OSA Agri-Photonics Incubator: Advanced Spectroscopy in Precision Agriculture

12-14 May 2019
Washington, DC USA

HOSTED BY:

Gombojav O. Ariunbold, *Mississippi State University, United States*
Krishnan Parameswaran, *Analog Devices, United States*
Aaron Pung, *Sandia National Laboratory, United States*
Joachim Sacher, *Sacher Laser, Germany*
Amartya Sengupta, *IIT-Delhi, India*

AGENDA

Sunday 12 May 2019

Afternoon	Arrival/Hotel Check-in The Fairfax Hotel, 2100 Massachusetts Avenue NW
18:00	Welcome Dinner Leziz, 2016 P Street NW

Monday 13 May 2019

8:00	Breakfast OSA Headquarters, 2010 Massachusetts Ave. NW
8:30	Welcome *Elizabeth Nolan, Deputy Executive Director/Chief Publishing Officer, OSA, United States*
8:45	Program Overview and Goals *Amartya Sengupta, Indian Institute of Technology, Delhi, India*
9:00	Overview Talk: Linking Precision Agriculture to Food Security *Aparajita Bandyopadhyay, IIT Delhi-Joint Advanced Technology Center, India*
9:45	Coffee Break

Monday 13 May 2019, continued

Session I: Current Challenges in Monitoring Fundamental Processes in Plant Biology

10:00	Understanding Molecular Basis of Plant Stress Mechanisms in the Light of Modern Optical Technologies *Yashwanti Mudgil, Delhi University, India*
10:20	Precision Indoor Plants Initiative *John Reich, Foundation for Food and Agricultural Research, United States*
10:40	Hyperspectral Imaging and Machine Learning for Identifying Herbicide-Resistant Weeds and Monitoring Produce Ripeness *Joseph Shaw, Montana State University, United States*
11:00	Understanding and Monitoring Plant Metabolism *Basil J. Nikolau, Center for Metabolic Biology, Iowa State University, United States*
11:20	Panel Discussion *Discussion Moderator: Gombojav O. Ariunbold*
12:00	Lunch, provided

Session II: Current and Upcoming Spectroscopic Techniques for Precision Agriculture

13:15	Water Status Monitoring of Plants Using Terahertz Technology *Martin Koch, Philipps-Universität Marburg, Germany*
13:45	Portable or Integrated NIR Spectroscopy in Agriculture Applications *Jaakko Lehtinen, Spectral Engines, Finland*
14:15	Coherent Anti-Stokes Raman Spectroscopy: Understanding the Essentials Towards Applying in Agriculture *Gombojav Ariunbold, Mississippi State University, United States*
14:35	Raman Spectroscopy for Agri-Photonics from Laser Diodes to Field Applications *Bernd Sumpf, Ferdinand-Braun Institut, Germany*
14:55	Panel Discussion *Discussion Moderator: Amartya Sengupta*

Monday 13 May 2019, continued

15:35 Coffee Break

Session III: Photonics for Food Quality Assessment

16:00 Mid-Infrared Lasers for Gas Sensing
Joachim Sacher, Sacher Lasertechnik GmbH, Germany

16:20 Spectroscopy Products and Applications for the Precision Agriculture and Food Logistics Chain
Dana Hinckley, Hamamatsu Corporation, United States

16:40 Optics Methods for Rapid and Non-invasive Detection of Aflatoxin Contamination in Corn
Haibo Yao, Mississippi State University, United States

17:00 Food Safety Testing and Analysis Using Portable Spectroscopy
Steve Buckley, OceanOptics, The Netherlands

17:20 Panel Discussion
Discussion Moderator: Krishnan Parameswaran

18:00 Dinner
Bistro Bistro, 1727 Connecticut Ave NW

Tuesday 14 May 2019

8:00 Breakfast
OSA Headquarters, 2010 Massachusetts Ave. NW

8:30 Market Opportunities in Agri-Photonics
Tom Hausken, Senior Industry Advisor, The Optical Society

Session IV: Public/Private Collaborations and Funding Opportunities

8:50 Customized Multi-Spectral Imagers and Integrated Sensors for Crop Monitoring in Fields and Greenhouses
Jayshri Sabarinathan, University of Western Ontario, Canada

9:10 Advanced Imaging Techniques as a Solution for Challenges in Renewable Energy and Products
Joshua Yuan, Texas A&M University, United States

Tuesday 14 May 2019, continued

9:30	Funding Opportunities at USDA-NIFA involving Agricultural Photonics, Remote Sensing, and Environmental Sensing *Steven Thomson, USDA, National Institute of Food and Agriculture, United States*
9:50	Perspective of National Science Foundation *Basil J. Nikolau, Division of Molecular and Cellular Biosciences, National Science Foundation*
10:10	Panel Discussion *Discussion Moderator: Joachim Sacher*
11:00	Coffee Break
11:15	Facilitated Discussion
12:30	Lunch, provided
14:00	Adjourn