

**Juming Tang, Ph.D., Regents Professor**

*Distinguished Chair of Food Engineering*

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**EMPLOYMENT**

- July, 2016- Chair, Department of Biological Systems Engineering, Washington State University, Pullman, WA.
- July, 2014- Regents Professor, 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**

2016-2020

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-

Director of Microwave Sterilization Consortium. Consortium members include 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 approval for a homogenous food: mashed potato in trays on Oct. 07, 2009 - first ever in USA for industrial microwave sterilization process; received FDA approval 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.

2000-08 Washington State University IMPACT Research Fellow of Food Processing Technology – one of three IMPACT fellows.

#### **ACHEIEVMENTS/AWARDS/HONORS**

- 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 40 Ph.D. students (27 graduated), 3 M.S. students, 48 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 \$26 million as PI and \$7 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 10 years:**

- 2018 Tang, J., Validating 3 MATS processes for NASA Space Program (\$150,00), Developing RME for US Army (\$50,000), Industrial Contracts (\$100,000)
- 2017 **Tang, J.** Industrial Contracts (\$200,000)
- 2016 **Tang, J.** Industrial Contract Work (\$200,000)
- 2015 (\$4,600,000) **Tang, J.** et al. 2015-2019. Center of Excellence for Advanced Microwave Processing Technologies for Food Safety and 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 Bradley Marks, Michigan State University, WSU \$ 935,018).  
**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. 2011-2016. Control of food-borne bacterial and viral pathogens using microwave technologies, USDA National Institute of Food and Agriculture (NIFA) (\$5,000,000).  
**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).  
**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).

- 2010 (\$1,600,000) **Tang, J.** Microwave sterilization for packaged foods, DoD/Print-pack, Co. (\$400,000).  
**Tang, J.** Microwave Consortium II membership fees from consortium members, 2010-2012 (\$1,200,000).
- 2009 (\$465,555) **Tang, J.** Dry pea and lentil processing. USDA Cool Food Legume Program 2009-2010 (\$35,555).  
Tang, J. Microwave sterilization technology–FDA approval. DoD (\$430,000).
- 2008 (\$991,344) **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).  
**Tang, J.** Dry pea and lentil processing. Cool Food Legume Program (\$38,455).  
**Tang, J., Kang, H, Wang, S.** 2008 Abbot Laboratories, OH, RF control of food pathogens in infant formula (\$57,000).  
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).  
Tang, J. Microwave sterilization technology – FDA approval. DoD (\$600,000).  
**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.).
- 2007 (\$998,423) **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).  
**Tang, J., Patil, R.** Value-added processes for potato. WA Potato Commission (\$30,000).  
**Tang, J., Rasco, B., Clark, S., Pitts, M., Cavalieri, R, Yin, H.** MW Sterilization, Department of Defense (\$833,423).  
**Tang, J., Powers, J., 07.** Processes to produce shelf-stable mushroom soups. WTC and company (\$72,000).
- 2006 (\$715,190) **Tang, J., Swanson, B., Patil, R.** Value-added processes for lentils and dry peas, Cool Season Food Legume Research Program (\$54,614).  
**Tang, J., Patil, R.** Value-added processes for potato. WA Potato Commission (\$27,576).  
**Tang, J.** WSU IMPACT Fellow Support (\$20,000).  
**Tang, J.** Microwave Sterilization: Rexam Containers (\$20,000), Masterfoods (\$100,000), Kraft Foods (\$150,000), US Army Natick Soldier Center (\$250,000).  
**Tang, J., Nindo, C.** Refractance Window Drying, USDA SBIR (\$30,000).  
**Tang, J., Nindo, C., Powers.** Strategies for Antioxidant Retention and Recovery of Pigments from Press Cake, WSU IMPACT Center (\$30,000).  
**Tang, J., Patil, R., Swanson, BG., 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 (past 15 years)**

- 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. 4-5<sup>th</sup>. 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,** 3<sup>rd</sup> 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. 3<sup>rd</sup> 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, 10<sup>th</sup> 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, 2<sup>nd</sup> 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. *8<sup>th</sup> 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. *2<sup>nd</sup> 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. *2<sup>nd</sup> 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 39<sup>th</sup> 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):** 14<sup>th</sup> 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 21<sup>st</sup> 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 SIRTl. 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): 6<sup>th</sup> 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**: 39<sup>th</sup> 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

- o 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-),
  - 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, 2<sup>nd</sup> World Congress on Microwave Energy Applications for 2012 (2008- present)
- ***Institute of Food Technologists, Food Engineering Division***
  - **Chair** (2010-2011), Executive Officer (2006- present)
- ***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.

## LEADERSHIP AND SERVICES AT WASHINGTON STATE UNIVERSITY

- WSU Committees: 1) President's Distinguished Award for Innovation and Entrepreneurship (2018-); 2) V. Lane Rawlins Distinguished Lifetime Service Award (2017-); 3) Regents Professor Nomination Review Committee (2018-).
- Co-Chair for University 2014-2019 Strategic Planning - Outreach, Engagement and Economic Department Sub-team (2014-2015).
- Associate Chair, Department of Biological Systems Engineering (2011-present); Chair (2016-).
- Food Engineering Area Leader, Department of Biological Systems Engineering (2000-2013).
- Co-Chair, Department of Chemical Engineering and Department of Biological Systems Engineering Re-organization Committee (2007).
- Chair, Promotion and Tenure Advisory Committee, College of Agriculture and Home Economics, WSU (2004-05).
- Chair, Graduate Committee, Department of Biological Systems Engineering (2004-present).
- 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 listed as the first authors)

330. Tang, J.\*, Hong, Y.K., Inanoglu, S., Liu, F. 2018. Microwave pasteurization for ready-to-eat meals. *Current Opinion in Food Science* 23:133-141.
329. Jain, D., Tang, J.\*, Pedrow, P., Tang, Z., Sablani, S., Hong, Y. 2018. Effect of changes in salt content and food thickness on electromagnetic heating of rice, mashed potatoes and peas in 915 MHz single mode microwave cavity. *Food Research International* (accepted).
328. Liu, S., Xu, J., Xie, L., Zhu, M.J., Tang, J.\* 2018. Dry inoculation methods for non-fat milk powder *J. Dairy Science* (accepted).
327. Ovissipour, M., Shiroodi, S.G., Rasco, B., Tang, J., Sablani, S.S. 2018. Electrolyzed water and mild-thermal processing of Atlantic salmon (*Salmo salar*): Reduction of *Listeria monocytogenes* and changes in protein structure. *International journal of food microbiology* 276, 10-19.
326. Jain, D., Tang, J.\*, Liu, L., Tang, Z., Pedrow, P.D. 2018. Computer evaluation of food carrier designs to improve heating uniformity in microwave assisted thermal pasteurization. *Innovative Food Science and Emerging Technologies* 48:274-286.
325. Niu, L., Sun, X., Tang, J., Wang, J., Wang, J., Rasco, B.A., Lai, K., Fan, X., Huang, Y. 2018. Combination effects of salts and cold storage on the formation of protein-bound N<sup>ε</sup>-(carboxymethyl) lysine and N<sup>ε</sup>-(carboxyethyl) lysine in in raw and subsequent commercially sterilized ground pork. *Food Chemistry* 264:455-461.
324. Taylor, M.H., Tsai, H, Rasco, B., Tang, J., Zhu, M.J. 2018. Stability of *Listeria monocytogenes* in wheat flour during extended storage and isothermal treatment. *Food Control* 91:434-439.
323. Li, Y., Li, F., Tang, J., Zhang, Z., Wang, Y.Y., Koral, T., Yang, J., 2018. Radio frequency tempering uniformity investigation of frozen beef with various shapes and sizes. *Innovative Food Science and Emerging Technologies* 48:42-55.
322. Auksornsri, T, Bornhorst, E., R., Tang, J.\*, Tang, Z., Songsermpong, S. 2018. Developing model food systems with rice based products for microwave assisted thermal sterilization. *LWT- Food Science and Technology* 96:551-559.
321. Auksornsri, T., Tang, J.\*, Tang, Z., Lin, H., Songsermpong, S. 2018. Dielectric properties of rice model food systems relevant to microwave sterilization process. *Innovative Food Science and Emerging Technologies* 45: 98-105.
320. Yang, J., Tang, J.\*, Wang, Y., Koral, T.L. 2018. Radio-frequency applications for food processing and safety. *Annual Review of Food Science and Technology* 9: 105-127.
319. Kumar, P.K., Bhunia, k., Tang, J., Rasco, BA, Takhar, P.S., Sablani, S. 2018. Thermal transition and thermo-physical properties of potato (*Solanum tuberosum* L.) var. Russet brown, *Journal of Food Measurement and Characterization* 12 (3): 1572-1580.
318. Ovissipour, M., Liu, C., Unlu, G., Rasco, B., Tang, J., Sablani, S. 2018. Quality changes in chum salmon (*Oncorhynchus keta*) caviar (ikura) affected by thermal pasteurization, storage time, and packaging material, *Journal of Aquatic Food Product Technology* 27 (2), 200-210.
317. Wang, J., Tang, J.\*, Liu, F., Bohnet, S. 2018. A new chemical marker-model food system for heating pattern determination of microwave- assisted pasteurization processes, *Food and Bioprocess Technology* 11:1274-1285.
316. Wang, J., Tang, J.\*, Rasco, B., Sablani, S.S., Ovissipour M., Qu, Z. 2018. Kinetics of quality changes of shrimp (*Litopenaeus setiferus*) during pasteurization. *Food and Bioprocess Technology* 11(5):1027-1038.
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314. Quintanilla, A., Mencia, A., Powers, J., Rasco, B., Tang, J., Sablani, S.S. 2018. Vacuum impregnation of firming agents in red raspberries, *J. Science of Food and Agriculture* 88:3706-3714.
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307. Tadapaneni, R.K., Yang R., Carter, B., Tang, J.\* 2017. A new method to determine the water activity and the net isosteric heats of sorption for low moisture foods at elevated temperatures. *Food Research International* 102:203-212.
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303. Alshami, A. Tang, J.\*, Rasco, B. 2017. Contribution of proteins to the dielectric properties of dielectrically heated biomaterials. *Food and Bioprocess Technology*: 10(8): 1548-1561.
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300. Zhang, M., Chen, HZ, Mujumda, AS, Tang, JM., Miao, S., Wang, YC. 2017. Recent development in high-quality drying of vegetables, fruits and aquatic products. *Critical Reviews in Food Science and Nutrition* 57(6): 1239-1255.

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297. Peng, J., Tang, J.\*, Luan, D., Liu, F., Tang, Z., Li, F., Zhang, W. 2017. Microwave Pasteurization of pre-packaged carrots. *J. Food Eng.* 202: 56-64
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293. Luan, D., Wang, Y., Tang, J.\*, Jain, D., 2017. Frequency distribution in domestic microwave ovens and its influence on heating pattern. *J. Food Sci.* 82(2):429-436.
292. Villa-Rojas, R., Zhu, M.J. Marks, B.P. Tang, J.\* 2017. Radio frequency inactivation of Salmonella Enteritidis PT 30 and Enterococcus faecium in wheat flours at different water activities. *Biosystems Engineering* 156: 7-16.
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287. Bornhorst E.R., Liu, F., Tang, J.,\* Sablani, S., Barbosa-Canovas, G.V. 2017. Food quality evaluation using model foods: a comparison study between microwave-assisted and conventional thermal pasteurization processes. *Food and Bioprocess Technology* 10:1248-1256.
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284. Hildebrandt, I.M., Marks, B.P., Ryser, E.T., Villa-Rojas, R., Tang, J., Garces-Vega, F.J., Buchholz, S.E., 2016. Effect of inoculation procedures on variability and repeatability of *Salmonella* thermal resistance in wheat flour. *J. Food Protection* 79 (11): 1833-1839.
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  1. Tang, J., Feng, H., and Lau, M. 2002. Microwave heating in food processing, in *Advances in Bioprocessing Engineering*, (eds.) Young, X., Tang, J., World Scientific Publisher, New Jersey, 1-43.

#### PATENTS

1. Tang, J., Liu, F., Pathak, S., Eves, G. 2006. Apparatus and method for heating subjects with microwaves, **US Patent No. 7,119,313 B2** (filed 09-04, Application Number 10/937,547, revised Nov. 2005, approved 10/10/2006).
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, approved March 17, 2015).
3. Tang, J., Liu F., 2017, Microwave Sterilization or Pasteurization-Systems, **US Patent No. 9,642,385 B2** (filed on Oct. 14, 2015, approved on May 9, 2017. filed in EU and 11 countries, including China, Japan, Australia).
4. Tang, J., Liu F., 2018, Microwave Sterilization or Pasteurization-Methods, **US Patent No. 9,961,926 B2** (filed on Oct. 14, 2015, approved May 8, 2018).
5. Tang, J., Liu, F. Microwave Sterilization or Pasteurization Transport Carriers and System (*US Patent, filed on July 18, 2016, Application Number 15212655, WSU OC 1687*).
6. Tang, J., Liu, F. Microwave Sterilization or Pasteurization Transport Carrier (*US Patent, filed on March 1, 2018, Application Number 15907722/provisional filing application number 624467018, WSU Ref:12770079AA/TA, WSU OC1783*).
7. 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*).
8. Tang, J. Luan, D., Liu, F. New field domestic microwave oven (*US Patent, provisional filing made on July 9, 2015*).
9. 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.
10. 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).

### 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, and Awards	Degree Program	Starting – or Graduation Date (-Expected)	Position after graduation
53. Sicheng Sun	Low moisture food safety supported by CSC	PhD.	8/2018	
52. Yucen Xie	Microwave pasteurization supported by CSC	PhD.	1/2018	
53. Sumeyye Inanoglu	Microwave processing	PhD.	8/2017	
51. Gezahegn Yonas	Microwave pasteurization	PhD.	8/2017	
50. Jiewen Guan	Low Moisture Food Safety jointly with USDA ARS	PhD.	8/2017	
49. Qu Zhi	Microwave Processing Supported by CSC	PhD.	8/2016-	
48. Yuqiao Jin	Low Moisture Foods Safety PhD., 8/2016-	PhD.	8/2016- Prelim: 11/2018	
47. Yoon Ki Jong	Microwave Processing	PhD.	8/2016-	
46. Marco Esteban Perez Reyes	Food Engineering <i>Mexican Scholarships (CONACYT)</i>	Ph.D.	8/2015-	
45. Ren Yang	Food Engineering	Ph.D.	8/2015- Prelim: 4/2018	
44. Jaza Shammari	Low moisture food safety <i>Saudi Arabia Government (3+3yr, with travel for one meeting per year)</i>	PhD.	1/2015-	
43. Jie Xu	Food safety <i>CSC Scholarship</i> <i>IFTPS Paper Competition, First Place, 2017</i> <i>Intern at McCormick</i>	PhD.	8/2014-	
42. Shuxian Liu	Low moisture food safety <i>CSC Scholarship</i> <i>Received 2<sup>nd</sup> Place in 2017 AACCI Best Student</i> <i>Research Paper Competition</i> <i>2017 Feed for Tomorrow Scholarship from IFT</i> <i>2017 IAFP Travel Award</i>	Ph.D.	8/2013-10/2017	Associate Professor Sichuan Agricultural University, China
41. Ravi Kiran Tapapaneni	RF processing	Ph.D.	2013-12/2017	Taylor farms, CA, Research Scientist
40. Deepali Jain	Microwave processing	Ph.D.	2013- 12/2017	Senior Scientist, Chew Innovation, Boston, MA

39. Jungang Wang	Salt diffusion in food during thermal processing <i>CSC Scholarship Support 2013 NASA Summer Fellow</i>	Ph.D.	1/2014-2018 5/2013	M.S. Senior Project Engineer, Campbell 5/2013
38. Hongchao Zhang	Food Packaging Jointly with Dr. Sablani	Ph.D.	1/2013-11/2016	Post-doctorate fellow University of Maryland
37. Ellen Bornhorst	Salt diffusion in food during thermal processing <i>IFT Outstanding Need Scholarship Support 2016 IFT Paper Award 2015 NASA Intern</i>	Ph.D.	7/2013-2016 5/2013	M.S. Research Assistant/Project Manager, USDA ARS
36. Rossana Villa	RF Processing <i>Mexican Scholarship (CONACYT)</i>	Ph.D.	1/2012-11/2015	Assistant Professor, University of Nebraska
35. Ellen Bornhorst	Salt diffusion in food during thermal processing <i>2013 IFT Puget Sound Travel Award 2013 NASA Summer Fellow</i>	M.S.	1/2012-5/2013	WSU PhD Student
34. Rajat Tyagi	MW Engineering, modeling, energy efficiency, engineering scaling-up <i>2012 IFT Puget Sound Travel Award</i>	Ph.D.	(08/2013)	Withdraw
33. Wenjia Zhang	Chemical marker for MW pasteurization <i>China Scholarship Council Support 2012 IFT Puget Sound Travel Award 2012 IMPI Paper Poster Competition 1<sup>st</sup> Place 2013 IFT Puget Sound Outstanding Student Award 2013 IFT Feeding Tomorrow Graduate Student Scholarship 2013 WSU Biological Systems Engineering Graduate Studies Achievement Award</i>	Ph.D.	05/2015	Research Scientist, Coca Cola, USA
32. Yage Shi	Food kinetics in short thermal processing, jointly with Northwest University of Agriculture and Forestry, <i>China Scholarship Council support</i>	Ph.D.	(01/2013)	<b>Assistant Professor</b> , Northwest University of Agriculture and Forest, China
31. Donglei Luan	Microwave heating/Computer Simulation <i>China Scholarship Council support 2013 IFT Puget Sound Outstanding Student Award</i>	Ph.D.	08/2014	<b>Associate Professor</b> , Shanghai Ocean University, Shanghai, China
30. Jiao Yang	MW sterilization energy efficiency <i>China Scholarship Council Support 2012 IFT Puget Sound Outstanding Student Award 2013 IFT Puget Sound Travel Award</i>	Ph.D.	07/2014	<b>Associate Professor</b> , Shanghai Ocean University, Shanghai, China (yjiao@shou.edu.cn)
29. Jing Peng	Microwave pasteurization-quality kinetics <i>China Scholarship Council (CSC) Support 2013 IFT Puget Sound Travel Award</i>	Ph.D.	12/2013	<b>Assistant Professor</b> , Nanjing Agricultural University, China
28. Shunshan Jiao	RF heating/computer simulation/system design, <i>China Scholarship Council support</i>	Ph.D.	12/2011	<b>Associate Professor</b> Shanghai JiaoTong University
27. Ofero A Caparino	Drying technologies for tropic fruits <i>scholarships from Ford Foundation 2007-2010 2004 IFT Puget Sound Travel Award Excellence in Research awarded by R Wiley Research, WSU GPSA, 2012</i>	Ph.D.	05/2012	<b>Division Chief</b> Biosystems Engineering Philippine Center for Post-Harvest Development and Mechanization, CLSU Compound, Science City of Munoz, Nueva Ecija 3120 Philippines

				Tel. +63444560213 Email. <a href="mailto:Ofero.caparino@email.wsu.edu">Ofero.caparino@email.wsu.edu</a> <a href="mailto:Ofero1058@yahoo.com">Ofero1058@yahoo.com</a>
26. <b>Fermin Resurreccion</b>	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	<b>Senior Microwave Engineer</b> , Graphic Packaging, R&D Center, Denver, CO
25. <b>Bandar Alfaifi</b>	RF/MW heating for pest and m/o control <i>scholarships from Saudi Arabia Government</i>	Ph.D.	05/2013	<b>Vice Dean</b> of Student Affairs, King Saud University
24. <b>Yanhong Liu</b>	Joint with China Agric. Univ. <i>scholarships from Chinese Government</i>	Ph.D.	04/2009	<b>Associate Professor</b> , China Agricultural University, Beijing, China
23. <b>Bandar Alnahdi</b>	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
22. <b>Balunkeswar Nayak</b>	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	<b>Assistant Professor</b> , University of Maine
21. Ho Ki Lee	Coupled heat and EM simulation jointly with Professor Ben Li, MME	M.S.	03/2005	
20. <b>Gopal Tiwari</b>	Postharvest pest and m/o control with RF <i>2009 IFT Food Engineering Paper 1<sup>st</sup> place award</i>	Ph.D.	04/2010	Post-doc., UC Davis
19. 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
18. Yu Wang	MW Fish processing	M.S.	12/2006	Q/A manager, Eagle Beverage and Accessory Products LLC, dba Calson Industries, Seattle
17. <b>Fanbin Kong</b>	Microwave processing of salmon	Ph.D.	01/2007	<b>Associate Professor</b> , University of Georgia
16. <b>K. Khana Mokwena Nthoiwa</b>	Novel food packaging for MW processes <i>scholarships from Botswana Government</i>	Ph.D.	04/2010	<b>Research Scientist in Thermal Processing</b> National Food Technology Center, Kanye, Botswana <b>Cellphone: +267-74178837</b>

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15. <b>Hao Chen</b>	3-D Microwave heating simulation	Ph.D.	02/2008	<b>Software Engineer,</b> Microsoft, Redmond, WA
14. <b>Ali Ashami</b>	Dielectric Properties of Protein and Carbohydrate Solutions, <i>USDA National Needs Fellow</i>	Ph.D.	03/2007	<b>Assistant Professor,</b> King Saud University, Kingdom of Saudi Arabia
13. <b>Ram Bhuwan Pandit</b>	Microwave processing, computer vision for heating pattern	Ph.D.	12/2006	<b>Research Engineer,</b> Nestle
11. <b>Sohanlal Birla</b>	Quarantine treatments for fruits	Ph.D.	12/2006	<b>Principal scientist,</b> ConAgra, Omaha
10. <b>Jian Wang</b>	RF sterilization	Ph.D.	05/2007	Wal-Mart IT Center, LA
9. <b>Ting Sun</b>	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. <b>Kanchalee Luechaparganap</b>	RF sterilization, <i>2004 IFT Puget Sound Scholastic Award, 2003 Marvin Byer Scholarship Award from R&amp;DA, a nationwide for R&amp;D activities related to military rations and packaging</i>	Ph.D.	2005	<b>Principle Scientist,</b> PepsiCo, Asia Pacific Region, Bangkok
7. <b>Dongsheng Guan</b>	Microwave sterilization <i>2000 IFT Puget Sound Scholastic Award 2001 R&amp;DA Student Achievement Award</i>	Ph.D.	2003	<b>Director,</b> 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: <a href="mailto:don.guan@bumblebee.com">don.guan@bumblebee.com</a>
6. <b>Yifen Wang</b>	RF sterilization, <i>1999 IFT Puget Sound Scholastic Award, 2001 IFTPS paper Competition Award (1<sup>st</sup> place) 2002 IFT Puget Sound Travel Award</i>	Ph.D.	2002	<b>Professor</b> Auburn University, Auburn, AB
5. <b>Timothy Wig</b>	System Simulation for Microwave and RF Processes	Ph.D.	2001	Research Engineer, High Speed Circuits, MA, a subsidiary of Intel.
4. <b>Hao Feng</b>	Microwave drying of particulate foods in a spouted bed	Ph.D.	1999	<b>Professor,</b> University of Illinois, Urbana, IL
3. <b>Minghwei Lau</b>	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 &amp; Engineering Graduate Student Research Paper Competition Award (2<sup>nd</sup> Place).</i> <i>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
49. Fei Shen	RF Processing	1/2018-	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	8/2012-8/2013	WSU	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 <b>Fulbright Scholar</b>	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, <b>Fulbright Scholar</b>	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 <i>Sabbatical leave</i>	1/07-5/07	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

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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 <a href="mailto:Sohan.Birla@conagrafoods.com">Sohan.Birla@conagrafoods.com</a>
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
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	Cargill, MN



8. Frank Liu	Microwave sterilization – <i>Post Doc.</i>	2001-	Institute of 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

**Google Scholar Juming Tang, 1- 10, 2018**

<b>Citation indices</b>	All	Since 2012
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