* and *Enterococcus faecium* SNRRL B-2354 in almond meal as impacted by water activity and storage temperature. *Food Control* 126. <https://doi.org/10.1016/j.foodcont.2021.108037>.
392. Feng, L., Zhu, Y., Li, S., Wang, P., Zhang, R., Tang, J., Koral T., Jiao, J. 2021. A strategy for improving the uniformity of radio frequency tempering for frozen beef with cuboid and step shapes. *Food Control* 123, <https://doi.org/10.1016/j.foodcont.2020.107719>.
391. Rane, B., Lacombe, A., Sablani, S., Bridges, D.F., Tang, J., Guan, J., Wu, V.H. 2021. Effects of moisture content and mild heat on the ability of gaseous chlorine dioxide against *Salmonella* and *Enterococcus faecium* NRRL B-2354 on almonds. *Food Control*, 123, 107732, <https://doi.org/10.1016/j.foodcont.2020.107732>.
390. Hau, Z., Younce, F., Tang, J., Ryu, D., Rasco, B., Hanrahan, I., Zhu, M.J. 2021. Efficacy of saturated steam against *Listeria innocua* biofilm on common food-contact surfaces. *Food Control*. 125, 107988, <https://doi.org/10.1016/j.foodcont.2021.107988>.
389. Qu, Z., Tang, Z., Liu, F., Sablani, S.S., Ross, C.F., Sankaran, S., Tang, J.*, 2021. Quality of green beans (*Phaseolus vulgaris* L.) influenced by microwave and hot water pasteurization, *Food Control*, 124, 107936, <https://doi.org/10.1016/j.foodcont.2021.107936>.
388. Hong, Y.K., Stanley R., Tang, J.*, Bui, L., Ghandi, A., 2021. Effect of electric field distribution on the heating uniformity of a model ready-to-eat meal in microwave-assisted thermal sterilization using the FDTD method, *Foods*, 10, 311, <https://doi.org/10.3390/foods10020311>.
387. Hong, Y.K., Liu, F., Tang, Z., Pedrow, P.D., Sablani, S.S., Yang, R., Tang, J.*, 2021. A simplified approach to assist process development for microwave assisted pasteurization of packaged food products. *Innovative Food Science & Emerging Technologies*, 68, 102628 <https://doi.org/10.1016/j.ifset.2021.102628>.
386. Alshammari, J., Dhowlaghar, N., Xie, Y., Xu, J., Tang, J.*, Sablani, S.S., Zhu, M.J. 2021. Survival of *Salmonella* and *Enterococcus faecium* in high fructose corn syrup and honey at room temperature (22°C), *Food Control*, 114. <https://doi.org/10.1016/j.foodcont.2020.107765>.
385. Zhang, Y., Li, S., Jin, S., Li, F., Tang, J., Jiao, Y. 2021. Radio frequency tempering multiple layers of frozen tilapia fillets: the temperature distribution, energy consumption, and quality. *Innovative Food Science and Emerging Technologies* 68:102603. <https://doi.org/10.1016/j.ifset.2021.102603>.

384. Perez-Reyes, M.E., Xu, J., Zhu, M.J., Tang, J.*, Barbosa-Canovas, G.V. 2021. Influence of low water activity on the thermal resistance of *Salmonella enteritidis* PT30 and *Enterococcus faecium* as its surrogate in egg powders. *Food Science and Technology International* 27(2):184-193, <https://doi.org/10.1177%2F1082013220937872>.
383. Perez-Reyes, M.E., Tang, J.*, Zhu, M.J., Barbosa-Canovas, G.V., Zhu, M.J. 2021. The influence of elevated temperature and composition on the water activity of egg powders, *Food Processing and Preservation*, <https://doi.org/10.1111/jfpp.15269>.
382. Perez-Reyes, M.E., Tang, J.*, Barbosa-Canovas, G.V., Zhu, M.J. 2021. Influence of water activity and dry-heating time on egg white powders quality. *LWT-Food Science and Technology* 140:110717. <https://doi.org/10.1016/j.lwt.2020.110717>.
381. Xie, Y., Cheng, T., Wei, L., Zhu, M.J., Sablani, S., Tang, J*. 2021. Thermal inactivation of *Salmonella* Enteritidis PT 30 in ground cinnamon as influenced by water activity and temperature/ *Food Control*, 124, 107935, <https://doi.org/10.1016/j.foodcont.2021.107935>.
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379. Guan, J., Lacombe, A., Tang, J.*, Bridge, F., Sablani, S., Rane, B., Wu, J. 2021. Use of mathematic models to describe the microbial inactivation on baby carrots by gaseous chlorine dioxide. *Food Control*, 123. <https://doi.org/10.1016/j.foodcont.2020.107832>.
378. Wang, W., Tang, J., Zhao, Y. 2021. Investigation of hot-air assisted continuous radio frequency drying for improving drying efficiency and reducing shell cracks for inshell hazelnuts: the relationship between cracking level and nut quality. *Food and Bioprocesses Processing*, 125:46-56. <https://doi.org/10.1016/j.fbp.2020.10.013>.
377. Yang, R., Xie, Y., Lombardo, S.P., Tang, J.*, 2021. Oil protects bacteria from humid heat in thermal processing, *Food Control*, <https://doi.org/10.1016/j.foodcont.2020.107690>.
376. Patel, J., Sonar, C. R., Al-Ghamdi, S., Tang, Z., Yang, T., Tang, J., Sablani, S. S. 2021. Influence of ultra-high barrier packaging on shelf-life of microwave assisted thermal sterilized chicken pasta, *LWT-Food Science and Technology* 136:110287 <https://doi.org/10.1016/j.lwt.2020.110287>.
375. Montero, M.L., Sablani, S. S., Tang, J., Ross, C.F. 2020. Characterization of the sensory, chemical, and microbial quality of microwave-assisted, thermally pasteurized fried rice during storage. *Journal of Food Science*, 85(9): 2711-2719.
374. Inanoglu, S., Barbosa-Canovas, G.V., Patel, J., Zhu, M.J., Sablani, S.S., Liu, F., Tang, Z., Tang, J.* 2021. Impact of high-pressure and microwave-assisted thermal pasteurization on inactivation of *Listeria innocua* and quality attributes of green beans, *J. Food Eng.*, 288. <https://doi.org/10.1016/j.jfoodeng.2020.110162>.
373. Patel, J., Parhi, A., Al-Ghamdi, S., Sonar, C. R., Mattinson, D.S., Tang, J., Yang, T., Sablani, S. S. 2020. Stability of vitamin C, color, and garlic aroma of garlic mashed potatoes in polymer packages processed with microwave-assisted thermal sterilization technology. *Journal of Food Science*. Published online: 13 August, 2020.
372. Quintanilla, A., Mencia, A., Powers, J., Rasco, B., Tang, J., Sablani, S.S. 2020. Developing vacuum-impregnated dehydrofrozen red raspberries with improved mechanical properties. *Drying Technology*. <https://doi.org/10.1080/07373937.2020.1789654>.
371. Chen, Y., He, J., Li, F., Tang, J., Jiao, Y. 2020. Model food development for tuna (*Thunnus Obesus*) in radio frequency and microwave tempering using grass carp mince. *J. Food Engineering*, 292: <https://doi.org/10.1016/j.jfoodeng.2020.110267>.
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 16. Tang, J.* and Sokhansanj, S. 1993. Geometric changes in lentil seeds caused by drying. *J. Agric. Engng. Res.* 56(4):313-326.
 15. Tang, J.* and Sokhansanj, S. 1993. Drying parameter effects on lentil seed viability. *Transactions of the ASAE* 36(3): 855-861.
 14. Gao, Y.C., Lelievre, J. and Tang, J*. 1993. A constitutive relationship for gels under large deformation. *J. Texture Studies* 24(3):239-251.
 13. Lelievre, J., Mirza, I. and Tang, J.M.* 1992. Measurement of the tensile failure of gels. *J. Texture Studies* 23 (3): 349-358.
 12. Tang, J.*, Sokhansanj, S., Sosulski, F.W. and Slinkard, A.E. 1992. Effect of harvest methods on moisture content and quality of lentil seeds. *Can. J. Plant Science* 72:451-456.
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 9. Tang, J.*, Sokhansanj, S., Sosulski, F.W., Slinkard, A.E. 1991. Lentils quality-effects of artificial drying and 6 month storage. *Can. Inst. Food Sci. Technol. J.* 24(5):283-286.
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- lentils. *J. Food Process Eng.* 13(3):229-238.
4. Tang, J.*, Sokhansanj, S., Sosulski, F.W., Slinkard, A.E. 1990. Effect of swathing and moisture content on seed properties of laird lentils. *Can. J. Plant Science* 70(4):1173-1178.
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1. Tang, J.*, Jofriet, J.C. and LeLiever, B. 1988. Juice flow from silage. *Can. Agric. Eng.* 30:99-106.

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2. Tang, J., Wang, S., Mitcham, E.J., Laurie, E., 2007. *Heat Treatments for Postharvest Pest Control: Theory and Practice*. CABI Publishing, Wallingford, Oxon, UK (349 pages).
1. Young, X. and Tang, J. 2002. *Advances in Bioprocessing Engineering, Vol. 1 of Advances in Agricultural Science and Technology Series*. World Scientific Publisher, New Jersey, (172 pages).

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18. Lentz, R.R., Tang, J., Resurreccion, F.P. 2020. Electromagnetic basis of microwave heating. In *Development of Packaging and Products for Use in Microwave Ovens*, 2nd Edition. Ed. Erle U., Pesheck, P.S., Lorence, M. Woodhead Publishing, Cambridge, MA, USA, 3-70.
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14. Tang, J., Resurreccion, F.O., JR. 2009. Electromagnetic basis of microwave heating, in *Development of Packaging and Products for Use in Microwave Ovens*. Ed. M.W. Lorence and P.S. Pesheck (eds.). Woodhead Publishing Lt., Oxford, UK. 1-37.
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5. Tang, J., and Yang, T. 2003. Dehydrated vegetables: principles and systems. *Handbook of Vegetable Preservation and Processing*. (ed.) Hui, Y.H., Marcel Dekker, Inc., New York, 335-372.
4. Feng, H., Shen, Q., and Tang, J. 2003. Drum drying, in *Encyclopaedia of Agricultural and Food Engineering*, D. R. Heldma (e.d.). Marcel Dekker, Inc., New York, 211 – 214.
3. Wang, S., Tang, J., and Younce, F. 2003. Temperature measurement in food processing, In *Encyclopaedia of Agricultural and Food Engineering*, D. R. Heldman (e.d.). Marcel Dekker, Inc., New York, 987–993.
2. Feng, H., and Tang, J. 2003. Heat and mass transfer modelling in microwave and spouted bed combined drying of particulate food products, in *Transport Phenomena in Food Processing*, (eds.) Jorge Welti-Chanes, Jorge F. Velez-Ruiz, Gustavo V. Barbosa-Canovas, CRC Press, New York, 521-538.
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2. Tang, J., Liu, F. 2015, Method for recording temperature profiles in food packages during microwave heating using a metallic data logger. **US Patent No. 8,981,270 B2** (filed 2011, application Number 20120241443, granted 3/11/2015).
3. Tang, J., Liu F. 2017, Microwave Sterilization or Pasteurization-Systems, **US Patent No. 9,642,385 B2** (filed on 10/14/2015, granted 5/9/2017. Patent application filed in China-granted in Sept. 2019, Australia, Brazil, Canada, India, Israel, Japan, Mexico, South Korea, Thailand, and Europe).
4. Tang, J., Liu F. 2018, Microwave Sterilization or Pasteurization-Methods, **US Patent No. 9,961,926 B2** (filed on 10/14/2015, granted 5/8/2018).
5. Tang, J., Liu F. 2019. Microwave Sterilization or Pasteurization Transport Carriers and System,

6. Tang, J., Liu, F. 2019. Microwave Sterilization or Pasteurization Methods and Systems, **Chinese Patent No. CN106465491 B** (filed on 5/6/2015, granted 8/9/2019).
7. Tang, J., Liu, F. 2020. Microwave Sterilization or Pasteurization Transport Carrier, **US Patent No.10,681923** (Filed on 3/1/2018, WSU Ref:12770079AA/TA, WSU OC1783, granted 6/16/2020).
8. Tang, J., Liu, F. 2020. Microwave Sterilization or Pasteurization, **Japanese Patent No. 6671297** (filed on 5/6/2015, granted 3/5/2020).
9. Tang, J., Liu, F. 2020. Microwave Sterilization or Pasteurization, **European Patent No. EP3141083 B1**, filed from the PCT/US15/29468 patent on 5/6/2015, assigned Registration Serial Number 15789133.4, claims allowed per notification received on 3/30/2020. Covered countries: UK, Germany, Italy, France, Netherlands, Turkey, and Spain, granted on 09/09/2020).
10. Tang, J., Liu, F. 2020. Microwave Sterilization or Pasteurization, **Canadian Patent No. CA2947053**, (filed on 5/6/2015, issued on Nov. 17, 2020).
11. Tang, J., Liu, F. 2020. Microwave Sterilization or Pasteurization, **Australian Patent No. 2015256068** (filed on 5/6/2015, issued on Nov. 26, 2020, term of patent 20 yrs from 2015).
12. Tang, J., Liu, F. 2020. ESTERILIZACIÓN O PASTEURIZACIÓN POR MICROONDAS. **Mexican Patent No. 372044** (filed in 2016, issued on March 4, 2020, expiration date: May 6, 2035).
13. Tang, J., Liu, F. 2021. Microwave Sterilization or Pasteurization, **US Patent No. 11,140,913 B2** (Application No. 9,961,926, issued on 10/12/2021).
14. Tang, J., Liu, F. 2022. Microwave Sterilization or Pasteurization Transport Carriers, **Japanese Patent No. 7009493** (filed 2/28/2018, issued on 1/14/2022).

PATENTS (Pending US and International Applications)

1. Tang, J. Liu, F., The Brazilian patents entitled “Microwave Sterilization or Pasteurization,” filed from the PCT/US15/29468 patent on 5/6/2015, and assigned Registration Serial Number BR 11 2016 025733-2.
2. Tang, J., Liu, F. The Indian patents entitled “Microwave Sterilization or Pasteurization,” filed from the PCT/US15/29468 patent on 5/6/2015, and assigned Registration Serial Number 201617039945.
3. Tang, J., Liu, F., The Israel patents entitled “Microwave Sterilization or Pasteurization,” filed from the PCT/US15/29468 patent on 5/6/2015, and assigned Registration Serial Number 248663.
4. Tang, J., Liu, F., The South Korean patents entitled “Microwave Sterilization or Pasteurization,” filed from the PCT/US15/29468 patent on 5/6/2015, and assigned Registration Serial Number 2016-7034227.
5. Tang, J., Liu, F., The Thailand patents entitled “Microwave Sterilization or Pasteurization,” filed from the PCT/US15/29468 patent on 5/6/2015, and assigned Registration Serial Number 1601006460.
6. Tang, J., Liu, F., The Chinese patents entitled “Microwave Sterilization or Pasteurization Transport Carriers,” filed from the PCT/US2018/020168 application]
7. Tang, J., Liu, F., The European patents entitled “Microwave Sterilization or Pasteurization Transport Carriers,” filed from the PCT/US2018/020168 application]
8. Tang, J., Liu, F., The Indian patents entitled “Microwave Sterilization or Pasteurization Transport Carriers,” filed from the PCT/US2018/020168 application on 8/14/2019, and assigned reference number 201917032849.

9. Tang, J., Younce, F., Tang, Z., Liu, F. Solid-states microwaves sterilization and pasteurization. (US Patent, file in June 2021).

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10. Tang, J. Luan, D., Liu, F. New field domestic microwave oven (US Patent, provisional filing made on July 9, 2015).
11. Tang, J., Wang J., Liu, F. A chemical marker system for heating pattern determination of microwave assisted pasteurization processes (US Patent, provisional filing made on July 25, 2015, withdrew in October, 2021).
12. Barrios, JDJ., Tang, J., Swanson, B. 2006 Extrusion-cooking of high fiber products based on legume flours. Official application filed through USDA ARS Western Regional Center at Albany, CA, Dec. 16, 2006, serial No. 11/641,318. Publication US-2008-0145483-A1.
13. Barrios, JDJ., Patil, RT, Tang, J., Swanson, B. 2006. Method for the production of functional food type products as fortified potato based French fries developed by conventional, hypobaric and supercritical fluid extraction. Patent Disclosure to USDA ARS (No. 0033,06).

TRADEMARKS

“MAPS” word mark filed in the USA Patent Office on March 4, 2019 and assigned serial number 88/324354 for Microwave Assisted Pasteurization Systems.

OVER 300 CONFERENCE PRESENTATIONS (not listed here)

Graduate Students in My Laboratory (all students received full support either from my grants or with external scholarships identified below)

| Student Name | Research Topic or Dissertation Title, and Awards | Degree Program | Starting – or Graduation Date (-Expected) | Position after graduation |
|----------------------|--|----------------|---|---|
| 56. Sheng Yu Wu | UV pasteurization of foods | PhD. | 1/2023 | |
| 55. Shuang Zhang | Low moisture food safety | PhD. | 1/2023 | |
| 54. Zhou Xu | Solid-state MW heating supported by CSC | PhD. | 1/2020 | |
| 53. Sicheng Sun | Low moisture food safety supported by CSC | PhD. | 8/2018, prelim: 4/2022 | |
| 52. Yucen Xie | Microwave pasteurization supported by CSC | PhD. | 1/2018-3/2022 | Post-Doctorate Fellow, UC Davis |
| 51. Sumeyye Inanoglu | Microwave processing | PhD. | 8/2017-4/2021 | Post-Doctorate Fellow, University of Maryland |
| 50. Gezahegn Yonas | Microwave pasteurization | PhD. | 8/2017-12/2022 | Nestle |
| 49. Jiewen Guan | Low Moisture Food Safety jointly with USDA ARS | PhD. | 8/2017-7/2018 | |

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|-------------------------------|--|-------|-----------------|--|
| 48. Qu Zhi | Microwave Processing supported by CSC | PhD | 8/2016-7/2021 | Senior scientist, New Hope Beijing, China |
| 47. Yuqiao Jin | Low Moisture Foods Safety PhD. Intern at Nestle Food, Summer 2019 | PhD. | 8/2016-1//2020 | Assistant Professor at IIT, Chicago |
| 46. Yoon Ki Hong | Microwave Processing Intern at Australia Department of Defense Food Lab, summer 2020 | PhD. | 8/2016-7/2021 | Scientist, 415-238-7085 ykhoog@ju.st. Eat Just, Inc., 2000, Folsom St. San Francisco, CA 94110 |
| 45. Marco Esteban Perez Reyes | Thermal Inactivation of Salmonella Enteritidis Pt30 and Enterococcus Faecium in Egg Powders at Different Water Activities Mexican Scholarships (CONACYT) | Ph.D | 8/2015-2/2020 | Research Assistant Professor, Mexico |
| 44. Ren Yang | The Protective Effect of Oil on Bacterial Thermal Inactivation in High-fat Low-Moisture Foods: Mechanism and Solutions. Intern for McCormick and Comany 2018 | Ph.D. | 8/2015-6/2020 | Post-Doct., Washington State University |
| 43. Jaza Shammari | Thermal Resistance of Salmonella in Low-Moisture Sugar Products Saudi Arabia Government (3+3yr, with travel for one meeting per year) | Ph.D. | 1/2015-5/2020 | Assistant Professor Department of Public Health and Health Informatics University of Hail. Saudi Arabia, jaza.alshammari@uoh.edu.sa , Phone # +966566999913 |
| 42. Jie Xu | Control of Salmonella in Low-moisture Foods: Thermal Death Kinetics and Microbial Validation of Radio-Frequency Processes CSC Scholarship IFTPS Paper Competition, First Place, 2017 Intern at McCormick and Company | Ph.D. | 2014- 4/2019 | Post-Doct. Harvard University |
| 41. Shuxian Liu | Low moisture food safety CSC Scholarship Received 2 nd Place in 2017 AACCI Best Student Research Paper Competition 2017 Feed for Tomorrow Scholarship from IFT 2017 IAFP Travel Award Intern at McCormick and Company | Ph.D. | 8/2013-10/2017 | Associate Professor Sichuan Agricultural University, China |
| 40. Ravi Kiran Tapapaneni | RF processing | Ph.D. | 1/2013-12/2017 | Food Engineering Manager, Impossible Foods, CA |
| 39. Deepali Jain | Microwave processing | Ph.D. | 1/2013- 12/2017 | Senior Vice President, Food Security, Sync Energy Inc. New York, deepali@sync.energy |

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|----------------------|---|-------|------------------------------|---|
| 38. Jungang Wang | Salt diffusion in food during thermal processing CSC Scholarship 2013 NASA Summer Fellow | Ph.D. | M.S. 1/2014-1/2018 5/2013 | 2012-5/2013 Senior Process Engineer, Campbell Soup 5/2013 |
| 37. Hongchao Zhang | Food Packaging Jointly with Dr. Sablani | Ph.D. | /2013-11/2016 | Post-doctorate fellow University of Maryland |
| 36. Ellen Bornhorst | Microwave heating food during thermal processing USDA National Need Scholarship 2013 IFT Puget Sound Travel Award 2015 NASA Intern Paper Award | Ph.D. | M.S. /2013-12/2016 5/2013 | 2012-5/2013 Senior Research Engineer, erbornhorst@gmail.com Pepsi-Cole |
| 35. Rossana Villa | RF Processing Mexican Scholarship (CONACYT) | Ph.D. | /1/2012-11/2015 | Assistant Professor, University of Nebraska |
| 34. Ellen Bornhorst | Salt diffusion in food during thermal processing 2013 IFT Puget Sound Travel Award 2013 NASA Summer Fellow | M.S. | /2012-5/2013 | WSU PhD Student |
| 33. Rajat Tyagi | MW Engineering, modeling, energy efficiency, engineering scaling-up 2012 IFT Puget Sound Travel Award | Ph.D. | (08/2013) | Withdraw |
| 32. Wenjia Zhang | Chemical marker for MW pasteurization China Scholarship Council Support 2012 IFT Puget Sound Travel Award 2012 IMPI Paper Poster Competition 1 st Place 2013 IFT Puget Sound Outstanding Student Award 2013 IFT Feeding Tomorrow Graduate Student Scholarship 2013 WSU Biological Systems Engineering Graduate Studies Achievement Award | Ph.D. | 05/2015 | Senior Research Scientist, zhangatko@gmail.com Coca Cola, USA |
| 31. Yage Shi | Food kinetics in short thermal processing, jointly with Northwest University of Agriculture and Forestry, China Scholarship Council support | Ph.D. | (01/2013) | Assistant Professor, Northwest University of Agriculture and Forest, China |
| 30. Donglei Luan | Microwave heating/Computer Simulation China Scholarship Council support 2013 IFT Puget Sound Outstanding Student Award | Ph.D. | 08/2014 | Associate Professor, Shanghai Ocean University, Shanghai, China |
| 29. Jiao Yang | MW sterilization energy efficiency China Scholarship Council Support 2012 IFT Puget Sound Outstanding Student Award 2013 IFT Puget Sound Travel Award | Ph.D. | 07/2014 | Associate Professor, Department Chair, Shanghai Ocean University, Shanghai, China (yjiao@shou.edu.cn) |
| 28. Jing Peng | Microwave pasteurization-quality kinetics China Scholarship Council (CSC) Support 2013 IFT Puget Sound Travel Award | Ph.D. | 12/2013 | Assistant Professor, Nanjing Agricultural University, China |
| 27. Shunshan Jiao | RF heating/computer simulation/system design, China Scholarship Council support | Ph.D. | 12/2011 | Associate Professor Shanghai JiaoTong University |
| 26. Ofero A Caparino | Drying technologies for tropic fruits scholarships from Ford Foundation 2007-2010 2004 IFT Puget Sound Travel Award | Ph.D. | 05/2012 | Division Chief Biosystems Engineering Philippine Center for Post-Harvest Development and Mechanization, CLSU |

*Excellence in Research awarded by R
Wiley Research, WSU GPSA, 2012*

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|--------------------------------|---|-------|---------|--|
| 25. Fermin Resurreccion | Microwave sterilization <i>2011 IMPI Poster Competition 1st Place Award</i> <i>2008 IFT Puget Sound Travel Award</i> <i>2012 IFT Puget Sound Travel Award</i> | Ph.D. | 12/2011 | Senior Microwave Engineer , Graphic Packaging, R&D Center, Denver, CO |
| 24. Bandar Alfaifi | RF/MW heating for pest and m/o control <i>scholarships from Saudi Arabia Government</i> | Ph.D. | 05/2013 | Vice Dean of Student Affairs, King Saud University |
| 23. Yanhong Liu | Joint with China Agric. Univ. <i>scholarships from Chinese Government</i> | Ph.D. | 04/2009 | Associate Professor , China Agricultural University, Beijing, China |
| 22. Bandar Alnahdi | Dielectric properties of solid powders <i>Supported by scholarships from Saudi Arabia Government</i> | M.S. | 05/2011 | Faculty, King Saud University, Kingdom of Saudi Arabia |
| 21. Balunkeswar Nayak | Extrusion of potato and legumes <i>Excellence in Agriculture Scholarship for 2007-08, 08-09, 09-10 from WA Potato Commission, Second Prize in Wiley graduate research competition for 2008 from WSU Graduate and Professional Student's Association in the category of Engineering and Physical Sciences, 2010 IFT Feed for Tomorrow Scholarship</i> | Ph.D. | 01/2011 | Associate Professor , University of Maine |
| 20. Ho Ki Lee | Coupled heat and EM simulation jointly with Professor Ben Li, MME | M.S. | 03/2005 | |
| 19. Gopal Tiwari | Postharvest pest and m/o control with RF <i>2009 IFT Food Engineering Paper 1st place award</i> | Ph.D. | 04/2010 | Post-doc., UC Davis |
| 18. Wendy Lu | Thermal characteristics of PA 3679 spores, <i>Jointly with Dr. Kang, FSHN</i> | M.S. | 04/2006 | Manager of food microbiology, Michelson Laboratories, LA |
| 17. Yu Wang | MW Fish processing | M.S. | 12/2006 | Q/A manager, Eagle Beverage and Accessory Products LLC, dba Calson Industries, Seattle |
| 16. Fanbin Kong | Microwave processing of salmon | Ph.D. | 01/2007 | Associate Professor , University of Georgia |
| | | Ph.D. | 04/2010 | Research Scientist in Thermal Processing |

| | | | | | |
|-------------------------------------|--|-------|---------|--|---|
| 15. K. Khana Mokwena Nthoiwa | Novel food packaging for MW processes <i>scholarships from Botswana Government</i> | | | | National Food Technology Center, Kanye, Botswana Cellphone: +267-74178837 alternate e-mail: kknmet@rit.edu |
| 14. Hao Chen | 3-D Microwave heating simulation | Ph.D. | 02/2008 | | Software Engineer , Microsoft, Redmond, WA |
| 13. Ali Ashami | Dielectric Properties of Protein and Carbohydrate Solutions, <i>USDA National Needs Fellow</i> | Ph.D. | 03/2007 | | Associate Professor Chemical Engineering, University of North Dakota ¹ 241 Centennial Dr. Grand Forks ND 58202- 7101 ¹ T 701-777-6838 F 701- 777-3773 ¹ |
| 12. Ram Bhuwan Pandit | Microwave processing, computer vision for heating pattern | Ph.D. | 12/2006 | | Research Engineer , Nestle |
| 11. Sohanlal Birla | Quarantine treatments for fruits | Ph.D. | 12/2006 | | Principal scientist , ConAgra, Omaha |
| 10. Jian Wang | RF sterilization | Ph.D. | 05/2007 | | Wal-Mart IT Center, LA |
| 9. Ting Sun | Process for asparagus products <i>2004 IFT Puget Sound Travel Award</i> jointly with Dr. Powers | Ph.D. | 2005 | | Post Doc. University of Wisconsin |
| 8. Kanchalee Luechaparganap | RF sterilization, <i>2004 IFT Puget Sound Scholastic Award, 2003 Marvin Byer Scholarship Award from R&DA, a nationwide for R&D activities related to military rations and packaging</i> | Ph.D. | 2005 | | Principle Scientist Kunchalee.Luechapattanapor n@pepsico.com PepsiCo, Asia Pacific Region, Bangkok |
| 7. Dongsheng Guan | Microwave sterilization <i>2000 IFT Puget Sound Scholastic Award 2001 R&DA Student Achievement Award</i> | Ph.D. | 2003 | | Director , Food Safety & Quality Assurance Bumble Bee Seafoods 13006 Arctic Circle • Santa Fe Springs • CA 90670 Mobile: 001-562-322-4660 (Preferred) Fax: 001-858-694-9523 Office: 001-562-207-1307 Email: don.guan@bumblebee.com |
| 6. Yifen Wang | RF sterilization, <i>1999 IFT Puget Sound Scholastic Award , 2001 IFTPS paper Competition Award (1st place) 2002 IFT Puget Sound Travel Award</i> | Ph.D. | 2002 | | Professor , Auburn University, Auburn, AB |
| 5. Timothy Wig | System Simulation for Microwave and RF Processes | Ph.D. | 2001 | | Research Engineer , High Speed Circuits, MA, a subsidiary of Intel. |
| 4. Hao Feng | Microwave drying of particulate foods in a spouted bed | Ph.D. | 1999 | | Professor , University of Illinois, Urbana, IL |

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|---------------------------|--|-------|---------|---|
| 3. Minghwei Lau | Microwave pasteurization and sterilization of food products | Ph.D. | 2000 | Principal Researcher, Technical Center of Kraft Foods, IL |
| 2. Julian Ikediala | Quarantine treatment for fruits using radio frequency and microwave energy <i>1999 WSU Science & Engineering Graduate Student Research Paper Competition Award (2nd Place). 2000 ASAE Superior Paper Award</i> | Ph.D. | 1997-00 | Research Engineer, Technical Center, McCain Foods, NB, Canada |
| 1. Brendan Abonyi | Evaluation of refractance window drying method for fruits and vegetables | M.S. | 1998-00 | Plant engineer, J.R. Simplot Company, ID |

VISING PROFESSORS/STUDENTS/POST DOCTRATE FELLOWS

| Name | Research Topic | Duration | Ph.D. Degree | Current Position |
|----------------------------|---------------------------------------|----------------|---|--|
| 53 Shuang Zhang | Food Engineering | 9/2020 | PhD Student from Northwest A&F University | |
| 52 Teng Cheng | Low moisture food | 9/2019- | PhD Student at Northwest A&F University | |
| 51 Lina Wei | Low moisture food | 8/2019- | Shaanxi Normal University, China | Lecture, Shaanxi University of Science & Technology |
| 50. Jianwu Dai | RF Processing | 8/2018- | China Agriculture University | Assistant Professor, Sichuan Agriculture University |
| 49. Fei Shen | RF Processing | 1/2018-12/2019 | Zhejiang University | Associate Professor, Nanjing University of Commerce |
| 48. Thammanoonq Auksornsri | Microwave processing | 7/16-12/16 | Kasetsart University | PhD. Student, Kasetsart University, Thailand |
| 48. Xie Long | Food Processing | 11/15-11/16 | China Agriculture University | PhD. Student, China Agriculture University, Beijing China. |
| 47. Zhihui Zhu | Food Processing | 5/15-5/16 | Wuhan University | Associate Professor, Central China University of Agriculture, Wuhan, China |
| 46. Li Li | Food Packaging | 11/14-11/15 | Shanghai University of Technology | Associate Professor, Shanghai Ocean University, Shanghai, China |
| 45.Xue Dong Yao | RF Drying | 9/14-9/15 | China Agricultural University | Associate Professor, Shihezi University, Xinjiang, China |
| 44. Donglei Luan | Microwave Simulation | 9/14-9/15 | WSU | Associate Professor, Shanghai Ocean University |
| 43. Jiao Yang | RF Simulation | 8/14-8/15 | WSU | Associate Professor, Shanghai Ocean University |
| 42. Qingping Zhong, | Low moisture food safety | 8/14-8/15 | South China Agricultural University | Associate Professor, South China Agricultural University |
| 41. Roopesh Syamaladevi | Pathogen control in low moisture food | 5/2013- | WSU | Assistant Professor, University of Alberta, Canada |
| 40. Huojie Shi | RF processing | 5/2013-8/2014 | | PhD. Student, China Agriculture University |
| 39. Shunshan Jiao | RF Processing | | WSU | |

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|---------------------------------|---|-------------------------------|--|--|
| | | 8/2012- 8/2013 | | Assistant Professor, Shanghai JiaoTong University |
| 38. Yuqin Huang | Food Quality | 1/2013- | WSU | Professor, Shanghai University of Ocean |
| 37. Chunfan Song | Thermal Processing | 8/2012- 7/2013 | China Agricultural University | Associate Professor, Jianan University, China |
| 36. Yage Shi | Thermal Processing | 1/2009- 1/2012 | | Northwest A&F University, Yangling, Shaanxi, China. |
| 35. Sudhir Uprit | MW pasteurization Fulbright Scholar | 8/2010- 4/2011 | IIT, Kharagpur, India | Prof, Chair Dept. Dairy Technology College of Dairy Technology, Raipur, India |
| 34. Haihua Cong | MW processing of seafoods, <i>visiting student</i> | 1/2010- 9/2010 11/2011- | | China Ocean University, Qingdao, China |
| 33. Baher M. A. Amer | RF drying, Fulbright Scholar | 8/09- 2/2010 | Humboldt University Berlin, Germany | Assistant Professor, Cairo University Food Science Department, Yangtze University, |
| 32. Mengxiang Gao, | RF heating <i>Sabbatical leave</i> | 02-2010 06/09- | JiangXu University, China | Associate Professor, Department of Food Engineering, College Life Science, Yangtze University, Jingzhou, Hubei, China, 434025 |
| 31. Rossana Villa | RF heating <i>visiting student</i> | 01/09- | | University of America, Mexico |
| 30. Su-Der Chen | RF heating <i>Sabbatical leave</i> | 5/2010 08/08- 12/08 | Michigan State University | Professor, Department of Food Science National Ilan University, Taiwan |
| 29. Yunyang Wang | RF drying <i>Sabbatical leave</i> | 01/09- 01/10 | NW A&F University, China | Associate Professor, Department Chair, Food Science and Engineering College Northwest A&F University, Yangling, Shaanxi, China |
| 28. Ram Pandit | Thermal processing- <i>Post Doc</i> | 05/08- 09/08 | WSU | Frito-Lay, Research Engineer |
| 27. Du Kang | Food Processing <i>Sabbatical leave</i> | 05/07- 12/08 | Lurven University, Belgium | Professor, Head of Food Science Department, Nanjing Agricultural University, Nanjing, China |
| 26. Zeng Ruan | Dairy processing <i>Sabbatical leave</i> | 8/07-12/07 | South China University of Science and Tech. | Associate Professor , South China University of Science and Tech., QuangZhou, China |
| 25. Yulin Ji | Extrusion – <i>Post Doc</i> | 5/07-6/08 | Iowa State University | Pepsi-Cole R&D Center, USA |
| 24. Maria Elena Sosa Morales | Mango treatment with RF - <i>Sabbatical leave</i> | 5/07-8/07 | Instituto Tecnológico de Veracruz of Mexico | Assistant Professor Department of Food Engineering University of America, Mexico |
| 23. Wenchuan Guao | Dielectric properties | 1/07-5/07 | | |

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| | <i>Sabbatical leave</i> | | Northwest University of Agricultural and Forestry | Professor, Associate Dean of Agricultural Engineering Northwest University of Agricultural and Forestry, China |
| 22. Jae Hyung Mah | Microbial validation of thermal processes – <i>Post Doc.</i> | 08/06-12/2010 | National Korea University | Associate Professor Department of Food and Biotechnology, Korea University 518B College of Science and Technology, Sejong Campus, Jochiwon-eup Yeongi-gun, Chungnam 339-700, South Korea E-mail : nextbio@korea.ac.kr , C.P: 82-10-9164-4987 Tel: 82-41-860-1431, Fax: 82-41-865-0220 |
| 21. Lahan Sinha | Extrusion – <i>Post Doc.</i> | 06-07 | IIT, Kharagpur, India | Senior Scientist, Soybean Processing and Utilization Centre, Central Institute of Agricultural Engineering, Bhopal, India |
| 20. Sohanlal Birla | Mash room soups- <i>Post Doc</i> | 06-07 | Ph.D, WSU | Principal Research Scientist Breakthrough Science/Innovation/RQI Six ConAgra Drive, Omaha, NE 68102 Phone : 402-240-6184 Cell : 402-639-4454 Sohan.Birla@conagrafoods.com |
| 19. Zhang Min | Drying Technologies- <i>Sabbatical leave</i> | 2005 (6 months) | China Agri. College | Professor of Food Engineering at South Yangtze University, China |
| 18. Luigi Ragni | Dielectric Properties of Egg in storage - <i>Sabbatical leave</i> | 2005 (3 months) | University of Bologna | Associate Professor, University of Bologna, Italy |
| 17. Hyun-Jung Chung | Microbial validation of RF and MW processes- <i>Post Doc.</i> | 2004-06 | Ohio State University, Columbus, OH | Assistant Professor, Inha University, South Korea |
| 16. Ramabhau Patil | Lentil extrusion – <i>Post Doc.</i> | 2003-05 | University of Saskatchewan, Saskatoon, Canada | Vice President of Indian Society of Agriculture Engineering, Director, Central Institute of Agricultural Engineering, Nabi Bagh, India |
| 15. Zhongwei Tang | RF & MW process design – <i>Post Doc.</i> | 2003- | University of Manitoba, Winnipeg, Canada | |
| 14. Xinming Yin | Insect mortality – <i>Post Doc.</i> | 2002-04 | Southwest China Agricultural University | Professor, Dean of Graduate Studies, Henan Agricultural University, China |
| 13. Yifen Wang | RF heating – <i>Post Doc.</i> | 2003-04 | WSU | Associate Professor, Auburn University, AB |

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| 12. T.V. Chan | RF Simulation – <i>Post Doc.</i> | 2003- | University of Stellenbosch, South Africa | University of Toronto, Canada, Lab Director in EE |
| 11. Slava Komarov | Microwave Simulation – <i>Post Doc.</i> | 2002-03 | Saratov State University, Russia | Professor and Chair of Radio Engineering, Saratov State University, Russia |
| 10. Yiqun Huang | Food gel rheology – <i>Post Doc.</i> | 2002-04 | WSU | Professor, Shanghai Ocean University |
| 9. Minghau Cheng | Extrusion of legume products – <i>Post Doc.</i> | 2001-03 | China Agriculture University Institute of | Cargill, MN |
| 8. Frank Liu | Microwave sterilization – <i>Post Doc.</i> | 2001- | Danian Sciences and Technology, Danian, China | |
| 7. Caleb Nindo | Advanced drying technologies – <i>Post Doc.</i> | 2001-06 | Iwate University, Japan | Associate Professor, Director, Department of Food Science University of Maryland, Eastern Shore. |
| 6. Surya Pathak | Computer simulation of microwave and RF heating – <i>Post Doc.</i> | 2001-03 | Institute of Technology of Banaras Hindu University, Varanasi, India | 03- Assistant Professor, Institute of Plasma Research, BHAT, India |
| 5. Shojin Wang | RF control of insect pests in fruits and nuts – <i>Post Doc.</i> | 2000- | Department of Physics, Gembloux Agricultural University, Belgium | |
| 4. Julian Ikediala | Quarantine treatment for fruits – <i>Post Doc.</i> | 2000-01 | WSU | Research Engineer, Technical Center, McCain Foods, NB, Canada |
| 3. RunSheng, Mao | Food gel rheology – <i>Post Doc.</i> | 1997-00 | University of Salford, UK | Research Chemist Indium Corporation of America Clinton, NY 13323 |
| 2. Hao Feng | Dehydration using microwaves and inert gases – <i>Post Doc.</i> | 1999-00 | WSU | Associate Prof. Food Eng. University of Illinois, Urbana, IL |
| 1. Yui Dain Sheng | Dehydration – <i>sabbatical leave</i> | 1997-08 | Shangshi Agriculture University | Professor, Shangshi Agr. University, China |

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