The following is the list of sessions and session types for the 2021 AIM. Directly below, you will find the three different types of oral sessions being held and their definitions. Please follow up with your session moderator (or session organizer) for specific details as to how they will run their session. As of May 14. *Schedule is subject to change.

**Live Sessions:** These will be reserved for Special and Invited Sessions, Distinguished Lecture Series, and Panel Discussions. They will afford the presenters with the option of participating with a pre-recorded video or live presentation with Q&A to follow.

**Simulated Live Sessions:** These sessions will be allocated to technical sessions which have broad community appeal, of high-impact/timely relevance to your technical area, or are listed as Hybrid. In these sessions 12-minute pre-recorded videos will be played by the moderator with live 3-minute Q&A to follow.

**Lightning Sessions:** In these sessions, presenting authors will have the opportunity to deliver a 3-minute lightning presentation. The 12-minute pre-recorded videos of these presentations will NOT be played during the lightning session but presenters can link the audience to them. At the discretion of the session organizer and moderator, a 3-minute Q&A can be conducted after each presentation, OR a general Q&A session may be held following all presentations in the session.

**Special Interest**

*Building a Coalition of Societies for Advancing Circular Systems*

Live Session  
Organized by: Kati Migliaccio  
Session Moderator: Kati Migliaccio; Sue Nokes  
Sponsoring committee(s): ASABE  
Scheduled day and time: Monday, July 12 10:30am - 1:00pm

*The Theory of Scientific Excellence for Black, Indigenous, and People of Color Researchers*

Live Session  
Organized by: Janie Moore  
Session Moderator: Janie Moore  
Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage  
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

*Current Activities for Transforming to Circular Food and Agricultural Systems*

Live Session  
Organized by: Kati Migliaccio; Jim Jones  
Session Moderator: Sue Nokes  
Sponsoring committee(s): EOPD-01 POSTER SESSION
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

Advances in Food and Ag Systems Toward Greater Circularity-POSTER SESSION
Poster Session
Organized by: Kati Migliaccio
Session Moderator: Kati Migliaccio
Sponsoring committee(s): ASABE
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

ASE - Applied Science & Engineering
Applied Science & Engineering POSTER SESSION
Poster Session
Organized by: Catherine Brewer
Session Moderator: Catherine Brewer
Sponsoring committee(s): ASE-01 POSTER SESSION
Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

Sustainability Metrics in Agriculture
Simulated Live Session
Organized by: Cale Boriack
Session Moderator: Cale Boriack
Sponsoring committee(s): ASE-16 Engineering for Sustainability
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

Wood-Based Carbon Materials and Applications
Lightning Session
Organized by: Catherine Brewer
Session Moderator: Sibel Irmak
Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

Woody Biomass Production and Processing
Live Session
Organized by: Catherine Brewer
Session Moderator: David Lanning
Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

E-2050 - Global Engagement
Agriculture, Food and Biological Engineering in Developing Countries in Response to the COVID-19 Post Pandemic Era
Contact the session organizer
Organized by: Sushant Mehan
Session Moderator: Sushant Mehan
Sponsoring committee(s): AOCABFE, AABFEIO, ANGASABE
Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

AOCABFE & NERCITA China Exchange Forum
Contact the session organizer
Organized by: Yang Zhao
Session Moderator: Yang Zhao
Sponsoring committee(s): E-2050 Global Engagement
Scheduled day and time: Monday, July 12 9:00pm - 11:00pm

**Modernizing African Agriculture**
Live Session
Organized by: Margaret Gitau
Session Moderator: Margaret Gitau
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm; 1:00pm - 3:30pm; Wednesday, July 14 10:00am - 12:30pm; 1:00pm - 3:30pm

**Technology Trends and Career Opportunities in the U.S. and Korea**
Contact the session organizer
Organized by: Young Gu Her
Session Moderator: Young Gu Her
Scheduled day and time: Tuesday, July 13 6:00pm - 8:00pm

**EOPD - Education, Outreach, & Professional Development**

*Education, Outreach, and Professional Development POSTER SESSION*
Poster Session
Organized by: Michael Pate
Session Moderator: Michael Pate
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

*Inclusive Pedagogy & Andragogy: Engaging Diverse Audiences in Teaching, Extension, and Outreach*
Live Session
Organized by: Deepak Keshwani
Session Moderator: Deepak Keshwani
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

*Innovations and Integration of Instruction*
Simulated Live Session
Organized by: Kendall Kirk
Session Moderator: Paul Wreckler
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

*Methods and Procedures for Teaching Engineering Ethics*
Live Session
Organized by: Jerry Wille
Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

*Online Labs: Innovations and Lessons Learned*
Lightning Session
Organized by: Ganesh Bora  
Session Moderator: Dev Shrestha  
Sponsoring committee(s): EOPD-203 Undergraduate & Graduate Instruction, EOPD-205 Engineering Technology & Management Education  
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm  

ES - Energy Systems

Advances in Biomass Preprocessing and Pretreatment  
Lightning Session  
Organized by: Yi Zheng  
Session Moderator: Nurun Nahar  
Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, MS-23/7/2 Forage & Biomass Engineering, ASE-12 Forest Engineering  
Scheduled day and time: Thursday, July 15 10:00am - 11:30am  

Biomass Feedstock Supply Logistics and Modeling  
Simulated Live Session  
Organized by: Yi Zheng  
Session Moderator: Jaya Shankar Tumuluru  
Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, MS-23/7/2 Forage & Biomass Engineering, ASE-12 Forest Engineering  
Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm  

Conversion of Biomass to Biofuels (Thermochemical)  
Simulated Live Session  
Organized by: Yi Zheng  
Session Moderator: Sandun Fernando  
Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products  
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm  

Current Achievements and New R&D Trends in Renewable Energy Resources and Technologies  
Simulated Live Session  
Organized by: Xianhui Zhao  
Session Moderator: Xianhui Zhao  
Sponsoring committee(s): ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts  
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm  

Energy Systems POSTER SESSION  
Poster Session  
Organized by: Yi Zheng  
Session Moderator: Ganti Murthy  
Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, MS-23/7/2 Forage & Biomass Engineering, PRS-701 Physical Properties of Ag & Biological Products, ASE-12 Forest Engineering, ES-01 POSTER SESSION  
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am  

Renewable Energy Resources and Technologies  
Lightning Session  
Organized by: Fei Yu  
Session Moderator: Fei Yu  
Sponsoring committee(s): ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts
Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

**Techno-Economic and Life Cycle Assessment of Biomass Conversion**

Lightning Session  
Organized by: Yi Zheng  
Session Moderator: Deepak Kumar  
Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products, PRS-280 Bioconversion and Bioprocesses  
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

**The State of Agricultural Energy Efficiency / Biomass Feedstock Supply Characteristics**

Lightning Session  
Organized by: Scott Sanford  
Session Moderator: Scott Sanford  
Sponsoring committee(s): ES-300 Electrical Utilization & Energy Apps, ES-310 Ag Lighting Group, ES-311 Plant Growth LED Lighting  
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

**Value-Added Chemicals and Materials**

Lightning Session  
Organized by: Yi Zheng  
Session Moderator: Sushil Adhikari  
Sponsoring committee(s): ES-220 Biomass Energy & Industrial Products  
Scheduled day and time: Thursday, July 15 11:30am - 12:30pm

**ESH - Ergonomics, Safety & Health**

*Innovations and Strategies for Safety and Health*

Lightning Session  
Organized by: Michael Pate  
Session Moderator: Michael Pate  
Sponsoring committee(s): ESH-04 Technology Exchange, ESH-03 Standards, ESH-04/1 Journal of Agricultural Safety and Health  
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

*Strategies and Considerations for Safety Programming and Technology*

Simulated Live Session  
Organized by: Michael Pate  
Session Moderator: Michael Pate  
Sponsoring committee(s): ESH-04 Technology Exchange, ESH-03 Standards, ESH-04/1 Journal of Agricultural Safety and Health  
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

**ITSC - Information Technology, Sensors & Control Systems**

*3D Machine Vision for Sensing and Automation*

Lightning Session  
Organized by: Seung-Chul Yoon  
Session Moderator: Seung-Chul Yoon  
Sponsoring committee(s): ITSC-312 Machine Vision  
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

*Advanced Computational Approaches for Solving Agricultural and Biological Engineering Problems*

Simulated Live Session  
Organized by: Hugo Milan
Session Moderator: Hugo Milan  
Sponsoring committee(s): ITSC-217 Computational Methods, Simulations & Applications  
Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

*Biosensors for Food, Agriculture and Environment*  
Lightning Session  
Organized by: Sui Ching Phung  
Session Moderator: Fei Jia  
Sponsoring committee(s): ITSC-230 Biosensors  
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

*Computational Fluid Dynamics (CFD) Applications in Agriculture*  
Simulated Live Session  
Organized by: Christopher Choi  
Session Moderator: Christopher Choi  
Sponsoring committee(s): ITSC-217 Computational Methods, Simulations & Applications  
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

*Computer Vision for Agricultural Automation*  
Lightning Session  
Organized by: Dana Choi  
Session Moderator: Dana Choi  
Sponsoring committee(s):  
Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

*Connectivity, Cloud Computing, and Internet of Things in Agriculture*  
Simulated Live Session  
Organized by: Sierra Young  
Session Moderator: Sierra Young  
Sponsoring committee(s): ITSC-254 Emerging Information Systems; ITSC-217 Computational Methods, Simulations & Applications  
Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

*Discrete Element Modelling (DEM) Applications in Agriculture*  
Lightning Session  
Organized by: Mehari Tekeste  
Session Moderator: Mehari Tekeste  
Sponsoring committee(s): ITSC-217 Computational Methods, Simulations & Applications  
Scheduled day and time: Tuesday, July 14 11:30am - 12:30pm

*Emerging Technologies for Biological Sensing*  
Lightning Session  
Organized by: Sui Ching Phung  
Session Moderator: XingGe Xi  
Sponsoring committee(s): ITSC-230 Biosensors  
Scheduled day and time: Monday, July 12 11:30am - 12:30pm

*Hyperspectral Imaging Advances & Applications*  
Lightning Session  
Organized by: Afef Marzougui  
Session Moderator: Afef Marzougui  
Sponsoring committee(s): ITSC-348 Electromagnetics & Spectroscopy  
Scheduled day and time: Thursday, July 15 10:00am - 11:30am
Imaging Technologies for High Throughput Phenotyping
Simulated Live Session
Organized by: Haiyan Cen
Session Moderator: Haiyan Cen
Sponsoring committee(s): ITSC-312 Machine Vision
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

Information Technology, Sensors & Control Systems POSTER SESSION
Poster Session
Organized by: Haiyan Cen
Session Moderator: Haiyan Cen
Sponsoring committee(s):
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

Instructional Case Studies with Data Sets for YOUR Instruction
Live Session
Organized by: Dennis Buckmaster
Session Moderator: Dennis Buckmaster
Sponsoring committee(s): ITSC-254 Emerging Information Systems, EOPD-203 Undergraduate & Graduate Instruction
Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

Machine Learning and Data Science for Big Data in Agriculture and Natural Resources
Simulated Live Session
Organized by: Zhou Zhang
Session Moderator: Zhou Zhang
Sponsoring committee(s): ITSC-254 Emerging Information Systems, NRES-21 Hydrology Group
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

Machine Vision for Agriculture and Food Processing
Lightning Session
Organized by: Young K. Chang
Session Moderator: Young K. Chang
Sponsoring committee(s): ITSC-312 Machine Vision
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

Machine Vision for Precision Agriculture and Robotics
Simulated Live Session
Organized by: Dana Choi
Session Moderator: Dana Choi
Sponsoring committee(s): ITSC-312 Machine Vision, MS-54 Precision Agriculture
Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

Mechatronics in UAVs
Lightning Session
Organized by: Yiannis Ampatzidis
Session Moderator: Hemanth Dakshinamurthy
Sponsoring committee(s): ITSC-318 Mechatronics & Biorobotics
Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

Robotics and Co-Robotics for Agriculture and Natural Resources
Simulated Live Session
Organized by: Santosh Pitla
Session Moderator: Peyman Nematzadeh
Sponsoring committee(s): ITSC-318 Mechatronics & Biorobotics, ITSC-312 Machine Vision
Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

**Spectroscopic Sensing and Imaging of Soil, Plant and Agriculture Produce**
Lightning Session
Organized by: Shih-Fang Chen
Session Moderator: Shih-Fang Chen
Sponsoring committee(s): ITSC-348 Electromagnetics & Spectroscopy
Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

**Tools and Technology for High Throughput Phenotyping**
Lightning Session
Organized by: Sindhuja Sankaran
Session Moderator: Sindhuja Sankaran
Sponsoring committee(s):
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

**MS - Machinery Systems**

**Advances in Cotton Engineering**
Lightning Session
Organized by: Jason Ward
Session Moderator: Jason Ward
Sponsoring committee(s): MS-23/7/3 Cotton Engineering
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

**Advances in Soil-Plant-Machine Dynamics and Systems Simulation I**
Simulated Live Session
Organized by: Thomas Way
Session Moderator: Thomas Way
Sponsoring committee(s): MS-45 Soil-Plant-Machine Dynamics
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

**Advances in Soil-Plant-Machine Dynamics and Systems Simulation II**
Lightning Session
Organized by: Thomas Way
Session Moderator: Thomas Way
Sponsoring committee(s): MS-45 Soil-Plant-Machine Dynamics, MS-54 Precision Agriculture, MS-58
Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

**Innovations in Precision Ag**
Lightning Session
Organized by: Ajay Sharda
Session Moderator: Simerjeet Virk
Sponsoring committee(s): MS-54 Precision Agriculture, MS-58 Agricultural Equipment Automation, ITSC-353 Instrumentation & Controls
Scheduled day and time: Thursday, July 15 10:00am - 11:30am

**Machinery Systems POSTER SESSION**
Poster Session
Organized by: Bruce Hawkins
Session Moderator: Bruce Hawkins  
Sponsoring committee(s): MS-01 POSTER SESSION  
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am; 1:00pm - 2:30pm

**Precision Agricultural Utilization in Chemical and Fertilizer Application**  
Lightning Session  
Organized by: Ajay Sharda  
Session Moderator: Ajay Sharda  
Sponsoring committee(s): MS-54 Precision Agriculture, MS-23/6 Application Sys & US TAG ISO TC23/SC6  
Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

**Robotics and Mechanization for Specialty Crops I**  
Simulated Live Session  
Organized by: Long He  
Session Moderator: Long He  
Sponsoring committee(s): MS-48 Specialty Crop Engineering  
Scheduled day and time: Monday, July 12 10:00am - 12:30pm

**Robotics and Mechanization for Specialty Crops II**  
Lightning Session  
Organized by: Long He  
Session Moderator: Long He  
Sponsoring committee(s):  
Scheduled day and time: Wednesday, July 14 2:30pm - 3:30pm

**Specialty Crop Engineering: Advanced Technologies for Specialty Crop Production**  
Live Session  
Organized by: Reza Ehsani  
Session Moderator: Reza Ehsani  
Sponsoring committee(s): MS-48 Specialty Crop Engineering  
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

**UAS Applications and Precision Agricultural Utilization in Agriculture I**  
Simulated Live Session  
Organized by: Hongyoung Jeon  
Session Moderator: Hongyoung Jeon  
Sponsoring committee(s): MS-23/6 Application Sys & US TAG ISO TC23/SC6, MS-60 Unmanned Aerial Systems  
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

**UAS Applications and Precision Agricultural Utilization in Agriculture II**  
Lightning Session  
Organized by: Michael Sama  
Session Moderator: Michael Sama  
Sponsoring committee(s): MS-60 Unmanned Aerial Systems  
Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

**NRES - Natural Resources & Environmental Systems**  
A: Emerging Contaminants, Pathogens, Antibiotic Resistance; B: Manure, Agricultural Byproduct Mgmt  
Lightning Session  
Organized by: Aaron; Lauren Mittelstet; Ahialblame  
Session Moderator: James Etheridge
Sponsoring committee(s): NRES-253 Riparian Zones, Floodplains, & Wetlands, NRES-28 Ecological Engineering
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

**Anaerobic Digestion, Composting, and Greenhouse Gas Emissions**
Lightning Session
Organized by: Lide Chen
Session Moderator: Douglas Hamilton
Sponsoring committee(s): NRES-27 Ag Byproducts & Animal Mortality Systems, PRS-707 Food & Organic Waste Management & Utilization
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

**Aquatic Ecosystem Engineering**
Lightning Session
Organized by: Laurent Ahiablame
Session Moderator: Steven Hall
Sponsoring committee(s): NRES-28 Ecological Engineering, MS-60 Unmanned Aerial Systems, NRES-21 Hydrology Group
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

**BMP Research 1: Agricultural Conservation Practice Implementation and Assessment**
Simulated Live Session
Organized by: Anita Thompson
Session Moderator: Paula Steiner
Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-225 Conservation Systems
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

**BMP Research 2: Cover Crops and Soil Moisture**
Simulated Live Session
Organized by: Fouad Jaber
Session Moderator: Dennis Flanagan
Sponsoring committee(s): NRES-21 Hydrology Group, NRES-22 Erosion Control Group, NRES-24 Irrigation Group
Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

**Drainage Research, Education, and Management Advances**
Lightning Session
Organized by: Jane Frankenberger
Session Moderator: Vinayak Shedekar
Sponsoring committee(s): NRES-23 Drainage Group, EOPD-203 Undergraduate & Graduate Instruction, EOPD-208 Extension
Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

**Ecological Engg: System Responses, Woodchip Bioreactors, Forest Roads, Hydraulic Structures-HYBRID**
Simulated Live Session
Organized by: Laurent Ahiablame
Session Moderator: Niroj Aryal
Sponsoring committee(s): NRES-28 Ecological Engineering
Scheduled day and time: Thursday, July 15 10:00am - 12:30pm

**Erosion in Fields and Stream: Research, Modeling, and Case Studies**
Lightning Session
Organized by: Anita Thompson
Evapotranspiration in Irrigation Management
Lightning Session
Organized by: Troy Peters
Session Moderator: Gary Marek
Sponsoring committee(s): NRES-24 Irrigation Group, NRES-244 Irrigation Management
Scheduled day and time: Thursday, July 15 11:30am - 12:30pm

Extreme Event Hydrologic and Water Quality Modeling
Simulated Live Session
Organized by: Anita Thompson
Session Moderator: Jasmeet Lamba
Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-223 Erosion Control Research
Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

Green Infrastructure Solutions
Lightning Session
Organized by: Laurent Ahiablame; Aaron Mittelstet
Session Moderator: Fouad Jaber
Sponsoring committee(s): NRES-28 Ecological Engineering, NRES-253 Riparian Zones, Floodplains, & Wetlands
Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

Irrigation Management Research
Lightning Session
Organized by: Derek Heeren
Session Moderator: Daran Rudnick
Sponsoring committee(s): NRES-24 Irrigation Group, NRES-244 Irrigation Management
Scheduled day and time: Monday, July 12 11:30am - 12:30pm

Irrigation Research: Micro, Deficit, Variable Rate, and Other Technologies
Lightning Session
Organized by: Derek Heeren
Session Moderator: Sandra Guzman
Sponsoring committee(s): NRES-24 Irrigation Group, NRES-245 Microirrigation
Scheduled day and time: Tuesday, July 13 1:00pm - 2:30pm

Modeling of Hydrology and Water Quality in Surface, Sub-Surface and Groundwater Systems
Lightning Session
Organized by: Fouad Jaber
Session Moderator: Jasmeet Lamba
Sponsoring committee(s): NRES-21 Hydrology Group
Scheduled day and time: Thursday, July 15 10:00am - 11:30am

Natural Resources & Environmental Systems POSTER SESSION
Poster Session
Organized by: Kyle Douglas-Mankin
Session Moderator: Kyle Douglas-Mankin
Sponsoring committee(s): NRES-01 POSTER SESSION
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm; Wednesday, July 14 2:30pm - 3:30pm
**NRES Distinguished Lecture Series**

Live Session
Organized by: Kyle Douglas-Mankin
Session Moderator: Kyle Douglas-Mankin
Sponsoring committee(s):
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

**Nutrient Removal, Recovery, and Recycling**

Lightning Session
Organized by: Laurent Ahiablame
Session Moderator: Lordwin Jeyakumar
Sponsoring committee(s): NRES-28 Ecological Engineering
Scheduled day and time: Monday, July 12 11:30am - 12:30pm

**Phosphorus Research and Management: Field, Soil, Wastewater, and Stormwater Systems**

Simulated Live Session
Organized by: Anita Thompson
Session Moderator: Sanjay Shukla
Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-224 Sediment and Associated Pollutants
Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

**Real-Time Systems to Manage Natural Resources and Environmental Systems**

Lightning Session
Organized by: Fouad Jaber
Session Moderator: Sushant Mehan
Sponsoring committee(s): NRES-21 Hydrology Group, NRES-24 Irrigation Group, NRES-28 Ecological Engineering
Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

**Sprinkler and Precision Irrigation Advances**

Lightning Session
Organized by: Derek Heeren
Session Moderator: Charles Hillyer
Sponsoring committee(s): NRES-24 Irrigation Group, NRES-241 Sprinkler Irrigation
Scheduled day and time: Thursday, July 15 10:00am - 11:30am

**Sustainable Manure Treatment and Management Systems**

Simulated Live Session
Organized by: Linda Schott
Session Moderator: Saqib Mukhtar
Sponsoring committee(s): NRES-27 Ag Byproducts & Animal Mortality Systems
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

**SWAT Advances and Applications: Modeling Water, Nutrients, Management, and Change**

Lightning Session
Organized by: Fouad Jaber
Session Moderator: Clement Sohoulande
Sponsoring committee(s): NRES-21 Hydrology Group
Scheduled day and time: Monday, July 12 1:00pm - 2:30pm

**Viral and Wild in 2020: COVID and Wildfire Research in ASABE-NRES**

Simulated Live Session
Organized by: Anita Thompson
Session Moderator: Kyle Douglas-Mankin
Sponsoring committee(s): NRES-22 Erosion Control Group, NRES-223 Erosion Control Research, NRES-252
Geomorphgy, Streambk Stbly & In-Stream Processes, ASE-12 Forest Engineering
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

**Vulnerability Assessment of Land Resources for Sustainable Development**
Simulated Live Session
Organized by: Aavudai Anandhi
Session Moderator: Aavudai Anandhi
Sponsoring committee(s): NRES-26 Sustainable Land Resources
Scheduled day and time: Thursday, July 15 10am - 12:30pm

**Water Challenges and Urban to Global Sustainable Solutions**
Simulated Live Session
Organized by: Fouad Jaber
Session Moderator: Rabi Mohtar
Sponsoring committee(s): NRES-21 Hydrology Group
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

**Wetlands-HYBRID**
Simulated Live Session
Organized by: Aaron Mittelstet
Session Moderator: Tiffany Messer
Sponsoring committee(s): NRES-253 Riparian Zones, Floodplains, & Wetlands
Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

**PAFS - Plant, Animal, & Facility Systems**

*Air Emission from Livestock and Poultry Production*
Lightning Session
Organized by: Mindy Spiehs
Session Moderator: Mindy Spiehs
Sponsoring committee(s): PAFS-50 Environmental Air Quality
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

*Animal Response to Environment*
Lightning Session
Organized by: Brett Ramirez
Session Moderator: Brett Ramirez
Sponsoring committee(s): PAFS-40 Facilities & Systems Group
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

*Codes, Standards, & Agri Facility Design Guidance*
Simulated Live Session
Organized by: Tom Gettings
Session Moderator: Tom Gettings
Sponsoring committee(s): PAFS-20 Structures Group, PAFS-07/1 Agri-Industrial Facility Design and Operation, PAFS-20/4 Bulk Solids Handling and Storage
Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

*Indoor Plant Environments, Greenhouses, and Nursery Technology*
Lightning Session
Organized by: Mark Lefsrud
Session Moderator: Mark Lefsrud
Sponsoring committee(s): PAFS-30 Plant Systems Group
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

**Measurement, Mitigation and Modeling of Air Pollution from Livestock and Poultry Facilities**
- Lightning Session
- Organized by: Lilong Chai
- Session Moderator: Lilong Chai
- Sponsoring committee(s): PAFS-50 Environmental Air Quality
- Scheduled day and time: Tuesday, July 13 11:30am - 12:30pm

**PAFS Distinguished Lecture Series**
- Live Session
- Organized by: Joshua Sander
- Session Moderator: Joshua Sander
- Sponsoring committee(s): PAFS-40 Facilities & Systems Group, PAFS-20 Structures Group, PAFS-30 Plant Systems Group, PAFS-40 Facilities & Systems Group, PAFS-50 Environmental Air Quality
- Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

**Plant, Animal, and Facility Systems POSTER SESSION**
- Poster Session
- Organized by: Shafiqur Rahman
- Session Moderator: Shafiqur Rahman
- Sponsoring committee(s): PAFS-01 POSTER SESSION
- Scheduled day and time: Tuesday, July 13 10:00am - 11:30am; 1:00pm - 2:30pm

**Preparation for and Response to Disruptive Events in Animal Production**
- Lightning Session
- Organized by: Jody Purswell
- Session Moderator: Jody Purswell
- Sponsoring committee(s): PAFS-40 Facilities & Systems Group, PAFS-50 Environmental Air Quality
- Scheduled day and time: Thursday, July 15 10:00am - 11:30am

**Technology and Precision (SMART) Animal Management**
- Lightning Session
- Organized by: Josh Jackson
- Session Moderator: Josh Jackson
- Sponsoring committee(s): PAFS-40 Facilities & Systems Group
- Scheduled day and time: Monday, July 12 11:30am - 12:30pm

**PRS - Processing Systems**

**Artificial Intelligence and Data Science Application in Food and Biological Material Processing**
- Live Session
- Organized by: Jian Shi
- Session Moderator: Jian Shi
- Sponsoring committee(s): PRS-06 General Program, PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing
- Scheduled day and time: Monday, July 12 1:00pm - 3:30pm

**Biochemical Conversion and Bioprocess Modeling**
- Lightning Session
- Organized by: Yi Wang
- Session Moderator: Yi Wang
Sponsoring committee(s): PRS-280 Bioconversion and Bioprocesses, ES-220 Biomass Energy & Industrial Byproducts
Scheduled day and time: Tuesday, July 13 10:00am - 11:30am

**Drying, Handling and Storage of Grain Crops - Drying of Cereal Grains**
Simulated Live Session
Organized by: Kingsly Ambrose
Session Moderator: Kingsly Ambrose
Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage
Scheduled day and time: Wednesday, July 14 1:00pm - 3:30pm

**Food Process Engineering**
Simulated Live Session
Organized by: Satyanarayan Dev
Session Moderator: Griffiths Atungulu
Sponsoring committee(s): PRS-703 Food Processing, PRS-01 POSTER SESSION
Scheduled day and time: Tuesday, July 13 10:00am - 12:30pm

**Food Safety Engineering**
Lightning Session
Organized by: Satyanarayan Dev
Session Moderator: Satyanarayan Dev
Sponsoring committee(s): PRS-703 Food Processing, PRS-01 POSTER SESSION
Scheduled day and time: Wednesday, July 14 10:00am - 11:30am

**Integrating Postharvest Crop Preservation into Autonomous Agricultural Production**
Live Session
Organized by: Kingsly Ambrose
Session Moderator: Kingsly Ambrose
Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage, PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing
Scheduled day and time: Wednesday, July 14 10:00am - 12:30pm

**Management and Treatment/Utilization Technologies for Organic Wastes and Byproducts**
Lightning Session
Organized by: Clairmont Clementson
Session Moderator: Tofiq Reza
Sponsoring committee(s): PRS-707 Food & Organic Waste Management & Utilization
Scheduled day and time: Wednesday, July 14 1:00pm - 2:30pm

**Measurement Techniques for Qualitative and Quantitative Biological Material Properties**
Lightning Session
Organized by: Eric Veikle
Session Moderator: Eric Veikle
Sponsoring committee(s): PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing
Scheduled day and time: Wednesday, July 14 11:30am - 12:30pm

**Modeling Crop and Feed Drying, Handling and Storage**
Lightning Session
Organized by: Kingsly Ambrose
Session Moderator: John Lawrence
Sponsoring committee(s): PRS-702 Crop & Feed Processing & Storage
Scheduled day and time: Tuesday, July 13 2:30pm - 3:30pm

Physical and Chemical Properties of Ag and Biological Products - Processing and Handling
Simulated Live Session
Organized by: Ashim Datta
Session Moderator: Ashim Datta
Sponsoring committee(s): PRS-701 Physical Properties of Ag & Biological Products, PRS-702 Crop & Feed Processing & Storage
Scheduled day and time: Tuesday, July 13 1:00pm - 3:30pm

Processing System POSTER SESSION
Poster Session
Organized by: Akinbode Adedeji
Session Moderator: Akinbode Adedeji
Sponsoring committee(s): PRS-01 POSTER SESSION, PRS-03 Processing Systems Standards Oversight, PRS-06 General Program, PRS-280 Bioconversion and Bioprocesses, PRS-293 US TAG for ISO TC 293 Feed Machinery, PRS-701 Physical Properties of Ag & Biological Products, PRS-702 Crop & Fee
Scheduled day and time: Thursday, July 15 10:00am - 11:30am; 11:30am - 12:30pm