

2017 INTERNATIONAL NONTHERMAL PROCESSING CONFERENCE AND SHORT COURSE

Applications and Commercialization of Novel and Nonthermal Food Processing Technologies



MAY 24-25, 2017 CHICAGO, ILLINOIS



2017 IFT-EFFoST International Nonthermal Processing Conference / Workshop & Short Course

Applications and Commercialization of Nonthermal Food Processing Technologies

May 23-26, 2017

IFSH and Chicago Marriott Southwest at Burr Ridge, IL, USA

On behalf of the Conference / Workshop Organizing Committee, it is my great pleasure to welcome you to the 2017 International Nonthermal Processing Conference / Workshop to be hosted by the Institute for Food Safety and Health, Illinois Institute of Technology, May 24-25, 2017, at the Chicago Marriott Southwest, Burr Ridge, IL, USA.

The International Nonthermal Processing Conference / Workshop is a yearly event organized by the Nonthermal Processing Division of the Institute of Food Technologists (IFT) and the European Federation of Food Science and Technology (EFFoST). The Conference / Workshop is the leading international forum for professionals from academia, industry and government agencies to share the latest development of nonthermal processing technologies and their applications in the food industry. The Conference / Workshop attracts a strong world-wide audience from the industry, government, education, research institutions, consulting laboratories and service providers.

The 2017 Conference / Workshop will highlight the theme of Applications and Commercialization of Nonthermal Food Processing Technologies. The Conference / Workshop will feature presentations from government, academia, and the food industry, providing the audience with the latest development of nonthermal and innovative food processing technologies, best practices for process validation, and approaches and case studies for commercializing these technologies in the global marketplace. In addition, a Nonthermal Processing Technology Short Course will be held on May 23, 2017 at the Institute for Food Safety and Health.

We look forward to seeing you at the 2017 International Nonthermal Processing Conference / Workshop and Short Course.

Jason Wan, Ph.D., Professor, IIT Department Food Science and Nutrition
Chair – 2017 Conference / Workshop Organizing Committee
Associate Director – Institute for Food Safety and Health



Short Course, Conference / Workshop and Field Trip Overview

Applications and Commercialization of Nonthermal Food Processing Technologies

May 23-26, 2017

IFSH and Chicago Marriott Southwest at Burr Ridge, IL, USA

MAY 23, 2017: SHORT COURSE

The short course (May 23, 2017) will be held at the “Institute for Food Safety and Health” (IFSH), the organizer of the short course and conference / workshop. “The Institute for Food Safety and Health (IFSH) is a one-of-a-kind applied food science research consortium comprised of the Illinois Institute of Technology (IIT), the U.S. Food and Drug Administration (FDA), and the food industry. In collaboration with the FDA, we provide stakeholders with the opportunity to develop and exchange knowledge, experience, and expertise in the areas of food safety, food defense, food processing, and nutrition.” To know more about IFSH, visit www.ifsh.iit.edu. IFSH works on various nonthermal and advanced thermal technologies such as high pressure processing, pulsed light processing, cold plasma treatment, ultrasound treatment, and microwave processing.

Address of Institute for Food Safety and Health: 6502 South Archer Road

Bedford Park, IL 60501

MAY 24, 2017: CONFERENCE / WORKSHOP

The conference / workshop (May 24 to 25, 2017) will be held at the Chicago Marriott Southwest at Burr Ridge. The hotel is about 21 miles from the O’Hare international airport and 13 miles from the Midway international airport. To make a reservation at the hotel at a discounted rate, please visit the [hotel reservations link](#).

Address of Chicago Marriott Southwest at Burr Ridge: 1200 Burr Ridge Pkwy

Burr Ridge, IL 60527-0869

MAY 26, 2017: FIELD TRIP (OPTIONAL)

On Friday, May 26, 2017, an optional field trip (separate registration is required) will be organized to visit the various nonthermal food processing facilities at IFSH and a commercial high pressure processing toll facility. Transportation will be provided to the registrants of the field trip.

Conference / Workshop and Short Course Event Organizers



Short Course Program Outline

Institute for Food Safety and Health, Moffett Campus
Bedford Park, IL

TUESDAY, MAY 23, 2017

- | | |
|---------------------|---|
| 8:00 am – 9:00 am | Registration |
| 9:00 am – 9:30 am | Introductory and Housekeeping Remarks
<i>Jason Wan</i> , Associate Director, Institute for Food Safety and Health |
| 9:30 am – 10:00 am | Overview of Nonthermal Processing
TBD |
| 10:00 am – 10:30 am | Coffee Break |
| 10:30 am – 11:00 am | High Pressure Processing
<i>Bala Balasubramaniam</i> , Professor, Ohio State University |
| 11:00 am – 11:30 am | Pulsed Electric Field Processing
<i>Howard Zhang</i> , Center Director, Beltsville Agricultural Research Center, United States Department of Agriculture |
| 11:30 am – 12:00 pm | Microwave Processing
<i>Greg Fleischman</i> , FDA CFSAN Division of Food Processing Science and Technology |
| 12:00 pm – 1:00 pm | Lunch |
| 1:00 pm – 1:30 pm | UV and LED Light Processing
<i>Carmen Moraru</i> , Associate Professor, Cornell University |
| 1:30 pm – 2:00 pm | Pulsed Light Processing
<i>Kathiravan Krishnamurthy</i> , Assistant Professor, Institute for Food Safety and Health |
| 2:00 pm – 2:30 pm | Cold Plasma
<i>Nate Anderson</i> , FDA CFSAN Division of Food Processing Science and Technology |
| 2:30 pm – 3:00 pm | Coffee Break |
| 3:00 pm – 3:30 pm | Ultrasound Processing
<i>Hao Feng</i> , Professor, University of Illinois – Urbana-Champaign |
| 3:30 pm – 4:00 pm | Other Nonthermal Processing Technologies
TBC |
| 4:00 pm – 4:30 pm | Industrial Applications of Nonthermal Processing
<i>Carole Tonello</i> , Applications & Process Development Manager, Hiperbaric |
| 4:30 pm – 5:30 pm | Tour of the Nonthermal Processing Laboratories and Pilot Plant Facilities at IFSH |

CONFIRMED LIST OF SHORT COURSE SPEAKERS

Bala Balasubramaniam, Professor, Ohio State University

Carmen Moraru, Associate Professor, Cornell University

Carole Tonello, Applications & Process Development Manager, Hiperbaric

Greg Fleischman, FDA CFSAN Division of Food Processing Science and Technology

Hao Feng, Professor, University of Illinois – Urbana-Champaign

Howard Zhang, Center Director, Beltsville Agricultural Research Center, United States Department of Agriculture

Jason Wan, Associate Director, Institute for Food Safety and Health

Kathiravan Krishnamurthy, Assistant Professor, Institute for Food Safety and Health

Nate Anderson, FDA CFSAN Division of Food Processing Science and Technology

International Conference / Workshop Program

Chicago Marriott Southwest at Burr Ridge, IL, USA

WEDNESDAY, MAY 24, 2017 (CONFERENCE / WORKSHOP DAY 1)

7:00 am – 8:00 am Registration

8:00 am – 8:15 am Welcome Address
Robert Brackett, Vice President, Illinois Institute of Technology and Director, Institute for Food Safety and Health

Workshop Session 1

Keynote Addresses: Latest Developments and Needs for Nonthermal Processing Technologies

Session Chairs: **Jason Wan** and **Glenn Black**

8:15 am – 8:40 am Keynote Presentation 1: Industry Perspective
TBC

8:40 am – 9:05 am Keynote Presentation 2: Regulatory Perspective
Mickey Parish, Senior Science Advisor, FDA CFSAN, USA

9:05 am – 9:30 am Keynote Presentation 3: Academic Perspective
TBC

9:30 am – 10:00 am Coffee Break/Poster Viewing/Vendor Interactions
TBC

Workshop Session 2

Food Safety Application of Nonthermal Processing Technologies

Session Chair: **Mickey Parish**

10:00 am – 10:30 am Keynote Presentation 4: Latest Development and Challenges in Microbial Inactivation Using Nonthermal Processing Technologies
Jason Wan, Associate Director, Institute for Food Safety and Health

10:30 am – 10:50 am Invited presentation
Engineering Advances in Combined Nonthermal and Thermal Technologies for Inactivation of Foodborne Pathogens
Bala Balasubramaniam, Professor, Ohio State University

10:50 am – 11:10 am Invited presentation

Recent Advancements in Membrane Processing Technologies

Carmen Moraru, Associate Professor, Cornell University

- 11:10 am – 11:30 am Invited presentation
Recent Advancements in Light-based Technologies
Kathiravan Krishnamurthy, Assistant Professor, Institute for Food Safety and Health
- 11:30 am – 11:45 am Presentation TBC
- 11:45 am – 12:00 pm Presentation TBC
- 12:00 pm – 1:00 PM Lunch/Poster Viewing/Vendor Interactions

Workshop Session 3

Nonthermal Technologies for Texture, Extraction and Functionality Applications

Session Chair: Christopher Doona

- 1:00 pm – 1:30 pm Keynote Presentation 5
Enhancing Functionality of Plant-Based Products Through Nonthermal Technologies
Olga Martin-Belloso, Professor, Universidad de Lleida
- 1:30 pm – 1:50 pm Invited presentation
Tomato Juice Processing Using Thermal, PEF and HPP Technologies
Kemal Aganovic, German Food Research Institute
- 1:50 pm – 2:10 pm Invited presentation
Nonthermal Technologies for Texture, Extraction and Functionality Applications
Hao Feng, Professor, University of Illinois – Urbana-Champaign
- 2:10 pm – 2:30 pm High Pressure Processing as a New Method for Creating Food Protein Gels
Shaun Sim¹, Lee Cadesky¹, Mukund Karwe² and Carmen I. Moraru^{1*}
¹ Department of Food Science, Cornell University, Ithaca, NY 14853
² Department of Food Science, Rutgers University, New Brunswick, NJ
* Presenting author
- 2:30 pm – 2:45 pm Presentation TBC
- 2:45 pm – 3:00 pm Presentation TBC
- 3:00 pm – 3:15 pm Coffee Break

Workshop Session 4

Breakout Session I

- 3:15 pm – 4:15 pm 4 Concurrent Breakout Sessions on Key Nonthermal Technologies
- High pressure processing

- Pulsed electric field processing
- Cold plasma
- Other technologies

4:15 pm – 4:45 pm	Break – Assemble in front of the hotel by 4:40 pm. Buses will leave hotel by 4:45 pm sharp.
4:45 pm – 5:45 pm	Bus ride to the dinner venue
5:45 pm – 6:30 pm	Navy Pier
6:30 pm – 9:30 pm	Dinner and networking reception

THURSDAY, MAY 25, 2017 (CONFERENCE / WORKSHOP DAY 2)

Workshop Session 5

Validation Considerations for Nonthermal Technologies

Session Chairs: [Olga Martin-Belloso](#) and [Carmen Moraru](#)

- 8:30 am – 9:00 am Keynote Presentation 6
Regulatory Considerations for Novel Processing Technologies
[Glenn Black](#), Associate Director for Research, FDA CFSAN Division of Food Processing Science and Technology
- 9:00 am – 9:20 am Invited presentation
Case Studies in Validation of High Pressure Processing for Commercialization
[Marcia Walker](#), Director of Food Innovation, 915 Labs
- 9:20 am – 9:40 am Invited presentation
Quasi-chemical Modeling of Spore Germination by High Pressure Processing
[Christopher Doona](#), Senior Research Chemist, US Army Natick Soldier RD&E Center
- 9:40 am – 10:00 am Presentation TBC
- 10:00 am – 10:15 am Presentation TBC
- 10:15 am – 10:30 am Presentation TBC
- 10:30 am – 11:00 am Coffee Break/ Poster Viewing/ Vendor Interactions

Workshop Session 6

Breakout Session II

- 11:00 am – 12:00 PM 4 Concurrent Breakout Sessions on Key Nonthermal Technologies
- High pressure processing
 - Pulsed electric field processing
 - Cold plasma
 - Other technologies
- 12:00 – 1:00 PM Lunch/Poster Viewing/Vendor Interactions

Workshop Session 7

Commercialization and Industrial Applications

Session Chairs: [Marcia Walker](#) and [Bala Balasubramaniam](#)

- 1:00 pm – 1:30 pm Keynote Presentation 7
Experiences in Filing Nonthermal Processes for Regulatory Acceptance and Commercialization

Larry Keener, President, International Product Safety Consultant

1:30 pm – 1:50 pm Invited presentation
Commercialization of HPP Juices and Beverages
Carole Tonello, Applications & Process Development Manager, Hiperbaric

1:50 pm – 2:10 pm Invited presentation
Successes and Lessons Learned in Adoption of Nonthermal Technologies
Patrick Dunne, Retired, US Army Natick

2:10 pm – 2:30 pm Presentation TBC

Workshop Session 8

Student presentations

Session Chairs: Carole Tonello and Kathiravan Krishnamurthy

2:30 pm – 3:00 pm Student oral Presentations and Judging

3:00 pm - 3:30 pm Coffee Break/ Poster Viewing/ Vendor Interactions

Workshop Session 9

Future Prospects of Nonthermal Technologies

Session Chairs: Howard Zhang and Larry Keener

3:30 pm – 4:00 pm Keynote Presentation 8
Future Prospects of Nonthermal Technologies
Howard Zhang, Center Director, Beltsville Agricultural Research Center, United States
Department of Agriculture

4:00 pm – 4:40 pm Panel Discussion on Future Prospects of Nonthermal Technologies

Chair: Howard Zhang

Invited Panelists: Mickey Parish, Regulatory considerations
Carole Tonello, High pressure Equipment
Larry Keener, Process validation and Filing
Patrick Dunne, Federal research programs
Carmen Moraru, Academic research capabilities
Olga Martin-Belloso, European perspective

Workshop Session 10

Workshop Summary

4:40 pm – 4:50 pm Summary of Workshop
Student Presentation Awards

4: 50 pm – 5:00 pm Presentation on 2018 Nonthermal Processing Workshop & the Symposium at
Cornell University

CONFIRMED CONFERENCE / WORKSHOP SPEAKERS

Bala Balasubramaniam, Professor, Ohio State University

Carmen Moraru, Associate Professor, Cornell University

Carole Tonello, Applications & Process Development Manager, Hiperbaric

Christopher Doona, Senior Research Chemist, US Army Natick Soldier RD&E Center

Glenn Black, Associate Director for Research, FDA CFSAN Division of Food Processing Science and Technology

Hao Feng, Professor, University of Illinois – Urbana-Champaign

Howard Zhang, Center Director, Beltsville Agricultural Research Center, United States Department of Agriculture

Jason Wan, Associate Director, Institute for Food Safety and Health

Kathiravan Krishnamurthy, Assistant Professor, Institute for Food Safety and Health

Kemal Aganovic, German Food Research Institute

Larry Keener, President, International Product Safety Consultant

Marcia Walker, Director of Food Innovation, 915 Labs

Mickey Parish, Senior Science Advisor, FDA CFSAN

Olga Martin-Belloso, Professor, Universidad de Lleida

Patrick Dunne, Retired, US Army Natick

Robert Brackett, Vice President, Illinois Institute of Technology and Director, Institute for Food Safety and Health

FRIDAY, MAY 26, 2017 (OPTIONAL FIELD TRIP TO LIBERTY COLD)

7:00 am – 8:00 am	Registration
8:00 am – 8:30 am	Shuttle to the Institute for Food Safety and Health (IFSH)
8:30 am – 10:30 am	Tour of the Nonthermal Processing Facilities at IFSH
10:30 am – 11:30 am	Shuttle to Liberty Cold – High Pressure Processing Toll Facility
11:30 am – 1:30 pm	Tour of the Facility
1:30 pm – 2:15 pm	Debriefing, Questions & Answers Boxed Lunch (Sponsored by Chicagoland Food and Beverage Network)
2:15 pm – 3:00 pm	Shuttle to Marriot, Burr Ridge

Field Trip Event Sponsors



Field Trip Event Organizers



REGISTRATION INFORMATION FOR CONFERENCE / WORKSHOP, SHORT COURSE AND EVENTS

We invite you and your colleagues to attend the 2017 IFT-EFFoST International Nonthermal Processing Conference / Workshop and short course. You can register for the event online using our secure Eventbrite site by clicking the link: [REGISTER via Eventbrite](#).

Professionals (non-student)				
Registration Type and Deadline	Conference / Workshop	Short Course ¹	Optional Field Trip ²	May 24 th Reception ³
Early Bird (April 21, 2017)	\$499	\$199	\$50	Included in the conference / workshop registration
Online (May 15, 2017)	\$599	\$249	\$75	Included in the conference / workshop registration
Onsite (May 23-25, 2017)	\$649	\$299	\$100	Included in the conference / workshop registration
Students				
Early Bird (April 21, 2017)	\$249	\$99	\$30	Included in the conference / workshop registration
Online (May 15, 2017)	\$349	\$149	\$50	Included in the conference / workshop registration
Onsite (May 23-25, 2017)	\$399	\$199	\$75	Included in the conference / workshop registration
Early Bird (April 21, 2017)	\$249	\$99	\$30	Included in the conference / workshop registration
Spouse and Guests				
Early Bird (April 21, 2017)	N/A	N/A	\$50	\$130
Online (May 15, 2017)	N/A	N/A	\$75	\$150
Onsite (May 23-25, 2017)	N/A	N/A	\$100	\$175
Early Bird (April 21, 2017)	N/A	N/A	\$50	\$130

¹Registration for the short course will be limited to 40 registrants. Therefore, we urge you to register for the short course ASAP.

²The optional industry tour to high pressure processing toll facility and nonthermal processing laboratories of the Institute for Food Safety and Health will take place on Friday, May 25, 2017. The fees cover the transportation costs and boxed lunch.

³The cruise dinner will be held on Wednesday, May 24, 2017. Dinner with light music will be served onboard of Spirit of Chicago cruise line in Lake Michigan. The fees covers the actual cost of the dinner, soft drinks, and transportation (cash bar will be available). Conference / Workshop registration fee includes the dinner.

Spouses/guests need to purchase their dinner ticket to attend the event.

Nonthermal Conference / Workshop Venue

May 24-25, 2017

Chicago Marriott Southwest at Burr Ridge, IL, USA

CHICAGO MARRIOTT SOUTHWEST AT BURR RIDGE

The conference / workshop will be held at **Chicago Marriott Southwest at Burr Ridge**. This category 4 hotel is located at **1200 Burr Ridge Parkway, Burr Ridge, IL 60527**, which is just 21 miles south of the O'Hare International Airport and 13 miles west of the Midway International Airport. The hotel offers over 130 rooms.

We secured a special discounted rate (\$182 to \$212 per night based on the type of room) at the hotel. To take advantage of the discounted price, please use the link below.

The discounted rate will be available until **May 1, 2017**. Therefore, we encourage you to make the reservations ASAP.



To learn more about the hotel, please visit:

- <http://www.marriott.com/hotels/travel/chisw-chicago-marriott-southwest-at-burr-ridge/>
- https://www.tripadvisor.com/Hotel_Review-g35742-d483292-Reviews-Chicago_Marriott_Southwest_at_Burr_Ridge-Burr_Ridge_DuPage_County_Illinois.html

Conference / Workshop and Short Course Event Organizers



Conference / Workshop Program

May 24-25, 2017
Chicago Marriott Southwest at Burr Ridge, IL, USA

SPRIT OF CHICAGO DINNER CRUISE

On Wednesday, May 24, 2017 night, we will take a dinner cruise (Spirit of Chicago cruises) on Lake Michigan. You will get an opportunity to enjoy the Chicago skyline while enjoying a delicious dinner. DJ Music and interactive games will be provided. The cruise is estimated to last for two and half hours.

We will assemble in front of the hotel (Chicago Burr Ridge Marriott) by 4:30 pm and the buses will leave the hotel sharply at 4:45 pm. The boarding time for the cruise is 6:30 pm at Navy Pier. The cruise will depart at 7:00 pm. We are expected to be back in Navy Pier at 9:30 pm.

To know more details about the cruise, please visit <https://www.spiritcruises.com/chicago>.



Conference / Workshop and Short Course Event Organizers

