The following is the list of sessions and session types for the 2022 AIM. Directly below, you will find the three different types of oral sessions being held and their definitions. As of April 21. *Schedule is subject to change.

**Oral Technical Sessions:** All presentations will have 12-13 minutes to talk at the podium with 2-3 minutes following for Q&A.

**Lightning Oral Technical Sessions:** In these sessions, presenting authors will have the opportunity to deliver a 3-minute summary 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. The full presentation videos will be viewable to all AIM registered guests on our meeting app.

**Spotlight Oral Technical Sessions:** These sessions will be a mixture of lightning presentations and standard oral presentations.

101 ASABE-ABET Accreditation for ASABE Engineering, Technology and Management Programs

*ASABE Special Interest Panel Discussion*

**Monday, 7/18/2022 9:30am - 12:00pm**

**Moderator(s):** Tom Brumm;

**Sponsoring Committee(s):** EOPD-204 Engineering & Technology Accreditation

Panelists: Andy Hale, NC State, Raleigh, North Carolina; Peter Livingston, Cal Poly, San Luis Obispo, California; Monica Gray, Coastal Carolina University, Conway, South Carolina; Tom Brumm, Iowa State University, Ames, Iowa

102 EOPD-Engineering Ethics in Academic and Research Settings

*EOPD - Education, Outreach, & Professional Development Guest Speaker Session*

**Monday, 7/18/2022 9:30am - 12:00pm**

**Moderator(s):** Dana Porter;

**Sponsoring Committee(s):** EOPD-412 Professional Ethics

103 Value-Added Chemicals and Materials

*ES - Energy Systems Oral Technical Session*

**Monday, 7/18/2022 9:30am - 12:00pm**

**Moderator(s):** Sushil Adhikari; Stephen Chmely

**Sponsoring Committee(s):** ES-220 Biomass Energy & Industrial Products

104 AI-Driven Tools and Technologies for High Throughput Phenotyping

*ITSC - Information Technology, Sensors & Control Systems Lightning Oral Technical Session*

**Monday, 7/18/2022 9:30am - 12:00pm**

**Moderator(s):** Afef Marzougui; Sindhuja Sankaran

**Sponsoring Committee(s):** ITSC-348 Electromagnetics & Spectroscopy

105 Computational Fluid Dynamics (CFD) Applications in Agriculture

*ITSC - Information Technology, Sensors & Control Systems Oral Technical Session*

**Monday, 7/18/2022 9:30am - 12:00pm**

**Moderator(s):** Christopher Choi;

**Sponsoring Committee(s):** ITSC-217 Computational Methods, Simulations & Applications
106 Connectivity, Cloud Computing, and Internet of Things in Agriculture and Natural Resources
ITSC - Information Technology, Sensors & Control Systems Spotlight Oral Technical Session
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Hasan Seyyedhasani;
Sponsoring Committee(s): ITSC-254 Emerging Information Systems, ITSC-217 Computational Methods, Simulations & Applications, NRES-21 Hydrology Group

107 Hyperspectral Imaging: Advances in Technologies, Analytics, and Applications
ITSC - Information Technology, Sensors & Control Systems Spotlight Oral Technical Session
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Dongyi Wang; Haibo Yao
Sponsoring Committee(s): ITSC-348 Electromagnetics & Spectroscopy

108 ITSC-Overview of Entrepreneurship and Commercialization-PANEL
ITSC - Information Technology, Sensors & Control Systems Panel Discussion
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Evangelyn Alocilja; Xinge Xi
Sponsoring Committee(s): ITSC-230 Biosensors, ITSC-348 Electromagnetics & Spectroscopy, ITSC-254 Emerging Information Systems, NRES-28 Ecological Engineering; NRES-24 Irrigation Group
Panelists: Evangelyn Alocilja, Michigan State University, East Lansing, Michigan; John Chamberlin, Chamberlin Research, Little Rock, Arkansas

109 Machine Learning in Agriculture and Natural Resources I
ITSC - Information Technology, Sensors & Control Systems Lightning Oral Technical Session
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Zhou Zhang; Zhou Zhang
Sponsoring Committee(s): ITSC-254 Emerging Information Systems, PAFS-30 Plant Systems Group, NRES-21 Hydrology Group

110 Advances in Cotton Engineering
MS - Machinery Systems Oral Technical Session
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Jason Ward;
Sponsoring Committee(s): MS-23/7/3 Cotton Engineering

111 Advances in Seeding and Tillage Technology
MS - Machinery Systems Oral Technical Session
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Jason Werning; Virk Simerjeet
Sponsoring Committee(s): MS-49 Crop Production Systems, Machinery, and Logistics, MS-45 Soil-Plant-Machine Dynamics

112 Advances in Soil-Plant-Machine Dynamics and Systems Simulation I
MS - Machinery Systems Oral Technical Session
Monday, 7/18/2022 9:30am - 12:00pm
Moderator(s): Rayhan Shaheb;
Sponsoring Committee(s): MS-45 Soil-Plant-Machine Dynamics

113 UAS Applications in Precision Agriculture I
MS - Machinery Systems Oral Technical Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Lav Khot;
Sponsoring Committee(s): MS-60 Unmanned Aerial Systems, MS-54 Precision Agriculture

114 NRES Distinguished Lecture Series
NRES - Natural Resources & Environmental Systems Guest Speaker Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Adel Shirmohammadi;
Sponsoring Committee(s):

115 Environmental Management and Biosecurity
PAFS - Plant, Animal, & Facility Systems Oral Technical Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Morgan Hayes;
Sponsoring Committee(s): PAFS-40 Facilities & Systems Group

116 Biochemical Conversion and Bioprocess Modeling
PRS - Processing Systems Oral Technical Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Hasan Atiyeh; Yi Wang
Sponsoring Committee(s): PRS-280 Bioconversion and Bioprocesses, ES-220 Biomass Energy & Industrial Byproducts

117 Food Process Engineering
PRS - Processing Systems Oral Technical Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Griffiths Atungulu;
Sponsoring Committee(s): PRS-703 Food Processing

118 PRS-Grain Safety Invited Session
PRS - Processing Systems Guest Speaker Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Ashim Datta;
Sponsoring Committee(s): PRS-702 Crop & Feed Processing & Storage

119 PRS-Processing Systems POSTER SESSION
PRS - Processing Systems Poster Technical Session
Monday, 7/18/2022  9:30am - 12:00pm
Moderator(s): Juliana Vasco-Correa; Deepak Kumar
Sponsoring Committee(s): PRS-01 POSTER SESSION, PRS-06 General Program

120 Tips for Success in Grant Funding-PANEL
ASABE Special Interest Panel Discussion
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): Shafiqur Rahman; Ganesh Bora
Sponsoring Committee(s):
Panelists: Steven Thomson, Hongda Chen, Ganesh Bora, Shafiqur Rahman. In this session, a brief presentation of various significant competitive grants opportunities at NIFA will be presented to set a stage for a panel discussion by experienced National Pr

121 AOCABFE China Exchange Forum: Collaborative Research in Sustainable Agriculture during COVID Pandemic
E-2050 - Global Engagement Guest Speaker Session
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): Sarah Wu;
Sponsoring Committee(s): AOCABFE

122 Post Pandemics Lesson Learned, Opportunities and Challenges in Developing Economies
E-2050 - Global Engagement Guest Speaker Session
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): Kaushik Luthra; Luc Hebou
Sponsoring Committee(s): E-2050 Global Engagement

123 EOPD-What is Extension Engineering?
EOPD - Education, Outreach, & Professional Development Panel Discussion
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): Gary Hawkins;
Sponsoring Committee(s): EOPD-208 Extension
Panelists: Douglas W. Hamilton, Ph.D., P.E., Oklahoma State University; Fouad Jaber, Ph.D., P.E., Texas A&M AgriLife Extension, Dallas, Texas

124 Thermochemical Conversion of Biomass to Biofuels
ES - Energy Systems Oral Technical Session
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): Mi Li; Sandun Fernando
Sponsoring Committee(s): ES-220 Biomass Energy & Industrial Products

125 Agricultural Automation, Robotics, and Technology: New Risks & Safety Opportunities
ESH - Ergonomics, Safety & Health Oral Technical Session
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): John Shutske;
Sponsoring Committee(s): ESH-04 Technology Exchange, ITSC-318 Mechatronics & Biorobotics, EOPD-205 Engineering Technology & Management Education, ESH-04/1 Journal of Agricultural Safety and Health, ESH-04/2 Farmers With Disabilities Technology Exchange, MS-58 Agricultural Equipme

126 Machine Learning in Agriculture and Natural Resources II
ITSC - Information Technology, Sensors & Control Systems Lightning Oral Technical Session
Monday, 7/18/2022    2:30pm - 5:00pm
Moderator(s): Zhou Zhang; Zhou Zhang
Sponsoring Committee(s): ITSC-254 Emerging Information Systems, PAFS-30 Plant Systems Group, NRES-21 Hydrology Group

### 127 Machine Vision Applications on Mobile Devices for Agricultural Systems-HYBRID

**ITSC - Information Technology, Sensors & Control Systems Lightning Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Josh Peschel;  
**Sponsoring Committee(s):** ITSC-254 Emerging Information Systems, PAFS-30 Plant Systems Group

### 128 Robotics and AI-Enabled Robotics for Agriculture, Food and Natural Resources

**ITSC - Information Technology, Sensors & Control Systems Lightning Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Dongyi Wang; Santosh Pitla  
**Sponsoring Committee(s):** ITSC-318 Mechatronics & Biorobotics

### 129 Spectroscopic Sensing and Imaging for Agriculture and Food Systems

**ITSC - Information Technology, Sensors & Control Systems Lightning Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Shih-Fang Chen; Peter Larbi  
**Sponsoring Committee(s):** ITSC-348 Electromagnetics & Spectroscopy

### 130 Machinery Systems for Crop Production I

**MS - Machinery Systems Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Virk Simerjeet; Virk Simerjeet  
**Sponsoring Committee(s):** MS-49 Crop Production Systems, Machinery, and Logistics

### 131 UAS Applications in Precision Agriculture II

**MS - Machinery Systems Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Lav Khot;  
**Sponsoring Committee(s):** MS-60 Unmanned Aerial Systems, MS-54 Precision Agriculture

### 132 Advances in Drainage Design and Modeling

**NRES - Natural Resources & Environmental Systems Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Ehsan Ghane;  
**Sponsoring Committee(s):** NRES-23 Drainage Group

### 133 Advances in Sprinkler and Variable Rate Irrigation

**NRES - Natural Resources & Environmental Systems Oral Technical Session**  
**Monday, 7/18/2022  2:30pm - 5:00pm**  
**Moderator(s):** Xin Qiao; Burdette Barker  
**Sponsoring Committee(s):** NRES-24 Irrigation Group, NRES-241 Sprinkler Irrigation
134 Anaerobic Digestion
NRES - Natural Resources & Environmental Systems Oral Technical Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Doug Hamilton;
Sponsoring Committee(s): NRES-27 Ag Byproducts & Animal Mortality Systems, PRS-707 Food & Organic Waste Management & Utilization

135 Digital Water- Management, Analysis, Modeling, and Hydrological Assets-HYBRID
NRES - Natural Resources & Environmental Systems Hybrid Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Sherry Hunt; Debabrata Sahoo
Sponsoring Committee(s): NRES-21 Hydrology Group

136 Evapotranspiration in Irrigation Management
NRES - Natural Resources & Environmental Systems Oral Technical Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Vivek Sharma;
Sponsoring Committee(s): NRES-24 Irrigation Group

137 Green Infrastructure and Emerging Contaminants
NRES - Natural Resources & Environmental Systems Oral Technical Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Caleb Mitchell;
Sponsoring Committee(s): NRES-25 Streams, Reservoirs, and Wetlands Group

138 Nutrient Removal, Recovery, and Recycle: Manure and Wastewater Treatment
NRES - Natural Resources & Environmental Systems Oral Technical Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Jaime Thissen;
Sponsoring Committee(s):

139 Vulnerability of Land Resources for Sustainable Development: Stressors and Responses-HYBRID
NRES - Natural Resources & Environmental Systems Hybrid Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Aavudai Anandhi; Tushar Sinha
Sponsoring Committee(s): NRES-26 Sustainable Land Resources

140 Agri-Industrial Facility Design and Operation
PAFS - Plant, Animal, & Facility Systems Lightning Oral Technical Session
Monday, 7/18/2022  2:30pm - 5:00pm
Moderator(s): Greg Williams;
Sponsoring Committee(s): PAFS-20 Structures Group, PRS-703 Food Processing, PRS-701 Physical Properties of Ag & Biological Products, PRS-702 Crop & Feed Processing & Storage

141 Precision (SMART) Animal Management
PAFS - Plant, Animal, & Facility Systems Lightning Oral Technical Session
Monday, 7/18/2022  2:30pm - 5:00pm  
**Moderator(s):** Joshua Sander;  
**Sponsoring Committee(s):** PAFS-40 Facilities & Systems Group  

### 142 Food Safety Engineering  
**PRS - Processing Systems Oral Technical Session**  
Monday, 7/18/2022  2:30pm - 5:00pm  
**Moderator(s):** Stephen Walker;  
**Sponsoring Committee(s):** PRS-703 Food Processing  

### 143 Management and Upcycling of Organic Wastes and Byproducts  
**PRS - Processing Systems Oral Technical Session**  
Monday, 7/18/2022  2:30pm - 5:00pm  
**Moderator(s):** Kenneth Hellevang;  
**Sponsoring Committee(s):** PRS-707 Food & Organic Waste Management & Utilization, PRS-280 Bioconversion and Bioprocesses  

### 144 NRES-Natural Resources & Environmental Systems POSTER SESSION  
**NRES - Natural Resources & Environmental Systems Poster Technical Session**  
Monday, 7/18/2022  4:30pm - 7:00pm  
**Moderator(s):** Anita Thompson;  
**Sponsoring Committee(s):** NRES-01 POSTER SESSION, NRES-28 Ecological Engineering, NRES-21 Hydrology Group, NRES-22 Erosion Control Group, NRES-23 Drainage Group, NRES-24 Irrigation Group, NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-26 Sustainable Land Resources, NRES-27  

### 201 ASABE-Administrators’ Facilitated Rap Session: Fostering a Culture Toward Greater IDEA  
**ASABE Special Interest Rap Session**  
Tuesday, 7/19/2022  9:30am - 10:30am  
**Moderator(s):** Kati Migliaccio; Sue Nokes  
**Sponsoring Committee(s):**  

### 202 Wood-Based Energy and Products  
**ASE - Applied Science & Engineering Oral Technical Session**  
Tuesday, 7/19/2022  9:30am - 12:00pm  
**Moderator(s):** Toufiq Reza;  
**Sponsoring Committee(s):** ASE-12 Forest Engineering  

### 203 E-2050-Alliance for Modernizing African Agri-Food System  
**E-2050 - Global Engagement Guest Speaker Session**  
Tuesday, 7/19/2022  9:30am - 12:00pm  
**Moderator(s):** Ajit Srivatsava; Margaret Gitau  
**Sponsoring Committee(s):** E-2050 Global Engagement  

### 204 Innovation and Integration of Instruction  
**EOPD - Education, Outreach, & Professional Development Lightning Oral Technical Session**  
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Tom Brumm;
Sponsoring Committee(s): EOPD-205 Engineering Technology & Management Education, EOPD-203 Undergraduate & Graduate Instruction, EOPD-204 Engineering & Technology Accreditation

205 ES-Recent Advancement in Renewable Energy Resources and Technologies

*ES - Energy Systems Guest Speaker Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Xianhui Zhao; Jaya Tumuluru
Sponsoring Committee(s): ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts

206 Techno-Economic and Life Cycle Assessment of Biomass Conversion and Agricultural Systems

*ES - Energy Systems Oral Technical Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Deepak Kumar; Brendan Higgins
Sponsoring Committee(s): ES-220 Biomass Energy & Industrial Products, PRS-280 Bioconversion and Bioprocesses

207 Safety Modifications and Assistive Technologies for Agricultural Production

*ESH - Ergonomics, Safety & Health Oral Technical Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Bill Field; Michael Pate
Sponsoring Committee(s): ESH-04/2 Farmers With Disabilities Technology Exchange, ESH-04/1 Journal of Agricultural Safety and Health, EOPD-205 Engineering Technology & Management Education, EOPD-208 Extension, ESH-04 Technology Exchange

208 ITSC-Information Technology, Sensors & Control Systems POSTER SESSION

*ITSC - Information Technology, Sensors & Control Systems Poster Technical Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Lav Khot; Jiang Yu Jiang
Sponsoring Committee(s): ITSC-All

209 Machinery Data and Task Optimization I

*MS - Machinery Systems Oral Technical Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Mark Siemens; Mark Siemens
Sponsoring Committee(s): MS-49 Crop Production Systems, Machinery, and Logistics

210 Machinery Systems for Crop Production II

*MS - Machinery Systems Oral Technical Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Jianfeng Zhou; Virk Simerjeet
Sponsoring Committee(s): MS-49 Crop Production Systems, Machinery, and Logistics

211 Advances in Hydrologic Modeling of Agroecosystems of various Complexities

*NRES - Natural Resources & Environmental Systems Oral Technical Session*
Tuesday, 7/19/2022  9:30am - 12:00pm
Moderator(s): Devendra Amatya; Sushant Mehan
Sponsoring Committee(s): NRES-21 Hydrology Group, NRES-253 Riparian Zones, Floodplains, & Wetlands, NRES-23 Drainage Group

212 Agricultural Conservation Practice Implementation and Assessment
NRES - Natural Resources & Environmental Systems Oral Technical Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): Paula Steiner; Laxmi Prasad
Sponsoring Committee(s): NRES-22 Erosion Control Group, NRES-225 Conservation Systems

213 Applied Ecological Engineering in Water Systems-HYBRID
NRES - Natural Resources & Environmental Systems Hybrid Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): John McMaine;
Sponsoring Committee(s): NRES-28 Ecological Engineering, NRES-25 Streams, Reservoirs, and Wetlands Group

214 Conservation Drainage Practices for Reducing Nutrient Loss
NRES - Natural Resources & Environmental Systems Oral Technical Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): Vinayak Shedekar;
Sponsoring Committee(s): NRES-23 Drainage Group

215 Dam-Why Should You Care?
NRES - Natural Resources & Environmental Systems Oral Technical Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): Sherry Hunt;
Sponsoring Committee(s): NRES-25 Streams, Reservoirs, and Wetlands Group

216 Emerging Contaminants, Pathogens, and Antibiotic Resistance
NRES - Natural Resources & Environmental Systems Oral Technical Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): Tiffany Messer; Lindsey Hartfiel
Sponsoring Committee(s): NRES-28 Ecological Engineering, NRES-25 Streams, Reservoirs, and Wetlands Group

217 Erosion in Fields and Streams, Research, Modeling and Case Studies
NRES - Natural Resources & Environmental Systems Oral Technical Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): Gary Hawkins; Vahid Rahmani
Sponsoring Committee(s): NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-252 Geomrphlogy, Streambk Stblty & In-Stream Processes

218 Machine Learning and Process-Based Models for Hydrologic Simulation
NRES - Natural Resources & Environmental Systems Oral Technical Session
Tuesday, 7/19/2022 9:30am - 12:00pm
Moderator(s): Clement Sohoulande;
Sponsoring Committee(s): NRES-21 Hydrology Group
219 NRES-Regional Manure Nutrient Balance
NRES - Natural Resources & Environmental Systems Guest Speaker Session
Tuesday, 7/19/2022   9:30am - 12:00pm
Moderator(s): Clifford Fedler; Zong Liu
Sponsoring Committee(s): NRES-27 Ag Byproducts & Animal Mortality Systems

220 PAFS-Plant, Animal & Facilities POSTER SESSION
PAFS - Plant, Animal, & Facility Systems Poster Technical Session
Tuesday, 7/19/2022   9:30am - 12:00pm
Moderator(s): Shafiqur Rahman; Ademola Ajayibanji
Sponsoring Committee(s): PAFS-01 POSTER SESSION, PAFS-50 Environmental Air Quality, PAFS-20 Structures Group, PAFS-30 Plant Systems Group, PAFS-40 Facilities & Systems Group

221 AI and Data Science Application in Food and Biological Material Processing-HYBRID
PRS - Processing Systems Hybrid Session
Tuesday, 7/19/2022   9:30am - 12:00pm
Moderator(s): Sarah Wu; Juliana Vasco-Correa
Sponsoring Committee(s): PRS-06 General Program, ITSC-217 Computational Methods, Simulations & Applications, PRS-280 Bioconversion and Bioprocesses, PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing

222 ASABE-Listening Session – BIPOC Community-RAP Session
ASABE Special Interest Rap Session
Tuesday, 7/19/2022   10:30am - 11:30am
Moderator(s): Janie Moore;
Sponsoring Committee(s):

223 ASABE-Becoming Inclusive: A Worthy Pursuit in Cultivating Access
ASABE Special Interest Guest Speaker Session
Tuesday, 7/19/2022   2:30pm - 5:00pm
Moderator(s): Sue E Nokes; Mark Riley
Sponsoring Committee(s): EOPD-416 Continuing Professional Development
Invited talk open to all conference attendees, Becoming Inclusive: A Worthy Pursuit in Cultivating Access with Dr. Helen Fagan

224 ASE-Applied Science and Engineering POSTER SESSION
ASE - Applied Science & Engineering Poster Technical Session
Tuesday, 7/19/2022   2:30pm - 5:00pm
Moderator(s): Catie Brewer;
Sponsoring Committee(s):

225 Modernizing African Agriculture
E-2050 - Global Engagement Oral Technical Session
Tuesday, 7/19/2022   2:30pm - 5:00pm
Moderator(s): Kumar Mallikarjunan; Margaret Gitau
Sponsoring Committee(s): E-2050 Global Engagement

226 EOPD-Education, Outreach, & Professional Development POSTER SESSION
EOPD - Education, Outreach, & Professional Development Poster Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s): Jennifer Keshwani;  
Sponsoring Committee(s): EOPD-203 Undergraduate & Graduate Instruction, EOPD-205 Engineering Technology & Management Education, EOPD-206 Ag Technology & Mgmt Curriculum Review & Program Recog

227 ES-Energy Systems POSTER SESSION  
ES - Energy Systems Poster Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s): Jaya Shankar Tumuluru; Ganti Murthy  
Sponsoring Committee(s): ES-220 Biomass Energy & Industrial Products

228 ESH-Ergonomics, Safety, & Health POSTER SESSION  
ESH - Ergonomics, Safety & Health Poster Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s): Michael Pate;  
Sponsoring Committee(s): ESH-04 Technology Exchange, ESH-04/2 Farmers With Disabilities Technology Exchange, ESH-01 POSTER SESSION, ESH-04/1 Journal of Agricultural Safety and Health

229 Innovations in Precision Agriculture  
MS - Machinery Systems Oral Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s): Michael Sama;  
Sponsoring Committee(s): MS-54 Precision Agriculture, ITSC-353 Instrumentation & Controls

230 Machinery Data and Task Optimization II  
MS - Machinery Systems Oral Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s): John Long; Mark Siemens  
Sponsoring Committee(s): MS-49 Crop Production Systems, Machinery, and Logistics

231 Robotics & Mechanization for Production and Postharvest of Specialty Crops I  
MS - Machinery Systems Oral Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s): Jianfeng Zhou; Long He  
Sponsoring Committee(s): MS-48 Specialty Crop Engineering, MS-01 POSTER SESSION, ITSC-01 POSTER SESSION, ITSC-312 Machine Vision, 318 Mechatronics & Biorobotics, MS-23/6/4 Spray Application Modeling, MS-54 Precision Agriculture

232 Agricultural Water Management: Monitoring and Modeling  
NRES - Natural Resources & Environmental Systems Oral Technical Session  
Tuesday, 7/19/2022  2:30pm - 5:00pm  
Moderator(s):  
Sponsoring Committee(s):

233 Application of Data Driven Models in Irrigation System Design, Analysis and Management
234 Barriers and Opportunities of Adoption of Manure and Agricultural Byproducts Management

235 Extreme Event Hydrologic and Water Quality Modeling

236 Monitoring Standards: Applications, Methods and Technologies-HYBRID

237 NRES-Drainage Education in the 21st century – Honoring the Career of Dr. Larry Brown & Andy Ward

238 Nutrient Removal, Recovery, and Recycle

239 Water Reuse in Agriculture

240 Air Emission from Livestock and Poultry Production
241 ASABE - New Standards for HVAC in Indoor Plant Environments Without Sunlight - and CEA Session-HYBRID
PAFS - Plant, Animal, & Facility Systems Hybrid Session
Tuesday, 7/19/2022 2:30pm - 5:00pm
Moderator(s): Jonathan Maisonneuve; Mark Lefsrud
Sponsoring Committee(s): PAFS-30 Plant Systems Group

242 Technology Trends and Career Opportunities in the U.S. and Korea
E-2050 - Global Engagement Guest Speaker Session
Tuesday, 7/19/2022 5:15pm - 7:00pm
Moderator(s): Young Gu Her;
Sponsoring Committee(s): E-2050 Global Engagement

301 ASABE-BIPOC Issues Related to ASABE and Biosystems and Agricultural Engineering as a Profession
ASABE Special Interest Guest Speaker Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Janie Moore;
Sponsoring Committee(s): EOPD-203 Undergraduate & Graduate Instruction, E-2050 Global Engagement

302 Global Engagement through the Appropriate Scale Mechanization Consortium (ASMC)
E-2050 - Global Engagement Guest Speaker Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Monjurul Alam;
Sponsoring Committee(s): E-2050 Global Engagement, ASE-16 Engineering for Sustainability
Panelists: Gajendra Singh, ASMC, University of Illinois, Urbana, Illinois; Monjurul Alam, Bangladesh Agricultural University, Mymensingh, Bangladesh; Subrata Das, ACI Motors LTD, Dhaka, Bangladesh; Kerry Clark, University of Missouri, Columbia, Missouri.

303 EOPD-Practical Tips to Create Inclusive Classrooms
EOPD - Education, Outreach, & Professional Development Rap Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Deepak Keshwani;
Sponsoring Committee(s): EOPD-203 Undergraduate & Graduate Instruction
Are you interested in creating an inclusive learning environment and supporting the needs of diverse learners? Plan to attend this informal RAP session and engage with your peers to share and learn practical strategies to create inclusive learning envirom

304 Biomass Feedstock Supply Logistics and Modeling
ES - Energy Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Jaya Shankar Tumuluru; Ajay Shah
Sponsoring Committee(s): ES-220 Biomass Energy & Industrial Products, ASE-12 Forest Engineering, MS-23/7/2 Forage & Biomass Engineering
305 Renewable Energy Resources and Technologies
ES - Energy Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Fei Yu; Lin Wei
Sponsoring Committee(s): ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts

306 State of Energy Efficiency and Value Added Chemicals
ES - Energy Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Bobby Hardin;
Sponsoring Committee(s): ES-300 Electrical Utilization & Energy Apps, ES-310 Ag Lighting Group, PAFS-30 Plant Systems Group

307 Advanced Computations in Agricultural and Biological Engineering
ITSC - Information Technology, Sensors & Control Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Hugo Milan; Oluwafemi Oyediji
Sponsoring Committee(s): ITSC-217 Computational Methods, Simulations & Applications

308 Biosensors and Bioelectronics in Food and Agriculture
ITSC - Information Technology, Sensors & Control Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Xinge Xi; Fei Jia
Sponsoring Committee(s): ITSC-230 Biosensors

309 Mechatronics and Actuation in Unmanned Aerial and Ground Vehicles
ITSC - Information Technology, Sensors & Control Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Vinay Vijayakumar; Yiannis Ampatzidis
Sponsoring Committee(s): ITSC-318 Mechatronics & Biorobotics

310 Precision Application for Crop Protection Product and Fertilizer I
MS - Machinery Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Dan Cederberg;
Sponsoring Committee(s): MS-23 & US TAG ISO/TC23, MS-54 Precision Agriculture

311 Robotics & Mechanization for Production and Postharvest of Specialty Crops II
MS - Machinery Systems Oral Technical Session
Wednesday, 7/20/2022 7:30am - 10:00am
Moderator(s): Xin Zhang; Long He
Sponsoring Committee(s): MS-48 Specialty Crop Engineering, MS-01 POSTER SESSION, ITSC-01 POSTER SESSION, ITSC-312 Machine Vision, 318 Mechatronics & Biorobotics, MS-23/6/4 Spray Application Modeling, MS-54 Precision Agriculture
312 Nutrient Cycling, Transport and Management
*NRES - Natural Resources & Environmental Systems Oral Technical Session*
*Wednesday, 7/20/2022 7:30am - 10:00am*
**Moderator(s):** Rabin Bhattarai; Kritika Malhotra
**Sponsoring Committee(s):** NRES-22 Erosion Control Group, NRES-28 Ecological Engineering, NRES-21 Hydrology Group, NRES-224 Sediment and Associated Pollutants, NRES-23 Drainage Group, NRES-26 Sustainable Land Resources

313 Surface Irrigation and Water Supplies
*NRES - Natural Resources & Environmental Systems Oral Technical Session*
*Wednesday, 7/20/2022 7:30am - 10:00am*
**Moderator(s):** Mary Love Tagert; Saleh Taghvaeian
**Sponsoring Committee(s):** NRES-24 Irrigation Group, NRES-242 Surface Irrigation & Water Supply

314 Animal Response to Environment
*PAFS - Plant, Animal, & Facility Systems Oral Technical Session*
*Wednesday, 7/20/2022 7:30am - 10:00am*
**Moderator(s):** John Linhoss;
**Sponsoring Committee(s):** PAFS-40 Facilities & Systems Group

315 Measurement, Mitigation and Modeling of Air Pollution from Livestock and Poultry Facilities
*PAFS - Plant, Animal, & Facility Systems Oral Technical Session*
*Wednesday, 7/20/2022 7:30am - 10:00am*
**Moderator(s):** Lilong Chai;
**Sponsoring Committee(s):** PAFS-50 Environmental Air Quality

316 Modeling Crop and Feed Drying, Handling and Storage
*PRS - Processing Systems Oral Technical Session*
*Wednesday, 7/20/2022 7:30am - 10:00am*
**Moderator(s):** Toufiq Reza;
**Sponsoring Committee(s):** PRS-702 Crop & Feed Processing & Storage, ITSC-217 Computational Methods, Simulations & Applications

317 Physical and Chemical Properties of Food, Agricultural, and Biological Materials
*PRS - Processing Systems Oral Technical Session*
*Wednesday, 7/20/2022 7:30am - 10:00am*
**Moderator(s):** John Lawrence; Mohammad Kamruzzaman
**Sponsoring Committee(s):** PRS-701 Physical Properties of Ag & Biological Products, PRS-702 Crop & Feed Processing & Storage

318 ASABE-Brainstorming and IDEA Session on Diversity and Inclusion
*ASABE Special Interest Guest Speaker Session*
*Wednesday, 7/20/2022 10:15am - 11:45am*
**Moderator(s):** Sue Nokes;
**Sponsoring Committee(s):** EOPD-416 Continuing Professional Development, E-2050 Global Engagement
Roundtable discussion with Dr. Fagan
319 Advances in Biomass Preprocessing and Pretreatment

*ES - Energy Systems Oral Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Nurun Nahar; Juliana Vasco-Correa

**Sponsoring Committee(s):** ES-220 Biomass Energy & Industrial Products, ASE-12 Forest Engineering, MS-23/7/2 Forage & Biomass Engineering

320 Big Data Management and Visualization

*ITSC - Information Technology, Sensors & Control Systems Oral Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Ziwen Yu; Sami Khanal

**Sponsoring Committee(s):** ITSC-254 Emerging Information Systems, MS-23/19/3 Electronics for Identification (Animal), MS-23/19/1 Electronics for Mobile Equipment (ISOBUS), NRES-21 Hydrology Group

321 Discrete Element Modelling (DEM) Applications in Agriculture

*ITSC - Information Technology, Sensors & Control Systems Oral Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Mehari Tekeste; John Fielske

**Sponsoring Committee(s):** ITSC-217 Computational Methods, Simulations & Applications

322 Emerging Technologies for Biological Sensing

*ITSC - Information Technology, Sensors & Control Systems Oral Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Xinge Xi; Fei Jia

**Sponsoring Committee(s):** ITSC-230 Biosensors

323 MS-Machinery Systems POSTER SESSION

*MS - Machinery Systems Poster Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Yu Jiang; Yu Jiang

**Sponsoring Committee(s):** MS-48 Specialty Crop Engineering, MS-01 POSTER SESSION, ITSC-01 POSTER SESSION, 318 Mechatronics & Biorobotics, MS-48 Specialty Crop Engineering, MS-58 Agricultural Equipment Automation

324 Precision Application for Crop Protection Product and Fertilizer II

*MS - Machinery Systems Oral Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Dan Cederberg;

**Sponsoring Committee(s):** MS-23 & US TAG ISO/TC23, MS-54 Precision Agriculture

325 Robotics & Mechanization for Production and Postharvest of Specialty Crops III

*MS - Machinery Systems Oral Technical Session*

*Wednesday, 7/20/2022 10:15am - 12:15pm*

**Moderator(s):** Long He; Long He

**Sponsoring Committee(s):** MS-48 Specialty Crop Engineering, MS-01 POSTER SESSION, ITSC-01 POSTER SESSION, ITSC-312 Machine Vision, 318 Mechatronics & Biorobotics, MS-23/6/4 Spray Application Modeling, MS-54 Precision Agriculture
326 Agricultural Conservation Practices under Changing Climate and Urbanization
NRES - Natural Resources & Environmental Systems Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Yuan Yongping; Brock Kamrath
Sponsoring Committee(s): NRES-26 Sustainable Land Resources

327 Data and Water Management: Volume, Velocity, and Variety
NRES - Natural Resources & Environmental Systems Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Sushant Mehan; Abhinav Sharma
Sponsoring Committee(s): NRES-21 Hydrology Group

328 Hydraulic Structures & Rehab in the Gulf Coast and Beyond
NRES - Natural Resources & Environmental Systems Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Vahid Rahmani; Richard Scholtz
Sponsoring Committee(s): NRES-25 Streams, Reservoirs, and Wetlands Group

329 Microirrigation Applications in Agriculture and Landscape Irrigation
NRES - Natural Resources & Environmental Systems Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Haimanote Bayabil; Charles Swanson
Sponsoring Committee(s): NRES-24 Irrigation Group, NRES-246 Turf & Landscape Irrigation, NRES-245 Microirrigation

330 Sustainable Agriculture and Natural Resource Management
NRES - Natural Resources & Environmental Systems Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Sanjay Shukla; Meredith Brock
Sponsoring Committee(s): NRES-22 Erosion Control Group, NRES-225 Conservation Systems

331 Soil and Water Conservation Engineering and Management
NRES - Natural Resources & Environmental Systems Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Vivek Sharma; Uday Vaddevolu
Sponsoring Committee(s): NRES-25 Streams, Reservoirs, and Wetlands Group

332 PAFS Distinguished Lecture Series
PAFS - Plant, Animal, & Facility Systems Guest Speaker Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Josh Jackson;
Sponsoring Committee(s): PAFS-40 Facilities & Systems Group

333 Drying, Handling, and Storage of Grain Crops
PRS - Processing Systems Spotlight Oral Technical Session
Wednesday, 7/20/2022 10:15am - 12:15pm
Moderator(s): Ma. Cristine Ignacio;
Sponsoring Committee(s): PRS-702 Crop & Feed Processing & Storage
334 Emerging Techniques for Measuring Properties of Biological Material

PRS - Processing Systems Oral Technical Session

Wednesday, 7/20/2022 10:15am - 12:15pm

Moderator(s): Lamin Kassama; Seth Acquaah

Sponsoring Committee(s): PRS-701 Physical Properties of Ag & Biological Products, PRS-703 Food Processing