Conference of Food Engineering

September 10-12, 2018

Graduate Hotel
University of Minnesota
Minneapolis, MN
Welcome to the 13th Conference of Food Engineering (CoFE 2018) focusing on identifying priorities in food engineering in the coming decade. This is the first time the conference is organized under the flagship of Society of Food Engineering. As a newly formed organization, with experts in the field of food engineering as the leaders in organizing this conference, we are enthusiastic about the support from the food engineering community around the world.

Recent trends in the consumer demands for foods with less or no preservatives, healthy ingredients and foods that are sustainably produced, the food engineering challenges require organizing this conference and in a very optimal location, the food mecca, Minneapolis, MN. Many important and progressive societal and technological developments are bursting in the food industry and CoFE provides an appropriate platform to bring food industry professionals, academic researchers and government agencies together. The conference will also provide forums to combine engineering fundamentals with food science principles.

The conference has three important plenary sessions and 21 focused technical sessions. Each technical session has presenters who are leading the research in those topics and the conference covers wide range of new and emerging technologies and new developments in the classical process technologies. The conference has also more than 100 posters from graduate students and post-doctoral researchers and will provide a platform for emerging food engineering professionals to network.

We are sure that the newly formed Society of Food Engineering will lead the profession and the conference will be the focal point of reaching out to professionals in the industry, academia and government around the world to address food quality, safety and security challenges in the years to come. We would like to thank the generous support of our sponsors LZL Engineering LLC, McCormick, and Formulation. We also would like to thank the efforts of the organizing committee, session chairs and volunteers in making the conference a reality.

Foreword

Roger Ruan, Conference Co-Chair
Professor
Bioproducts & Biosystems Engineering
University of Minnesota, St. Paul, MN

Kumar Mallikarjunan, Conference Co-Chair
Professor
Food Science & Nutrition
University of Minnesota, St. Paul, MN

CoFE 18 Organization Committee:
Sudhir Sastry (Ohio State), Gonul Kaletunc (Ohio State), Carmen Gomes (Iowa State), Paul Chen (UMN), Lester Wilson (Iowa State), Juming Tang (Washington State), Yanyun Zhao (Oregon State), Ashim Datta (Cornel), Jonathan Wong (Hong Kong Baptist U), Pingfan Rao (Zhejiang Gongshang U), Yingkuan Wang (Chinese Academy of Agricultural Engineering), Joana Montenegro (Land O’ Lakes), Vivian Wu (USDA), and Eric McLamore (UFL).

Graduate Student Poster Review Committee
Chair: Gonul Kaletunc
Members:Technical Sessions Chairs

Posters will be on display from Monday September 10 12:00pm to Tuesday September 11 5:00pm. Poster judging will be on Tuesday September 11 between 1:00pm and 2:10 pm.
<table>
<thead>
<tr>
<th>TIME/DATE</th>
<th>SUNDAY  (September 9)</th>
<th>MONDAY  (September 10)</th>
<th>TUESDAY  (September 11)</th>
<th>WEDNESDAY  (September 12)</th>
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<tr>
<td>7:00 AM</td>
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<td>9:15 AM</td>
<td>Speaker 1: Laurence Lee, LZL Engineering</td>
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<td>Note: 1. All conference sessions and functions are conducted on the second floor of the Graduate Hotel. 2. The venue for pre-conference workshop is on the St. Paul Campus of the University of Minnesota. Participants will meet in the hotel lobby at 12:30 PM, Sunday, September 9, 2018 and travel together to the St. Paul Campus.</td>
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<tr>
<td>12:10 PM</td>
<td>Lunch break (Pinnacle Ballroom)</td>
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<td>1:00 PM-2:10 PM</td>
<td>1:00-5:00PM Pre-Conference Workshop Room 23, Food Science &amp; Nutrition Dept., UMN St. Paul Campus, 1334 Eckles Ave., St. Paul, MN 55108</td>
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<td>4:00 PM-5:40 PM</td>
<td>Registration (Pinnacle Foyer)</td>
<td>S7 Engineering of Digestion Processes (Meridian Ballroom S1)</td>
<td>S8 Mathematical modeling of food processes (Meridian Ballroom S2)</td>
<td>S9 Food Eng. Education &amp; extension (Meridian Ballroom S34)</td>
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<tr>
<td>6:00-8:00 PM</td>
<td>Opening mixer (Meridian Foyer &amp; Summit)</td>
<td>Career Panel: 6:00-7:00 PM (Pathway Room)</td>
<td>Social Hour 6:00-7:00PM (Meridian Foyer &amp; Summit)</td>
<td>BANQUET 7:00-10:00PM (Meridian Ballroom S234)</td>
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SCHEDULE

Sunday, September 9, 2018

1:00-5:00 pm. University of Minnesota, St. Paul Campus

Pre-Conference Workshop: Understanding and Optimization of Food Processes: Modeling as a Complement to Experimentation, presented by Ashim Datta, Cornell University

Room FScN 23, Department of Food Science and Nutrition, University of Minnesota, 1334 Eckles Ave, St. Paul, MN 55108

4:00-5:40 pm. Graduate Hotel (Pinnacle Foyer)
Registration

6:00 – 8:00 pm, Graduate Hotel (Meridian Foyer & Summit)
Opening Mixer

CoFE18 Sponsors

LZL Engineering LLC
Monday, September 10, 2018

7:00 am
Breakfast Meridian Foyer
Registration Pinnacle Foyer

8:15 am

Plenary Session 1. Entrepreneurship in the Food Industry

Room: Meridian Ballroom 234
Moderators: Gönül Kaletunç (The Ohio State University, USA)
           Sudhir Sastry (The Ohio State University, USA)

8:20 am Laurence Lee (LZL Engineering)
Challenges and Opportunities in the food industry – reflection on technology based business ventures. (Abstract No. 213)

9:15 am Anjan Contracor (Beehex)
3D Food Printing (Abstract No. 200)

10:15 am Coffee break (Meridian Foyer & Summit)

10:30 am – 12:10 pm Three parallel oral sessions

Session 1. Advancing Thermal Processing Technologies

Room: Meridian Ballroom Section 1
Chairs: Juming Tang (Washington State University, USA)
       Ricardo Simpson (Santa Maria University, Chile)

10:30 am Hosahalli Ramaswamy (McGill University, Canada)
Steam and sound - combination heating: microbial decontamination and heat transfer (Abstract no. 199)

10:50 am Tom Yang (US Army Natick Soldier Center, USA)
Advanced Thermal Treatment for Military Ration Development (Abstract No. 211)

11:10 am Ricardo Simpson (Santa Maria University, Chile)
Simultaneous multi-product sterilization: revisited, explored, and optimized (Abstract No. 96)

11:30 am Juming Tang (Washington State University, USA)
Microwave Assisted Pasteurization Systems (MAPS) for Ready-To-Eat Meals (Abstract No. 144)

11:50 am K.P. Sandeep (North Carolina State University, USA)
Process validation techniques for continuous flow thermal processing of particulate foods (Abstract No. 209)

Session 2. Instrumentation, sensors and imaging technologies

Room: Meridian Ballroom Section 2
Chairs: Eric McLamore (University of Florida, USA)
       Carmen Gomes (Iowa State University, USA)

10:30 am Abdennour Abbas (University of Minnesota, USA)
Rapid Microbial NanoDiagnostics For Food Safety (Abstract no.222)

10:50 am Paul Takhistov (Rutgers University, USA)
Intelligent packaging: materials, sensors and supply chain integration (Abstract no. 149)

11:10 am Jonathan Claussen (Iowa State University, USA)
Low-cost, Flexible Electrochemical Biosensors with Printed and Laser Induced Graphene (Abstract No.150)

11:30 am Hongda Chen (USDA-NIFA, USA)
Session 3. Frozen Food and Chilled Meals

Room: Meridian Ballroom Section 34

Chairs: Dennis Heldman (The Ohio State University, USA)
        Julie Simonson (Schwan’s)

10:30 am Sanjay Gummalla (American Frozen Food Institute, USA)
        Listeria monocytogenes in Frozen Foods: Challenges and Opportunities (Abstract no.171)

10:50 am Sravani Gupta (New Zealand Institute for Plant and Food Research, New Zealand)
        Inactivation of different bacteria in oysters and mussels by freezing and frozen storage (Abstract no. 063)

11:10 am John Larson, JBT Corporation
        Hygienic Design of Food Freezing Equipment (Abstract No.155)

11:30 am Subramaniam Sathivel (Louisiana State University, USA)
        Monitoring and controlling of a cold chain for food (Abstract No. 203)

11:50 am Dennis Heldman (The Ohio State University, USA), and Julie Simonson (Schwan’s)
        Research needs for food freezing and frozen food storage (Abstract No. 208)

12:10 pm Lunch (Pinnacle Ballroom)

1:00 pm – 2:10 pm Posters (Meridian Foyer & Summit)

2:10 pm – 3:50 pm Three parallel oral sessions

Session 4. Nonthermal Processing and Hurdle Technologies

Room: Meridian Ballroom Section 1

Chairs: Gustavo Barbosa-Cnovas (Washington State University, USA)
        V.M. Bala Balasubramaniam (The Ohio State University, USA)

2:10 pm V.M. Bala Balasubramaniam (The Ohio State University, USA)
        Microbiological safety of pressure treated low-acid and acidified foods

2:30 pm Carmen Moraru (Cornell University, USA)
        Nonthermal osmotic concentration of liquid foods (Abstract No. 218)

2:50 pm Rohan Tikekar (University of Maryland, USA)
        Efficacy of octanoic acid for decontaminating fresh produce surface during washing at different temperatures and its mode of action against Escherichia coli O157:H7 (Abstract No. 117)

3:10 pm Kathiravan Krishnamurthy (Illinois Institute of Technology, USA)
        Characterization of a novel pulsed light system for inactivation of Listeria monocytogenes ATCC 35152 in liquids (Abstract No. 137)

3:30 pm Felix Schottroff (BOKU, Austria)
        Evaluation of thermal and non-thermal inactivation technologies combined with a novel anti-microbial plant extract in a multi-hurdle approach (Abstract No. 081)

Session 5. Mathematical Modeling and Emerging Technologies

Room: Meridian Ballroom Section 2

Chairs: Roger Ruan (University of Minnesota, USA)
        Necla Eren (Abbott Laboratories)

2:10 pm David Beverly (University of Birmingham, UK)
Steam stripping of aroma from roast and ground coffee: a mathematical modelling approach (Abstract No. 088)

2:30 pm Mohsen Ranjbaran (Cornell University, USA)

Evaporation promotes retention and infiltration of bacteria into plant leaves: A mechanistic modeling approach (Abstract No. 178)

2:50 pm Estefania Lopez-Quiroga (University of Birmingham, UK)

Towards the control of food structuring processes: a reduced-order modelling approach to ice crystal formation (Abstract No. 092)

3:10 pm Sohan Birla (ConAgra)

Modeling of Sterilization of Food Particulates in Continuous Retort (Abstract No. 186)

3:30 pm Zhongli Pan (University of California, Davis, USA)

Design and Evaluation of Commercial Scale Sequential Infrared Dry-Blanching and Hot Air Drying (SIRDBHAD) Technology for Healthy Snack Production (Abstract No. 196)

Session 6. Low- and Intermediate Moisture Foods
Room: Meridian Ballroom Section 34
Chairs: Fanbin Kong (University of Georgia, USA)
Joao Laurindo (Federal University of Santa Catarina, Brazil)

2:10 pm Juming Tang (Washington State University, USA)

Engineering solutions to control food pathogens in low moisture foods (Abstract No. 145)

2:30 pm Jeyam Subbiah (University of Nebraska, Lincoln, USA)

Microbial validation of extrusion processing for low-moisture foods (Abstract No. 073)

2:50 pm Stephen P. Lombardo (McCormick & Co., Inc.)


3:10 pm Fanbin Kong (University of Georgia, USA)

Radio Frequency Heating of Food Powders and the Influencing Factors (Abstract No. 042)

3:30 pm Joao Laurindo (Federal University of Santa Catarina, Brazil)

Multi-flash drying and microwave vacuum drying for the production of crisp fruits and vegetables (Abstract No. 049)

3:50 pm Coffee break (Meridian Foyer & Summit)

4:00 pm – 5:40 pm Three parallel oral sessions

Session 7. Engineering of Digestion Processes
Room: Meridian Ballroom Section 1
Chairs: Gail Bornhorst (University of California, Davis, USA)
Peter Fryer (University of Birmingham, UK)

4:00 pm Gail Bornhorst (University of California, Davis, USA)

Engineering Considerations in Development and Application of Dynamic Digestion Models (Abstract No. 060)

4:20 pm Peter Fryer (University of Birmingham, UK)

In silico modelling of bolus hydration and pH change (Abstract No. 116)

4:40 pm Fanbin Kong (University of Georgia, USA)

Gastric Disintegration and Emptying as Affected by Food Texture and Gastric Viscosity (Abstract No. 074)

5:00 pm Nitin Nitin (University of California, Davis, USA)

Bioaccessibility of Food Bioactives during Digestion –From Simple Emulsions to Plant Tissues (Abstract No. 141)

5:20 pm Silvia Keppler (University of California, Davis, USA)

Characterization of individual particle movement during in vitro digestion in the Human Gastric Simulator (Abstract No. 078)
Session 8. Mathematical Modeling of Food Processes
Room: Meridian Ballroom Section 2
Chairs: Ashim Datta (Cornell University, USA)
       Kirk Dolan (Michigan State University, USA)

4:00 pm Ashim Datta (Cornell University, USA)
   Mechanistic approaches to understanding food safety: attachment and internalization (Abstract No. 099)

4:20 pm Fabrizio Sarghini (University of Naples, Italy)
   Application of constrained optimization techniques in optimal shape design of food equipments
   (Abstract No. 047)

4:40 pm Pawan Takhar (University of Illinois at Urbana-Champaign, USA)
   Unsaturated transport and crystal growth/decay in frozen foods subjected to freeze-thaw cycles
   (Abstract No. 031)

5:00 pm Jen-Yi Huang (Purdue University, USA)
   Modeling of coalescence of surfactant-laden microbubbles (Abstract No. 048)

5:20 pm Stefano Curcio (University of Calabria, Italy)
   A mathematical model for the estimation of specific migration of substances from food packaging
   (Abstract No. 046)

Session 9. Food Engineering Education and Extension
Room: Meridian Ballroom Section 34
Chairs: Litha Sivanandan (West Virginia University, USA)
       Jeanne Gleason (New Mexico State University, USA)

4:00 pm Girish Ganjyal (Washington State University, USA)
   Building Successful Extension Programs to Meet the Food Industry Needs (Abstract No. 214)

4:20 pm Ali Demirci (Penn State University, USA)
   Towards Innovative Online Bioenergy Education (Abstract No. 101)

4:40 pm Kathiravan Krishnamurthy (Illinois Institute of Technology, USA)
   NSF REU Site: An Interdisciplinary Research Experience for Undergraduates in Food Safety, Food
   Engineering, and Nutrition (Abstract No. 140)

5:00 pm Helen Joyner (University of Idaho)
   Jumping to Conclusions: What Assumptions Are You Using when Teaching Engineering?
   (Abstract No. 174)

5:20 pm Ashim Datta (Cornell University, USA)
   Food Safety Education for Engineers (Abstract No. 051)

6:00-7:00 pm Career Panel
   (Pathways Room)

Target Audience: Students and postdocs, thinking about their career, who are interested in the "day-to-day"
experiences of a food engineer working in industry and academia.

Moderators: David Phinney (The Ohio State University)
            Necla Mine Eren PhD, Principal Engineer, Global Product Research, Abbott Labs

Panelists/Speakers
John Eaton MSc, Director R&D Process Innovation, PepsiCo
Romel Somavat PhD, Senior Engineering Manager, Unilever
Peter A. Edwards, Ph.D., Sr. Principal Research Engineer, Science and Technology, ConAgra Brands
Helen Joyner PhD, Assistant Professor, School of Food Science, University of Idaho
Stephen P. Lombardo, Ph.D., Director of Materials & Process Technology, McCormick & Company

Dinner on your own
Tuesday, September 11, 2018

7:00 am
Breakfast (Meridian Foyer)
Registration (Pinnacle Foyer)

8:15 am
**Plenary Session 2. Convergence of Nanotechnology and Food Manufacturing (ConFoMA) Session**

**Room: Meridian Ballroom 234**

- **Moderators:** Carmen Gomes (Iowa State University, USA)
  Eric McLamore (University of Florida, USA)

8:20 am Catherine Woteki (Iowa State University)
*Building Bridges on Pillars: Global Research Platforms to Advance the Scientific Agenda (Abstract No. 219)*

9:15 am Rohit Karnik (MIT)
*Unconventional Nanomaterials and Paradigms for Water Purification and Quality Control in the 21st Century (Abstract No. 220)*

10:15 am Coffee break (Meridian Foyer & Summit)

10:30 am – 12:10 pm Three parallel oral sessions

**Session 10. Food Fermentation and Bioprocessing**

**Room: Meridian Ballroom Section 1**

- **Chairs:** Ali Demirci (Penn State University, USA)
  Zivko Nikolov (Texas A&M University, USA)

10:30 am Zivko Nikolov (Texas A&M University, USA)
*Strategies for the Development of Microalgae-based Protein Products (Abstract no. 202)*

10:50 am Ali Demirci (Penn State University, USA)
*Menaquinone-7 (Vitamin K2) Production by Bacillus subtilis natto in Biofilm Reactors (Abstract No. 077)*

11:10 am Scott Strobel (University of California, Davis, USA)
*Technoeconomic Analysis of Large-Scale Microencapsulation of Bioactives in Cross-Linked Alginate Microcapsules (Abstract No.082)*

11:30 am Dugyu Eran-Oruc (Appalachian State University, USA)
*Novel Approaches to Enhance the Nutritional Value of the Fermented Dairy Products (Abstract No. 131)*

11:50 am Buddhi Lamsal (Iowa State University, USA)
*Higher-value Biochemicals from Fermentation of Agricultural Coproducts by modified Bacillus subtilis and Their Emulsion and Antimicrobial Characteristics (Abstract No. 180)*

**Session 11. Emerging Technologies, e-commerce, and big data**

**Room: Meridian Ballroom Section 2**

- **Chairs:** Hao Feng (University of Illinois at Urbana-Champaign, USA)
  Terry Howell (University of Nebraska, Lincoln, USA)

10:30 am Hao Feng (University of Illinois at Urbana-Champaign, USA)
*Big Data Powerhouse for Food Engineers – Opportunities and Challenges (Abstract no. 133)*

10:50 am Terry Howell (University of Nebraska, Lincoln, USA)
*Impact of e-commerce, click and pick, and other new models of shopping on the Food Industry (Abstract No. 153)*

11:10 am Kang Huang (University of California, Davis, USA)
*Bacteriophage Based Nanoscale dispersion as Biocontrol Agents for Agricultural Practices (Abstract No.087)*
Tuesday, September 11, 2018

11:30 am  Soojin Jun (University of Hawaii, USA)
           *Nano-engineered stainless steel surface to prevent biofilm formation of foodborne pathogens (Abstract No. 183)*

11:50 am  Taiyoung Kang (University of Hawaii, USA)
           *Effect of electric and magnetic field on supercooling of beef steaks with different fat level (Abstract No. 146)*

**Session 12. Encapsulation, delivery and phytochemicals**

**Room:** Meridian Ballroom Section 34  
**Chairs:** Ilce Medina-Meza (Michigan State University, USA)  
            Ozan Ciftci (University of Nebraska, Lincoln, USA)

10:30 am  Ilce Medina-Meza (Michigan State University, USA)
           *Quinoa oil: a good source of bioactive phytochemicals (Abstract no. 065)*

10:50 am  Ozan Ciftci (University of Nebraska, Lincoln, USA)
           *Enhancing bioavailability of lipophilic bioactives using nanoporous bioaerogels and supercritical fluid technology: A new approach (Abstract No. 184)*

11:10 am  Carmen Gomes (Iowa State University, USA)
           *Encapsulation of Chinese plant extracts using hydroxypropyl-beta-cyclodextrin and chitosan for antibacterial delivery applications (Abstract No.035)*

11:30 am  Gönül Kaletunç (The Ohio State University, USA)
           *Encapsulation of Blueberry and Purple Corn Extracts in Alginate-Pectin Hydrogel (Abstract No. 205)*

11:50 am  Donghong Liu (Zhejiang University , China)
           *Power ultrasound application in oriented extraction and modification of bioactive compounds (Abstract No. 018)*

12:10 pm  Lunch (Pinnacle Ballroom)

1:00 pm – 2:10 pm  **Posters** (Meridian Foyer & Summit)

2:10 pm – 3:50 pm  Three parallel oral sessions

**Session 13. Microbial Growth and Inactivation**

**Room:** Meridian Ballroom Section 1  
**Chairs:** Dharmendra Mishra (Purdue University, USA)  
            Bruno Carciofi (Federal University of Santa Catarina, Brazil)

2:10 pm  Dharmendra Mishra (Purdue University, USA)
           *Dynamic Temperature Experiments Using a Pressurized Device for Microbial Inactivation (Abstract No. 197)*

2:30 pm  Bruno Carciofi (Federal University of Santa Catarina, Brazil)
           *Quantitative Modeling of Bacterial Growth in Food Matrix – Case Studies (Abstract No. 076)*

2:50 pm  Kirk Dolan (Michigan State University)
           *Estimating Salmonella Inactivation Parameters from Dynamic Temperature Data in Low-Moisture Foods (Abstract No. 192)*

3:10 pm  Lihan Huang (USDA-ARS, USA)
           *One-Step Dynamic Kinetic Analysis and Modeling in Predictive Microbiology (Abstract No. 179)*

3:30 pm  Jeyam Subbiah (University of Nebraska, Lincoln, USA)
           *Thermal death sandwich method for determining thermal inactivation kinetics of microorganisms in low moisture foods (Abstract No. 084)*
Session 14. New technologies and methodologies in food processing
Room: Meridian Ballroom Section 2  
Chairs: Hao Feng (University of Illinois at Urbana-Champaign, USA)  
Ilce Medina-Meza (Michigan State University, USA)

2:10 pm Hao Feng (University of Illinois at Urbana-Champaign, USA)  
Effect of controlled germination with physical stimulation by ultrasonication on sprouted grains  
(Abstract No. 176)

2:30 pm Taras Pyatkovskyy (The Ohio State University, USA)  
Effect of vacuum cooling on E. coli K 12 infiltration in fresh baby spinach (Abstract No. 130)

2:50 pm Ilce Medina-Meza (Michigan State University, USA)  
Assessment of oxidative stability of home-cooked meat products in US using a processomic approach (Abstract No. 079)

3:10 pm Kaitlyn Casulli (Michigan State University, USA)  
Effect of Product Layer Depth on Simulated Log Reductions for Pistachios Roasted in a Flat-bed Roaster (Abstract No. 126)

3:30 pm Shaun Sim (Cornell University, USA)  
High Pressure Induced Structural Changes in Mixed Pea Protein-Starch Systems (Abstract No. 056)

Session 15. Alternative processing technologies and measurement methods
Room: Meridian Ballroom Section 34  
Chairs: Pitiya Kamonpatana (Kasetsart University, Thailand)  
Necla Eren (Abbott Laboratories)

2:10 pm Pitiya Kamonpatana (Kasetsart University, Thailand)  
Ohmic-assisted thermal retort (Abstract No. 033)

2:30 pm Kang Huang (University of California, Davis, USA)  
Novel Bio-based Sanitizer for Rapid Sanitation of Fresh Produce and Food Contact Surfaces (Abstract No. 086)

2:50 pm Jorge Gut (University of Sao Paulo, Brazil)  
Continuous flow microwave pasteurization of apple juice: Process modeling and validation (Abstract No. 053)

3:10 pm Matt Vanden Eynden (Formulaction)  
Quantitative Characterization and Property Determination of Food Powders (Abstract No. 010)

3:30 pm Matt Vanden Eynden (Formulaction)  
Stability Monitoring and Characterization of Ultrafine Bubbles Using Multiple Light Scattering (Abstract No. 011)

3:50 pm Coffee break (Meridian Foyer & Summit)

4:00 pm – 5:40 pm Three parallel oral sessions

Session 16. Nanotechnology Applications
Room: Meridian Ballroom Section 1  
Chairs: Pingfan Rao (Zhejiang Gongshang University, China)  
Yanyun Zhao (Oregon State University, USA)

4:00 pm Yanyun Zhao (Oregon State University, USA)  
Principles and applications of nanocellulose composite coatings for improving productivity, storability and processing quality of fruit crops (Abstract No. 058)

4:20 pm Vivian Wu (USDA-ARS, USA)  
Gold Nanoparticle Optical Sensing for Simultaneous Detection of Foodborne Pathogens (Abstract No. 204)

4:40 pm Pingfan Rao (Zhejiang Gongshang University, China)
Harvesting Functional Nanoparticles from Household Preparation of Fresh Water Clam Soup
(Abstract No. 066)

5:00 pm Lijing Ke (Zhejiang Gongshang University, China)
Proteins Nanoparticles Derived from Chinese Medicinal Herbs: Heat-induced Self-assembly,
Bioactivities and Applications (Abstract No. 067)

5:20 pm Hongda Chen (Abstract No. 185)
Recent Advances of Nanoscale Science and Nanotechnology for Food Security, Safety and
Nutrition Challenges in USA (Abstract No. 185)

Session 17. Physical Properties/Phase Transitions

Room: Meridian Ballroom Section 2
Chairs: Yrjo Roos (University College Cork, Ireland)
Lisa Mauer (Purdue University, USA)

4:00 pm Lisa Mauer (Purdue University, USA)
Phase transitions of vitamins C and B1 in food production and storage (Abstract No. 043)

4:20 pm Pawan Takhar (University of Illinois at Urbana Champaign, USA)
Unsaturated Transport in the Vicinity of Glass Transition (Abstract No. 032)

4:40 pm Jozef Kokini, (Purdue University, USA)
Phase Transitions, thermodynamics and kinetics of polyelectrolyte complexation leading to a
window of success in the fabrication of Layer by Layer nanotubes (Abstract No. 212)

5:00 pm Julie Goddard (Cornell University, USA)
Active packaging as a means to improve food quality (Abstract No. 036)

5:20 pm Mackenzie Hansen (University College Cork, Ireland)
Drop formation and hardening process for concentrated protein solutions (Abstract No. 013)

Session 18. Hygienic Design, Fouling and Cleaning

Room: Meridian Ballroom Section 34
Chairs: Rick Stokes (Ecolab)
Jen-Yi Huang (Purdue University, USA)

4:00 pm Jrn-Yi Huang (Purdue University, USA)
Fouling behavior of sweetened protein solutions (Abstract No. 045)

4:20 pm Dennis Heldman (The Ohio State University, USA)
Parameters Influencing the Removal of Deposits during CIP (Abstract No. 114)

4:40 pm Rick Katz (Commercial Food Sanitation)
Hygienic Design for Food Equipment (Abstract No. 061)

5:00 pm Rick Stokes (Ecolab)
Designing Food Equipment for Automated Cleaning (Abstract No. 062)

5:20 pm Kent Rausch (University of Illinois at Urbana-Champaign, USA)
Understanding Heat Transfer Fouling for More Efficient Bioprocesses (Abstract No. 071)

6:00-7:00 pm Social Hour (Meridian Foyer & Summit)

7:00-10:00 pm CoFE 18 Banquet (Meridian Ballroom 234)
**Wednesday, September 12, 2018**

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<td>7:00 am</td>
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<td><strong>Plenary Session 3.</strong> “Perspectives of Food Engineering: Current Status and Vision from and for the Millennials”</td>
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<td><strong>Room:</strong> Meridian Ballroom 234</td>
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<td><strong>Moderators:</strong> Sam Saguy (Hebrew University of Jerusalem, Israel)</td>
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<td>Yrjö Roos (University College Cork, Ireland)</td>
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<td><strong>Outline:</strong> This Session will highlight the importance of Food Engineering (FE) discipline at the interface of engineering, sciences and medicine. Present and future FE challenges and opportunities will be reviewed, focusing mainly on the younger generation (e.g., Millennium, Gen Z). Speakers were selected to bring together academia and industry offering a multidisciplinary and a broad spectrum and global views, highlighting significant academic and industrial experiences and stressing emerging digital age vast opportunities and future innovation. The session will also include a Q&amp;A Panel Discussion, and conclude with a Summary and Next Steps lead by Distinguished Professor Emeritus R. Paul Singh.</td>
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<tr>
<td>8:15 am</td>
<td>Introduction, Sam Saguy/Yrjö Roos</td>
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<td>8:20 am</td>
<td>Sam Saguy (Hebrew University of Jerusalem, Israel)</td>
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<td><em>Reinventing FE: Vision and Strategy (Abstract No. 021)</em></td>
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<td>8:35 am</td>
<td>Yrjö Roos (University College Cork, Ireland; European Academy for Food Engineering)</td>
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<td><em>Global Challenges and Opportunities to Inspire the Millennials Food Engineers (Abstract No. 097)</em></td>
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<td>8:50 am</td>
<td>Gail Bornhorst (University of California, Davis, USA)</td>
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<td><em>Engineering Food Digestion and other New Opportunities for Food Engineers for 2050 and Beyond (Abstract No. 020)</em></td>
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<td>9:05 am</td>
<td>Francesco Marra (University of Salerno, Italy)</td>
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<td><em>Food 4.0: Virtual Tools, Connectivity and Smart Systems for the Food Industry (Abstract No. 022)</em></td>
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<td>9:20 am</td>
<td>Romel Somavat (Unilever)</td>
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<td><em>Food Industry Insights towards a New Era of Food Engineers (Abstract No. 023)</em></td>
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<td>9:35 am</td>
<td>Panel Q&amp;A</td>
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<td>10:00 am</td>
<td>Summary and Next Steps:</td>
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<td>R. Paul Singh (University of California, Davis, USA) Moderator</td>
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<td>10:15 am</td>
<td>Coffee break (Meridian Foyer &amp; Summit)</td>
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<td>10:30 am</td>
<td>Three parallel oral sessions</td>
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**Session 19. Waste Management and Utilization**

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<tr>
<th>Time</th>
<th>Event</th>
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<tr>
<td>10:30 am</td>
<td>Jonathan Wong (Hong Kong Baptist University, China)</td>
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<td><em>Sustainable Food Waste Management - Hong Kong Experience (Abstract no. 111)</em></td>
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<td>10:50 am</td>
<td>Oscar Vega-Castro (Corporacion Universitaria Americana, Colombia)</td>
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<td><em>Agroindustrial Residues in Colombia, Production, Transformation and Applications. (Abstract No. 024)</em></td>
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<td>11:10 am</td>
<td>Juan Camilo Osorio Arias (University of Antioquia, Colombia)</td>
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<td><em>Use of different drying technics in the production of raw powder materials from two by-products of the food industry, with high nutritional and functional value. (Abstract No.026)</em></td>
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</tbody>
</table>
11:30 am  Kumar Mallikarjunan (University of Minnesota, USA)
_Innovative extraction technologies for the food waste utilization (Abstract No. 221)_

11:50 am  Roger Ruan (University of Minnesota, USA)
_Enhance the Sustainability of Food Production Systems through Waste Utilization (Abstract No. 044)_

**Session 20. Dairy Products**

**Room:** Meridian Ballroom Section 2  
**Chairs:** Helen Joyner (University of Idaho, USA)  
Sergio Martinez-Monteagudo (South Dakota State University, USA)

10:30 am  Helen Joyner (University of Idaho, USA)
_Characterizing and Modeling Wear–Recovery Behaviors of Acid-Induced Casein Gels (Abstract no. 158)_

10:50 am  Carmen Moraru (Cornell University, USA)
_High pressure structure engineering of high concentration milk protein systems (Abstract No. 123)_

11:10 am  Matt Vanden Eynden (Formulaction)
_Acquiring Dairy Gelling Data Via Non-Invasive Light Scattering (Abstract No.009)_

11:30 am  Peter Fryer (University of Birmingham, UK)
_Hygienic cleaning: understanding the impact of film thickness on the efficiency of jet cleaning of process plants (Abstract No. 105)_

11:50 am  Sergio Martinez-Monteagudo (South Dakota State University, USA)
_Converting lactose to D-tagatose using integrated hydrolysis and isomerization method (Abstract No. 104)_

**Session 21. Packaging and Shelf-Life Improvement**

**Room:** Meridian Ballroom Section 34  
**Chairs:** Claire Sand (Packaging Technology & Research)  
Theodore P. Labuza (University of Minnesota, USA)

10:30 am  Claire Sand (Packaging Technology & Research)
_The Role of Intelligent Packaging (Abstract no. 172)_

10:50 am  Theodore P. Labuza (University of Minnesota, USA)
_Processing and Packaging requirements for cold extracted liquid coffee (Abstract No. 181)_

11:10 am  Wade Sand (Mocon, Ametek)
_Advances in transmission rate testing (Abstract No.173)_

11:30 am  Hossein Daryaei (Illinois Institute of Technology, USA)
_Advances and Challenges in the Design and Development of Packaging Systems for High Pressure Processing of Food (Abstract No. 138)_

11:50 am  Scott Morris (University of Illinois at Urbana-Champaign, USA)
_Future Food Packaging to Meet Changing Supply Chains (Abstract No. 182)_

12:10 pm  End of CoFE 18
INVITATION TO CONTRIBUTE
Special Issue on Conference of Food Engineering 2018
Guest editors: Roger Ruan, Carmen Gomes, and Gonul Kaletunc

We are pleased to announce that the Journal of Food Process Engineering and the Society of Food Engineering will jointly organize a special issue on “Conference of Food Engineering 2018” to be published in 2019. All CoFE 2018 speakers are encouraged to submit to the paper to be considered for publication in this special issue. We especially invite contributions highlighting various food engineering solutions related to following topics:

1. Advancing thermal processing
2. Non-thermal processing and hurdle technologies
3. Processing of various food materials
4. Low and intermediate moisture foods
5. Packaging and self-life improvement
6. Fresh produce safety
7. Hygienic design, fouling and cleaning
8. Phytochemicals and bioactive ingredients
9. Nanotechnology applications
10. Physicochemical properties
11. Mathematical modeling of food processes
12. Waste management and utilization

For more information about the conference topics, please visit CoFE18 at https://socfoodeng.org/cofe/.

Both original research as well as critical review papers are invited.

Manuscript Preparation
Please prepare the manuscript by following Author guidelines available through the journal website (https://onlinelibrary.wiley.com/page/journal/17454530/homepage/forauthors.html). Submit the manuscripts electronically at https://mc.manuscriptcentral.com/jfpe. Make sure to identify the paper for special issue (CoFE18) during the manuscript submission process.

Timeline
The journal will begin accepting manuscripts for special issue between September 1, 2018 through January 31, 2019. All the submitted manuscripts will go through anonymous peer review using journal editorial standards prior to acceptance. The special issue will be guest edited by Roger Ruan, Carmen Gomes, and Gonul Kaletunc. Articles, which are not selected as part of the special issue, will be considered for publication in a regular issue. Wiley publishers, through author services site (https://authorservices.wiley.com/author-resources/Journal-Authors/Promotion/wiley-promotion.html) helps the authors to get their research discovered for the highest impact.