

Tuesday, July 19

Coffee and tea are available in the Houston Ballroom during the following times: Monday and Tuesday 10:00am-11:30am and 2:30pm-4:00pm, and Wednesday 8:00am-9:30am.

201 ASABE-Administrators' Facilitated Rap Session: Fostering a Culture Toward Greater IDEA - Guest Speaker Session

Tuesday, July 19, 9:30am-10:30am

Location: Liberty A

Sponsored By: EOPD-210 Department Heads, E-03 Inclusion, Diversity, Equity, and Access, EOPD-203 Undergraduate and Graduate Instruction

Moderated By: Kati Migliaccio; Sue Nokes

202 Wood-Based Energy and Products

Tuesday, July 19, 9:30am-12:00pm

Location: Liberty B

Sponsored By: ASE-12 Forest Engineering

Moderated By: Toufiq Reza

9:35am *Optimizing Biomass Storage Facility Configuration to Minimize Supply Chain Risk and Vulnerability* • Presenting Author: Erin Webb, ORNL, Oak Ridge, Tennessee (Haley Stauffer, Tom Richard, John Field, Robin Clark) 2200869

9:50am *Using Acoustic Technology to Inform Bucking Practices* • Presenting Author: Dana Mitchell, USDA Forest Service Southern Research Station, Auburn, Alabama (Mathew Smidt, Munkaila Musah, Edd Watson, Brian Via, Jeff Cannon) 2200496

10:05am *Combustion Kinetics of Waste Corn-Stover Hydrochar by Cone Calorimeter* • Presenting Author: M. Toufiq Reza, Florida Institute of Technology, Melbourne, Florida (Md. Tahmid Islam, Jordan Klinger) 2200709

10:20am *Treatment and recycle reuse of greenhouse leached nutrient wastewater applying sorption with hydrochar and activated carbon followed by RO filtration* • Presenting Author: Abu Taher Jamal Uddin, University of Guelph, Ontario, Canada (Takashi Matsuura, Fadi AL-Daoud, Richard G. Zytner) 2200409

10:35am BREAK

10:45am *Assessment of surface area by different techniques, nutrient removal and scope of improved activated carbon from tomato plant biomass* • Presenting Author: Abu Taher Jamal Uddin, University of Guelph, Ontario, Canada (Shakirudeen A. Salaudeen, Animesh Dutta, Richard G. Zytner) 2200663

11:00am *Comparison of pine and miscanthus biochar physiochemical properties and impact on Escherichia coli populations in broiler litter* • Presenting Author: Maryam Mohammadi-Aragh, Mississippi State University, Mississippi State, Mississippi (John E. Linhoss, Christopher A. Marty, Jeffrey D. Evans, Joseph L. Purswell, Bernardo Chaves-Cordoba, J. Wesley Lowe, G. Daniel Chesser, Jr.) 2200324

11:15am *Developing biocomposites for large-scale additive manufacturing from low-value biomass fractions* • Presenting Author: Xianhui Zhao, Oak Ridge National Laboratory, Oak Ridge,

Tennessee (Oluwafemi Oyedeji, Kai Li, Halil Tekinalp, Luke Williams, Soydan Ozcan, Erin Webb) 2200388

11:30am *Effect of lignocellulosic biopolymers in the development of surface porosity and gas storage capacity of superactivated hydrochars* • Presenting Author: M. Toufiq Reza, Florida Institute of Technology, Melbourne, Florida (Al Ibtida Sultana) 2200708

11:45am *Effect of biochar-based control release fertilizers on corn growth in greenhouse trials* • Presenting Author: Lin Wei, South Dakota State University, Brookings, South Dakota (Sikander Ameer, Lin Wei, Yajun Wu, Robiul I. Rubel) 2200337

203 E-2050-Alliance for Modernizing African Agri-Food System - Guest Speaker Session

Tuesday, July 19, 9:30am-12:00pm

Location: Memorial

Sponsored By: E-2050 Global Engagement

Moderated By: Ajit Srivatsava; Margaret Gitau

9:30am Panel Discussion • Panelists: Kumar Mallikarjunan; Terry Howell; Dirk Maier; Michael Ngadi
Improving the Driving Capabilities of a Well-Driver PUP (Purdue Utility Project) to Install Low-Cost Driven Water Wells • Presenting Author: Robert M. Stwalley III, Purdue University, West Lafayette, Indiana (Grace L. Baldwin, Tyler J. McPheron) 2200203

204 Innovation and Integration of Instruction

Tuesday, July 19, 9:30am-12:00pm

Location: Westchase

Sponsored By: EOPD-205 Engineering Technology & Management Education, EOPD-203 Undergraduate & Graduate Instruction, EOPD-204 Engineering & Technology Accreditation

Moderated By: Tom Brumm

9:35am *3D Printing with Bioplastics: An Educational Workshop to Introduce 4-H Teens to Engineering and Biotechnology* • Presenting Author: Tanya C. Franke-Dvorak, Ph.D., University of Kentucky, Lexington, Kentucky (Lillian Kirby, Abbey Osborne) 2200096

9:40am *Development of a Life Long Learning concept for smart farming* • Presenting Author: Heinz Bernhardt, Technical University of Munich, Freising, Germany (Maximilian Treiber, Christina Paulus, Andreas, Gronauer, Fabrizio Mazzetto, Andreas Mandler, Anders Herlin) 2200130

9:45am *Effects of an Instructional Treatment on Novice Programmers in an Agricultural Systems Technology Course* • Presenting Author: Donald M. Johnson, University of Arkansas, Fayetteville, Arkansas (G.T. Hood, D.M. Johnson, M.L. Pate, C.M. Estep, G.W. Wardlow) 2200136

9:50am *Novice Arduino Users in an Introduction to Agricultural Systems Technology Course: Common Breadboarding and Programming Errors* • Presenting Author: Donald M. Johnson, University of Arkansas, Fayetteville, Arkansas (G.T. Hood, D.M. Johnson, M.L. Pate, C.M. Estep, G.W. Wardlow) 2200137

Tuesday, July 19

9:55am *Effective Management - a Vital Revamp of Agricultural Systems Management Senior Seminar*
• Presenting Author: Dennis Buckmaster, Purdue University, West Lafayette, Indiana 2200144

10:00am *Engaging High School Students in Assessments of Agriculture Environmental Sustainability Through Whole Farm Nutrient Mass Balances* • Presenting Author: Agustin Olivo, Department of Animal Science, Cornell University, Ithaca, New York (Agustin Olivo, Megan Lamb, Jeffrey Perry, Olivia Godber, Quirine Ketterings) 2200156

10:05am *A Comparison of the Academic Performance of Rising Scholars with Other Student Demographic Groupings before and during the COVID Pandemic* • Presenting Author: Robert M. Stwalley III, Purdue University, West Lafayette, Indiana (Grace L. Baldwin, Virginia Booth Womack, Sarah E. LaRose, Carol S. Stwalley) 2200205

10:10am *Case study of a course that prepares future engineering educators: A 25-year reflection* • Presenting Author: Ann D. Christy, The Ohio State University, Columbus, Ohio (Robert J. Gustafson) 2200310

10:15am *An interesting bag of tricks: Managing capstone experiences through challenging times* • Presenting Author: Gretchen Mosher, Iowa State University, Ames, Iowa 2200341

10:20am *A case study of a Power Machinery Management capstone course: Does hands on equipment operation impact safe student learning and career preparation?* • Presenting Author: P. Ryan Saucier, Sam Houston State University, Huntsville, Texas (Chad Reynolds) 2200715

10:25am *Confidence Levels of Early-Career Agriculture Teachers Concerning the Instruction Agricultural Mechanics Skills* • Presenting Author: P. Ryan Saucier, Sam Houston State University, Huntsville, Texas (Robyn Pinard) 2200716

10:30am BREAK

10:40am *General Safety Conditions Found Within Selected Texas School-Based Agricultural Mechanics Laboratories*
• Presenting Author: P. Ryan Saucier, Sam Houston State University, Huntsville, Texas (Cassidy Leamon) 2200717

10:45am *A summary of South Carolina's agricultural incidents rates used to improve an agricultural safety program* • Presenting Author: Shelley Lovern, Clemson University, Clemson, South Carolina (Hunter F. Massey, Catherine A. DiBenedetto) 2200848

10:50am *A comparison of instructional formats used to teach an undergraduate agricultural safety course* • Presenting Author: Mariah Swygert, Clemson University, Clemson, South Carolina (Hunter F. Massey, Catherine A. DiBenedetto, Jacob P. Koch) 2200849

10:55am *Effects of a Professional Development Session on Career and Technical Education Teachers' Perceptions of the Importance to Teach Small Gas Engines* • Presenting Author: P. Ryan Saucier, Sam Houston State University, Huntsville, Texas (A. Preston Byrd, P. Troy White, Ryan Anderson, Cassidy Leamon) 2201016

11:00am *Perceptions of Curriculum Availability for Career and Technical Education Teachers to Teach Small Gas Engine Technology in Secondary Schools* • Presenting Author: P. Ryan Saucier, Sam Houston State University, Huntsville, Texas (P. Troy White, Ryan Anderson, P. Ryan Saucier, A. Preston Byrd, Cassidy Leamon) 2201024

11:05am *Project-Based Learning in Project Management- A Comparison to Theory-Based Teaching Methods* • Presenting Author: Travis Johnson, University of Illinois, Urbana Illinois (Paul Davidson) 2201105

11:10am *Project-Based Education via Community Engagement for Disaster Relief and Resilience* • Presenting Author: Michael Stablein, University of Illinois Urbana Champaign, Urbana, Illinois 2201151

11:15am *Pilot Study of Circuitry Instruction Methods for 4H Youth Development Program* • Presenting Author: Gary H. Lopez, University of Kentucky, Lexington, Kentucky (Gary H. Lopez, Karla S. Ladino, Tanya C. Franke-Dvorak) 2201152

205 ES-Recent Advancement in Renewable Energy Resources and Technologies - Guest Speaker Session

Tuesday, July 19, 9:30am-12:00pm

Location: Sugarland A

Sponsored By: ES-210 Renewable Power Generation Committee, ES-220 Biomass Energy & Industrial Byproducts

Moderated By: Xianhui Zhao; Jaya Tumuluru

9:35am *Development of Low Carbon Intensity Feedstock from Waste Streams for Biofuels and Bioproducts* • Presenting Author: Chenlin Li, U.S. Department of Energy, Washington, DC 2200001

10:05am *Management Practices to Reduce Carbon Intensity of Feedstock for Sustainable Aviation Fuel Production*
• Presenting Author: Mark Elless, U.S. Department of Energy, Washington, DC 2200002

10:35am BREAK

10:45am *Complete waste resource utilization for renewable energy production and sustainable development* • Presenting Author: Roger Ruan, University of Minnesota, St. Paul, Minnesota 2200003

11:20am *On CFD-DEM approach to modeling fluidized beds for bioenergy applications* • Presenting Author: Oluwafemi Oyedeji, Oak Ridge National Laboratory, Oak Ridge, Tennessee 2200004

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

Tuesday, July 19, 9:30am-12:00pm

Location: Sugarland B

Sponsored By: ES-220 Biomass Energy & Industrial Products, PRS-280 Bioconversion and Bioprocesses
Moderated By: Deepak Kumar; Brendan Higgins

9:35am *Evaluating the techno-economics of whole-plant corn logistics for biobased industries* • Presenting Author:

Tuesday, July 19

Asmita Khanal, The Ohio State University, Columbus, Ohio (Ajay Shah) 2201093

9:50am *Forest residues as a feedstock for sustainable fuel production: a case study of the application of life cycle assessment* • Presenting Author: Obste Therasme, SUNY ESF, Syracuse, New York (Timothy A. Volk, Marie-Odile Fortier) 2201137

10:05am *Techno-economic analysis of cellulosic sugar production from woody biomass fractionated using bifunctional aromatic acid* • Presenting Author: Kalyani Ananthkrishnan, SUNY College of Environmental Science & Forestry, Syracuse, New York (Kalyani Ananthkrishnan, Chang Geun Yoo, Qiang Yang, Deepak Kumar) 2200902

10:20am *Technoeconomic and life cycle assessment of a microalgae biorefinery for an algae-based CO2 absorbent* • Presenting Author: Ashley Cutshaw, Michigan State University, East Lansing, Michigan (Christopher Saffron, Wei Liao) 2200626

10:35am BREAK

10:45am *Life cycle assessment of frozen mango logistics* • Presenting Author: Ashish Manandhar, The Ohio State University, Wooster, Ohio (Dennis R. Heldman, Waraporn Boonsupthip, Ajay Shah) 2201219

11:00am *A GIS-based optimization model for multi-feedstock biomass supply chain for multi-product generation through integrated biorefineries* • Presenting Author: Md Mashum Billal, University of Alberta, Edmonton, Alberta, Canada (Md Mashum Billal, Abhishek Dwivedi, Roshni Mary Sebastian, Amit Kumar) 2201018

207 Safety Modifications and Assistive Technologies for Agricultural Production

Tuesday, July 19, 9:30am-12:00pm

Location: Briargrove A

Sponsored By: 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

Moderated By: Bill Field; Michael Pate

9:35am *Muscular Workload Assessment of Tractor Drivers with their Foot Control Activities using Electromyography* • Presenting Author: Virendra K. Tewari, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India 2200448

9:50am *Can Youth Operators Activate the Controls of Agricultural All-Terrain Vehicles?* • Presenting Author: Guilherme De Moura Araujo, University of California, Davis, Davis, California (Farzaneh Khorsandi, Fadi Fathallah) 2200789

10:05am *Do Youth Conform to Youth-All-Terrain-Vehicles Fit Guidelines?* • Presenting Author: Guilherme De Moura Araujo, University of California, Davis, Davis, California (Farzaneh Khorsandi, Fadi Fathallah, Sami Kabakibo) 2200788

10:20am *Field of Vision: How Do Youth Perceive the Environment When Riding Agricultural All-Terrain Vehicles?* • Presenting Author: Guilherme De Moura Araujo, University of

California, Davis, Davis, California (Farzaneh Khorsandi, Fadi Fathallah, Sami Kabakibo, Jordan Wong) 2200790

10:35am BREAK

10:45am *Using Virtual Reality (VR) to Introduce Agricultural Hazards to Students* • Presenting Author: Aaron Yoder, University of Nebraska Medical Center, Omaha, Nebraska (Sue Schuelke, Tess Mckinney) 2200974

11:00am *Conducting a Survey to Evaluate the Opinion of All-Terrain Vehicle Operators about Crush Protection Device in the United States* • Presenting Author: Minyoung Hong, University of California Davis, Davis, California (Farzaneh Khorsandi) 2201079

11:15am *Development of a Public Database for Lone Agricultural Worker Incident Reporting* • Presenting Author: Aaron Etienne, Purdue University, West Lafayette, Indiana (Bill Field) 2200675

11:30am *Preventing Workplace Injury in Pig Production Systems: Influence of Behavior Change Interventions for Safe Animal Handling* • Presenting Author: Heather Vanheeswijk, University of Illinois Urbana-Champaign, Champaign, Illinois (Josie Rudolphi, Angela Green-Miller) 2201231

11:45am *Modeling the role of weather patterns and grain quality in predicting engulfments and entrapments* • Presenting Author: Mateus Pizarro, Iowa State University, Ames, Iowa (Gretchen A. Mosher) 2200382

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

Tuesday, July 19, 9:30am-12:00pm

Location: Houston Ballroom Foyer

Sponsored By: ITSC-All

Moderated By: Lav Khot; Jiang Yu Jiang

1 *Application of improved DFD method based on finite element theory in detection of depth information of tactile sensing* • Presenting Author: Wei Zeng, Faculty of Mechanical Engineering and Automation, Zhejiang Sci-Tech University, Hangzhou, Zhejiang, China (Zenghong Ma, Xiaoqiang Du, Leiyang He, Hailin Lai, Cheng Yin) 2200258

2 *Automatic Detection of Apple Alternaria Leaf Spot Based on PSPNet-CBAM* • Presenting Author: Wen-Hao Su, China Agricultural University, Beijing, China (Bo-Yuan Liu, Ke-Jun Fan, Wen-Hao Su) 2200169

3 *Closed Hydroponics Nutrient Solution Management Using Multiple Water Sources* • Presenting Author: JooShin Kim, Seoul National University, Seoul, South Korea (Hak-Jin Kim, Yoon-Hong Yi, Yong-Hyun Kim, Woo-Jae Cho) 2200921

4 *Computer vision for localization of tomato for weed control* • Presenting Author: Wen-Hao Su, China Agricultural University, Beijing, China (Jia-Le Li, Wen-Hao Su) 2200168

5 *Deep learning model for automatic lettuce/weed identification using transfer learning* • Presenting Author: Wen-Hao Su, China Agricultural University, Beijing, China (Jian-Lin Zhang, Wen-Hao Su) 2200170

- 6** *Predicting Crop Rotation in North Carolina* • Presenting Author: Tasmin Hossain, North Carolina State University, Raleigh, North Carolina (Juliana Pin, Fernando Demarchi Pockrandt, Shana McDowell, Daniela Jones) 2200847
- 7** *Remote intelligent sensing system for pork freshness change during storage* • Presenting Author: Qinghui Guo, China Agricultural University, Beijing, China (Wenlong Zou, Yankun Peng, Deyong Yang, Qinghui Guo) 2200185
- 8** *Surface-enhanced Raman spectroscopic technique for identification and classification of foodborne pathogens* • Presenting Author: Qinghui Guo, China Agricultural University, Beijing, China (Yahui Chen, Yankun Peng, Qinghui Guo) 2200186
- 9** *Tomato detection method based on improved YOLOv5 in complex environment* • Presenting Author: Qinghui Guo, China Agricultural University, Beijing, China 2200374
- 10** *Above Ground Biomass Estimation Using an Unmanned Ground Vehicle* • Presenting Author: A. Bulent Koc, Clemson University, Clemson, South Carolina (Curtis Erwin, A. Bulent Koc, Matias J. Aguerre, John P. Chastain) 2200863
- 11** *Advanced Automation Technologies for Gasification at Distributed-Scale: A State of the Art Critical Review* • Presenting Author: Angelika Ouedraogo, Oklahoma State University, Stillwater, Oklahoma (Angelika Ouedraogo, Ajay Kumar, Ning Wang, Khaled Sallam, Robert Frazier) 2200211
- 12** *Low-Cost Guidance System for Synchronizing Forward Speed of Two Parallel Moving Sprayers in an Orchard* • Presenting Author: Arash Toudeshki, Mechanical Engineering Department, University of California Merced, Merced, California (Arash Toudeshki, Reza Ehsani, Akram Gholami, Robert Van Steenwyk) 2200779
- 13** *Recent ground robotic technologies in site-specific weed management of precision agriculture* • Presenting Author: Arjun Upadhyay, NDSU, Fargo, North Dakota (Nadia Delavarpour, Cengiz Koparan, Mohammed Raju Ahmed, Kirk Howatt, Xin Sun, Yu Zhang) 2200879
- 14** *Optimization of paddy field-coverage path planning for a fully autonomous tractor* • Presenting Author: Chan-Woo Jeon, Seoul National University, Seoul, South Korea (Hak-Jin Kim, Changho Yun, Xiongzhe Han) 2200919
- 15** *A path extraction algorithm based on scene segmentation for visual navigation in orchard environment* • Presenting Author: Cheng Yin, ZhejiangSci-Tech University, Hang Zhou, China (Cheng Yin, Zenghong Ma, Xiaoqiang Du, Guofeng Zhang, Gaohong Yu, Wei Zeng) 2200261
- 16** *Classification of Cranberry Tissue Macronutrient Status using a Handheld Near-Infrared Reflectance Spectrometer* • Presenting Author: F. Fares, UW-Madison, Madison, Wisconsin (D. F. Fares, T. I. Lemcke, M. F. Digman) 2201144
- 17** *Processing level index prediction with NIRs of whole plant corn and alfalfa haylage* • Presenting Author: D.L Studer, UW - Madison, Madison, Wisconsin (D.L. Studer, K.J. Shinnors, M.F. Digman) 2200988
- 18** *Development of an Automated System to Collect High-Resolution Field Wilting Rates of Herbaceous Biomass* • Presenting Author: Danton Studer, University of Wisconsin, Madison, Wisconsin (B. Pike, D.F. Fares, M.F. Digman) 2201116
- 19** *Evaluation of a mobile GIS data collection application combined with differential GPS for high accuracy field scouting* • Presenting Author: Dillan Burkett, Clemson University, Clemson, South Carolina (Aaron P. Turner, Felipe Silva, Brennan Teddy, Alex Samenko, Anthony Keinath, Dillan Burkett) 2201034
- 20** *Autonomous Tree Caliper Measurement in Nurseries* • Presenting Author: Dominic Chmiel, Cal Poly SLO, San Luis Obispo, California (Matt Haberland) 2200501
- 21** *Effective Design of a Dielectrophoresis-Based Device for Large-Capacity Water Purification* • Presenting Author: Dongsu Kim, Seoul National University, Gwanak-gu, Seoul, South Korea (Sang-ik Lee, Jonghyuk Lee, Youngjoon Jeong, Byunghun Seo, Yejin Seo, Won Choi) 2200752
- 22** *Using Nanoparticles for On-Site Detection of Staphylococcus aureus* • Presenting Author: Evangelyn Alocilja, Michigan State University, East Lansing, Michigan 2200505
- 23** *Manure Nutrient Sensing of New Techniques: Near-Infrared (NIR) Spectroscopy and Nuclear Magnetic Resonance (NMR) Sensor* • Presenting Author: Iris (Xiaoyu) Feng, University of Wisconsin-Madison, Madison, Wisconsin (Rebecca Larson, Matthew Digman, Joseph Sanford) 2201113
- 24** *Evaluating Machine Learning Techniques for Estimating Nutrient Concentrations in Streams and Hydroponic Systems based on UV-Vis Absorption Spectroscopy* • Presenting Author: Joe Barrett Carter, University of Florida, Gainesville, Florida (Eban Bean, Aditya Singh) 2200976
- 25** *Development and Calibration of Pressure-Temperature-Humidity (PTH) Probes for Distributed Atmospheric Monitoring using Unmanned Aircraft Systems* • Presenting Author: Karla S. Ladino, University of Kentucky, Lexington, Kentucky (Michael P. Sama, Victoria L. Stanton) 2200315
- 26** *The Relative Performance of a Benchtop Scanning Monochromator and Handheld Fourier Transform NIR Spectrometer in Predicting Forage Nutritive Value* • Presenting Author: Matthew Digman, University of Wisconsin, Madison, Wisconsin (M.F. Digman, J.H. Cherney, D.J.R. Cherney) 2200613
- 27** *Vision-Based Detection of Newt Contacts* • Presenting Author: McKensie Nelms, The University of Tennessee Knoxville, Knoxville, Tennessee (Hao Gan, Matt Gray) 2200546
- 28** *Internet of Things applications for crop, soil, and environment monitoring in agriculture: past, present, and future* • Presenting Author: Nipuna Chamara, University of Nebraska-Lincoln, Lincoln, Nebraska (Yufeng Ge, Geng Bai, Yeyin Shi, MD Didarul Islam) 2200393
- 29** *Using BEC Technology for Sustainable Precision Agriculture* • Presenting Author: Riley Lawson, North Carolina State University, Raleigh, North Carolina (Chadi Sayde, Amy Grunden) 2201208
- 30** *Identifying Plant-Parasitic Nematode Using Convolutional Neural Networks* • Presenting Author: Shih-Yu Lee, National Taiwan University, Taipei, Taiwan (Yan-Cheng Lin, Shih-Yu Lee, Din-Ci Wang, Jiue-In Yang, Shih-Fang Chen) 2201263

Tuesday, July 19

31 *Estimation of Soybean Plant Height Using Tractor Mounted Ultrasonic Sensor Array and Unmanned Aerial Vehicle Imaging* • Presenting Author: Yanbo Huang, USDA-ARS Genetics and Sustainable Agriculture Research Unit, Mississippi State, Mississippi (Daniel Fisher, Reginald Fletcher) 2200436

32 *Crop load and canopy density mapping in vineyards using an automated, image-based system* • Presenting Author: Hasan Seyyedhasani, Virginia Tech, Blacksburg, Virginia 2201085

33 *Developing a low-cost, autonomous system for crop health monitoring in greenhouse* • Presenting Author: Hasan Seyyedhasani, Virginia Tech, Blacksburg, Virginia 2201100

209 Machinery Data and Task Optimization I

Tuesday, July 19, 9:30am-12:00pm

Location: River Oaks A

Sponsored By: MS-49 Crop Production Systems, Machinery, and Logistics

Moderated By: Mark Siemens

9:35am *Addressing Predictive Asset Maintenance Implementation* • Presenting Author: John Gottula, SAS Institute, Cary, North Carolina (John Gottula, Tom Anderson) 2200109

9:50am *Robust Route Planning for Autonomous Weed Sprayers* • Presenting Author: Zhicheng Zhu, Southwest Florida Research and Education Center, University of Florida, Immokalee, Florida (Yiannis Ampatzidis, Abhisesh Silwal, Panos Pardalos) 2200118

10:05am *Corn plant stand response to gauge wheel load and ground speed combination on no-till system* • Presenting Author: José Peiretti, Kansas State University, Manhattan, Kansas (Sylvester A Badua, Ajay Sharda) 2201189

10:20am *A review of research on driverless agriculture vehicles* • Presenting Author: Zhaoyang Chen, Iowa State University, Ames, Iowa 2200838

10:35am **BREAK**

10:45am *Re-path-planning method for multi-agent agricultural machine system: how to change the path when conditions changed* • Presenting Author: Zhaoyang Chen, Iowa State University, Ames, Iowa 2200835

11:00am *Energy and emissions analysis of a multifuel engine* • Presenting Author: Zhaoyang Chen, Iowa State University, Ames, Iowa (Diego José Carvalho Alonso, Carlos Eduardo Silva Volpato, Eduardo Lordelo Volpato) 2200119

11:15am *Optimization of Airflow Velocity of Pneumatic Pollination for Hybrid Rice Breeding* • Presenting Author: Te Xi, Zhejiang University, Hangzhou, Zhejiang, China (Fuqiang Yao, Yongwei Wang, Dongfang Li, Fake Shan, Lunqing Sun, Jun Wang) 2200909

11:30am *Improvement of Durability of Transmission Gear for 86 kW Class Agricultural Tractor* • Presenting Author: Seung-Min Baek, Chungnam National University, Daejeon, South Korea (Yong-Joo Kim, Dae-Hyun Lee, Wan-Soo Kim) 2201170

11:45am *Design of reed binding device* • Presenting Author: Mingsheng Wang, College of Mechanical and Electrical Engineering, South Central University of Forestry and Technology, Changsha, Hunan, China (Yang Bai, Yanjun Li, Zhenming Yang) 2200753

210 Machinery Systems for Crop Production II

Tuesday, July 19, 9:30am-12:00pm

Location: River Oaks B

Sponsored By: MS-49 Crop Production Systems, Machinery, and Logistics

Moderated By: Jianfeng Zhou; Virk Simerjeet

9:35am *Grain Harvesting Logistics Tracking Tools* • Presenting Author: Cheyenne Simmons, Purdue University, West Lafayette, Indiana 2201082

9:50am *Harvesting Efficiency for Switchgrass Round Bales* • Presenting Author: Hana Toth, Penn State, University Park, Pennsylvania (Jude Liu) 2200457

10:05am *Structure Design and Experiment of Diversion Pipe Based on DEM-CFD Coupling Simulation* • Presenting Author: Qilin An, China Agricultural University, Haidian, Beijing, China (Yanjun, Li Qilin An, Zhenming Yang, Yang Bai, Kailong Zhao) 2200699

10:20am *Experimental Study on Cleaning Performance of Bionic Screen Based on Earthworm Motion Characteristics* • Presenting Author: Mingsheng Wang, College of Mechanical and Electrical Engineering, South Central University of Forestry and Technology, Changsha, Hunan, China (Yongtao Yu, Yanjun Li, Jian Song, Fuxiang Xie) 2200755

10:35am **BREAK**

10:45am *Parameter Optimization and Experimental Studies on Extractor Blades of Sugarcane Chopper Harvesters* • Presenting Author: Shaochun Ma, China Agricultural University, Beijing, China (Weiqing Li, Ziyu Tang, Haonan Xing, Jing Bai, Jiwei Hu, Zhengliang Ding) 2200689

211 Advances in Hydrologic Modeling of Agroecosystems of various Complexities-HYBRID Session

Tuesday, July 19, 9:30am-12:00pm

Location: River Oaks C

Sponsored By: NRES-21 Hydrology Group, NRES-253 Riparian Zones, Floodplains, & Wetlands, NRES-23 Drainage Group

Moderated By: Devendra Amatya; Sushant Mehan

9:35am *Large Scale Hydrological Modelling: Dilemma of Definition* • Presenting Author: Jaskaran Dhiman, University of Guelph, Guelph, Ontario, Canada (Pranesh Kumar Paul, Jaskaran Dhiman, Prasad Daggupati, Ramesh Rudra, Pradeep Kumar Goel) 2200759

9:50am *Coupling Vegetation Biophysics and Ecohydraulics for Improved Simulation of Land-Atmosphere Carbon-Water-Energy Exchange* • Presenting Author: Darren Drewry, Ohio State University, Columbus, Ohio 2200888

10:05am *Pesticide remobilization in vegetative filter strips using mesoscale multi-event experimentation* • Presenting Author: John Howe, University of Florida, Gainesville, Florida (Rafael Munoz-Carpena) 2200641

10:20am *Subsurface transport of phosphorus in pasture soils: Influence of preferential flow paths* • Presenting Author: Kritika Malhotra, Auburn University, Auburn, Alabama 2200978

10:35am **BREAK**

10:45am *Water Quality of Circular Agricultural Systems in the Chesapeake Bay Watershed* • Presenting Author: Whitney Lisenbee, Penn State University, University Park, Pennsylvania (Argha Saha, Paniz Mohammadpour, Cibin Raj, Jason Kaye, Caitlin Grady, Indrajeet Chaubey) 2201266

11:00am *Characterizing soil Freeze-Thaw cycles and their relationship to surface runoff and associated nutrient losses in cold region agroecosystems* • Presenting Author: Laxmi Prasad, Department of Biological Systems Engineering, University of Wisconsin-Madison, Madison, Wisconsin (Anita Thompson, Francisco Arriaga) 2201032

11:15am *Deriving a Soil Carbon Age Distribution from a Pool-Based Model* • Presenting Author: Kalra Marali, The Pennsylvania State University, State College, Pennsylvania (Raj Cibin) 2200844

11:30am *Evaluating the potential impacts of solar farms on hydrological responses* • Presenting Author: Raj Cibin, The Pennsylvania State University, State college, Pennsylvania (Nair, Adira Ajith, Raj, Cibin, A.N Rohith, Lauren E McPhillips) 2201262

11:45am *Improvement in the SWAT model to Simulate Canadian Winter Hydrology* • Presenting Author: Jaskaran Dhiman, University of Guelph, Guelph, Ontario, Canada (Ramesh Rudra, Prasad Daggupati, Pradeep Goel, Shiv Prasher, Rituraj Shukla, Pranesh Paul) 2201041

212 Agricultural Conservation Practice Implementation and Assessment

Tuesday, July 19, 9:30am-12:15pm

Location: Kingwood A

Sponsored By: NRES-22 Erosion Control Group, NRES-225 Conservation Systems

Moderated By: Laxmi Prasad

9:35am *Evaluating the potential of conservation tillage and cover crop practices in mitigating the negative effects of climate change on runoff and sediment losses* • Presenting Author: Sayantan Samanta, Texas A&M University, College Station, Texas (Sayantan Samanta, Srinivasulu Ale, Cristine L.S. Morgan, Dianna K. Bagnall) 2200564

9:50am *Impact of crop rotation, no-till, and cover crops on soil physical and hydraulic properties in south eastern, South Dakota* • Presenting Author: Ajoy Kumar Saha, South Dakota State University, Brookings, South Dakota (John McMaine) 2200249

10:05am *Potential benefits and consequences of growing cool-season cover crops in Texas semi-arid cotton production systems* • Presenting Author: Srinivasulu Ale, Texas A&M AgriLife Research, Vernon, Texas (Jasdeep Singh, Srinivasulu Ale, Paul DeLaune, Ed Barnes) 2200664

ASABE 2023 Annual International Meeting

CALL FOR ABSTRACTS
will open this October!

Be sure to watch
www.asabemeetings.org
for details

2023 AIM
July 9 - 12
CHI Health Center,
Omaha, Nebraska

10:20am *Effects of Different Best Management Practices on Water Quality Indicators in the Arroyo Los Olmos Watershed, Texas* • Presenting Author: Ricardo J. Torres, Texas A&M University, Kingsville, Texas (Tushar Sinha) 2201122

10:35am **BREAK**

10:45am *Effectiveness of Nutrient Management on Nitrate-N Loss from Subsurface Drainage* • Presenting Author: Yongping Yuan, USEPA Office of Research and Development, Durham, North Carolina 2200071

11:00am *Assessment of Ecosystem Services Rendered Through Integration of Guar into Wheat Cropping Systems of The Texas Rolling Plains Region* • Presenting Author: Rene Francis Simbi Mvuyekure, Texas A&M University, College Station, Texas (Srinivasulu Ale, Sushil Himanshu, Ken J Boote, Rajan Shrestha, Curtis Adams, Gerrit Hoogenboom, Calvin Trostle) 2200153

11:15am *First year outcomes of a perennial groundcover corn system* • Presenting Author: Gabrielle Myers, Iowa State University, Ames, Iowa (D. Raj Raman, Daniel S. Andersen, Kenneth J. Moore, Brian W. Dougherty, Carl H. Pederson, Roger L. Hintz, Kenneth T. Pecinovsky) 2200821

11:30am *Mid-Summer Deficit Irrigation of Alfalfa in the Central Valley of California* • Presenting Author: Khaled Bali, University of California-Division of Agriculture and Natural Resources, Parlier, California (Dan Putnam, Dong Wang, Sultan Begna, Abdelmoneim Zakaria) 2201009

Tuesday, July 19

11:45am *Can soil smell tell us more soil condition and soil health-promoting practices?* • Presenting Author: Darcy Bonds, Iowa State University, Ames, Iowa (Darcy Bonds, Jacek A. Koziel, Baitong Chen, Christian Haffner, Hailee Christensen, Teresa E. Middleton, Marshall D. McDaniel, Amy Kaleita, Adina Howe) 2200526

12:00pm *Crop Water Productivity of Alfalfa Under Different Cutting Schedules* • Presenting Author: Khaled Bali, University of California-Division of Agriculture and Natural Resources, Parlier, California (Sultan Begna, Brenda Perez, Charlie Brummer, Dong Wang, Khaled Bali, Dan Putnam) 2200783

213 Applied Ecological Engineering in Water Systems- HYBRID Session

Tuesday, July 19, 9:30am-12:15pm

Location: Kingwood B

Sponsored By: NRES-28 Ecological Engineering, NRES-25 Streams, Reservoirs, and Wetlands Group

Moderated By: John McMaine

9:35am *Water Security, Water Sovereignty, and the Role of Ecological Engineers* • Presenting Author: Trisha Moore, Kansas State University, Manhattan, Kansas 2200013

9:50am *Ecological Engineering of Urban Soils – Amendments for a Water Stressed Florida* • Presenting Author: Eban Bean, University of Florida, Gainesville, Florida 2200014

10:05am *Understanding Phosphorus Dynamics in Urban Stormwater Ponds* • Presenting Author: Vinicius Taguchi, University of Minnesota, Minneapolis, Minnesota (Tyler A. Olsen, Poornima Natarajan, Ben D. Janke, John S. Gulliver, Jacques C. Finlay, Heinz G. Stefan) 2200997

10:20am *Improving native prairie restoration modeling for flood reduction using pedotransfer functions* • Presenting Author: Cynthuja Partheeban, Texas A&M University, College Station, Texas 2200327

10:35am **BREAK**

10:45am *Quantifying Gravel Wetland Water Quality and Hydrologic Performance Treating Industrial Stormwater Runoff and Service Vehicular Wash-off: a Two-Year Case Study* • Presenting Author: Caleb Mitchell, North Carolina State University, Raleigh, North Carolina 2200575

11:00am *Silvicultural Practices and Water Table Dynamics of Coastal Forested Wetlands in a Changing Climate* • Presenting Author: Devendra Amatya, USDA Forest Service, Cordesville, South Carolina 2200676

11:15am *Improving Water Quality with SCM Retrofits: The Bradley Creek Cluster* • Presenting Author: Amber Ellis, NC State University, Wilmington, North Carolina (William F. Hunt, III) 2201006

11:30am *Even Wetlands can Burn: Developing a Wildfire Spatial Vulnerability Model for the Okefenokee Swamp for Extreme Geohazard Mitigation Decision Support* • Presenting Author: Sudhanshu S Panda, UNG, Oakwood, Georgia (Katherine M Price) 2200993

11:45am *Enhancing Design and Operation of Constructed Wetlands for Aquacultural and Municipal Wastewater Treatment: Preliminary Findings* • Presenting Author: Steven Hall, North Carolina State University, Raleigh, North Carolina (Natasha Bell, Randall Etheridge, Steven Hall, Eli Hvastkovs, John Hoben) 2200090

12:00pm *Converting Dry Ponds to Constructed Stormwater Wetlands for Enhanced Nutrient Removal to Sell on Nutrient Markets* • Presenting Author: William Hunt, NC State University, Cary, North Carolina 2200143

214 Conservation Drainage Practices for Reducing Nutrient Loss

Tuesday, July 19, 9:30am-12:00pm

Location: Meyerland B

Sponsored By: NRES-23 Drainage Group

Moderated By: Vinayak Shedekar

9:35am *Nitrate Removal in Saturated Riparian Buffers In Iowa* • Presenting Author: Gabriel M. Johnson, Iowa State University, Ames, Iowa (Thomas M. Isenhardt, Dan B. Jaynes) 2200860

9:50am *Assessment of newly proposed and existing design criteria for optimizing the performance of saturated buffer* • Presenting Author: Yousef Abdalaal, Michigan State University, East Lansing, Michigan (Ehsan Ghane) 2200377

10:05am *Spatial Pollutant Interactions within a Dual-Chamber Denitrification Bioreactor* • Presenting Author: Lindsey Hartfiel, Iowa State University, Ames, Iowa (Leigh Ann Long, Thomas Isenhardt, Carmen Gomes, Michelle Soupier) 2200426

10:20am *Susceptibility of winter crops to wet stress under controlled drainage* • Presenting Author: Vinayak Shedekar, The Ohio State University, Columbus, Ohio 2201109

10:35am **BREAK**

10:45am *Using Soil and Water Assessment Tool (SWAT) for simulating Drainage Water Management: Lessons Learned* • Presenting Author: Sushant Mehan, University of Wisconsin-Madison, Wisconsin (Haley Kujawa, Asmita Murumkar, Vinayak Shedekar, Margaret Kalcic, Kevin King) 2200714

11:00am *Simulating the watershed-scale water quality impacts of Drainage Water Management in the Western Lake Erie Basin, USA* • Presenting Author: Asmita Murumkar, The Ohio State University, Columbus, Ohio (Jay Martin, Margaret Kalcic, Kevin King, Vinayak Shedekar, Sushant Mehan, Haley Kujawa) 2200763

11:15am *Drainage Water Management for Nutrient Loss Reductions and Crop Productivity at the Watershed Scale in Illinois, USA* • Presenting Author: Jacob Wood, University of Illinois, Urbana, Illinois (Manas Khan, Rabin Bhattarai, Richard Cooke) 2200556

11:30am *Water and nutrient losses from healthy soils under long-term sustainable agricultural practices* • Presenting Author: Vinayak Shedekar, The Ohio State University, Columbus, Ohio (Michael Brooker, Nathan Stoltzfus, Chris McNabb, Will Osterholz, Margaret Kalcic, Jay Martin, Kevin King, Greg LaBarge) 2200764

Tuesday, July 19

215 Dam-Why Should You Care?

Tuesday, July 19, 9:30am-12:00pm

Location: Hunter's Creek A

Sponsored By: NRES-25 Streams, Reservoirs, and Wetlands Group

Moderated By: Sherry Hunt; Richard Sholtz

9:35am *DAM! What's it to you? A Personal Story of Dam Engineering* • Presenting Author: Sherry L. Hunt, USDA-Agricultural Research Service Hydraulic Engineering Research Unit, Stillwater, Oklahoma 2200482

9:50am *Boiling Springs Site 1 – A Case History in Dam Rehabilitation* • Presenting Author: Colin Young, Freese and Nichols, Inc., Tulsa, Oklahoma 2200042

10:20am *America's Growing Infrastructure Needs: The Story of the La Prele Dam* • Presenting Author: Russell Persyn and Peter Rausch, RESPEC Company, LLC, San Antonio, Texas 2200026

10:40am **BREAK**

10:50am *USACE Dam Safety Modifications: Seepage Control & Uplift Pressure Reduction* • Presenting Author: Brian Dillard, U.S. Army Corps of Engineers - Tulsa District, Tulsa, Oklahoma 2200027

11:20am *An integrated approach to reconstruct the propagation of fluvial sediment pulses after dam removals: Results from the Elwha Dam removals case study* • Presenting Author: Abhinav Sharma, Biological and Agricultural Engineering, North Carolina State University, Raleigh, North Carolina (Celso Castro - Bolinaga) 2200140

11:35am *Beyond O&M - The Oklahoma CMP Pilot Project* • Presenting Author: J. Chris Stoner, PE, USDA-NRCS, Stillwater, Oklahoma 2200322

216 Emerging Contaminants, Pathogens, and Antibiotic Resistance

Tuesday, July 19, 9:30am-12:00pm



AMAA
Alliance for Modernizing
African Agrifood Systems
AN ASABE GLOBAL INITIATIVE

AMAA session times:

9:30am-Session 203 Alliance for
Modernizing African Agri-Food System

2:30pm-Session 225
Modernizing African Agriculture

Both are held Tuesday on level 3 in Memorial

Location: Hunter's Creek B

Sponsored By: NRES-28 Ecological Engineering, NRES-25 Streams, Reservoirs, and Wetlands Group

Moderated By: Tiffany Messer; Lindsey Hartfiel

9:35am *Assessing the impacts of biosolids applications on the presence of PFAS compounds in nearby groundwater wells: A citizen science-based study in Pennsylvania*

• Presenting Author: Md Shahin Alam, Department of Agricultural and Biological Engineering, University Park, Pennsylvania (Md Shahin Alam, Heather E. Preisendanz, Jennifer R. Fetter, Susan Boser, Bryan Swistock) 2200110

9:50am *A Mass Balance Approach to Antibiotic Resistance Partitioning Dairy Manure Through A Continuous High Temperature Rotary Drum Composting Bedding Recovery Unit* • Presenting Author: Carlton Poindexter, University of Maryland, College Park, Maryland 2200940

10:05am *Linking water-quality stressors and macroinvertebrate diversity in central Pennsylvania using passive samplers* • Presenting Author: Francesca Ferguson, The Pennsylvania State University, University Park, Pennsylvania (Kyle R. Elkin, Robert Stout, Tamie L. Veith, John F. Tooker, Heather E. Preisendanz) 2200174

10:20am *Impact of DOM on Imidacloprid and Thiamethoxam Photodegradation Rates, Byproducts Formation, and Degradation Pathways in Simulated River Waters DOM* • Presenting Author: Josephus Borsuah, University of Nebraska-Lincoln, Nebraska (Tiffany Messer, Dan Snow) 2200601

10:35am **BREAK**

10:45am *Impacts of the COVID-19 pandemic on pharmaceuticals in wastewater: Two case studies in central Pennsylvania* • Presenting Author: Kathryn Hayden, Penn State, State College, Pennsylvania 2200304

11:00am *Emerging Contaminant Exposure Following Wastewater Treatment Plant Processes to Surface Waters and Agroecosystems* • Presenting Author: Kyra Sigler, University of Kentucky, Lexington, Kentucky (Tiffany Messer, William Ford) 2200554

11:15am *Removal of Pharmaceuticals using Biochar: Low-cost Solutions to Improving the Quality of Wastewater Effluent* • Presenting Author: Marlene C. Ndoun, Pennsylvania State University, University Park, Pennsylvania (Marlene C. Ndoun, Clinton F. Williams, Allan Knopf, Herschel A. Elliot, Michael L. Mashtare, Natasha Vozenilek, Stephanie Velegol, Tamie L. Veith, Heather E. Preisendanz) 2200308

217 Erosion in Fields and Streams, Research, Modeling and Case Studies

Tuesday, July 19, 9:30am-12:00pm

Location: Montrose A

Sponsored By: NRES-25 Streams, Reservoirs, and Wetlands Group, NRES-252 Geomorphology, Streambank Stability & In-Stream Processes

Moderated By: Gary Hawkins, Vahid Rahmani

Tuesday, July 19

9:35am *A Remote Sensing Approach for Estimating Bank Strength and Percent Vegetative Volume on Texas Streambanks* • Presenting Author: Fouad H. Jaber, Texas A&M AgriLife, Dallas, Texas (Jacqueline Rambo) 2201135

9:50am *Geospatial and Field-based Methods for Predicting and Quantifying Streambank Erosion* • Presenting Author: Layla El-Khoury, North Carolina State University, Department of Biological and Agricultural Engineering, Raleigh, North Carolina (Barbara Doll, Jack Kurki-Fox, Melanie Carter) 2201002

10:05am *Guidance on Applied Pressure Heads for Quantifying Cohesive Soil Erodibility with a Jet Erosion Test (JET)* • Presenting Author: Garey Fox, NC State University, Raleigh, North Carolina (Lucie Guertault, Celso Castro-Bolinaga, Alexis Swanson) 2200057

10:20am *Evaluation of Distributed Temperature Sensing to Improve Scour Predictions at Bridge Crossings* • Presenting Author: Celso Castro-Bolinaga, North Carolina State University, Raleigh, North Carolina (Rebecca Hatley, Chadi Sayde, Mahmoud Shehata) 2201181

10:35am BREAK

10:45am *Projected rainfall erosivity under climate change in the southeastern United States* • Presenting Author: Bijoychandra S. Takhellambam, Auburn University, Department of Biosystem Engineering, Auburn, Alabama (Puneet Srivastava, Jasmeet Lamba, Ryan P. McGehee, Hemendra Kumar, Di Tian) 2200176

11:00am *Modification of Sediment Routing in SWAT model for Dry Season* • Presenting Author: Sangjoon Bak, Kangwon National University, Chuncheon-si, Gangwon-do, South Korea 2200934

11:15am *Evaluation of various novel erosion control blankets to reduce soil erosion* • Presenting Author: Yufan Zhang, University of Illinois at Urbana-Champaign, Urbana, Illinois (Rabin Bhattacharai) 2200387

11:30am *Developing a new sediment transport model to simulate soil erosion in agricultural watersheds* • Presenting Author: Maria Chu, University of Illinois at Urbana-Champaign, Urbana, Illinois (Sanghyun Lee, Maria Chu, Jorge Guzman, Dennis Flanagan) 2200460

218 Machine Learning and Process-Based Models for Hydrologic Simulation

Tuesday, July 19, 9:30am-12:00pm

Location: Montrose B

Sponsored By: NRES-21 Hydrology Group

Moderated By: Clement Sohoulade

9:35am *Revealing circular flow patterns to support assessing riverbank scouring in complex river flow systems* • Presenting Author: Tanh Nguyen, An Giang University/Vietnam National University-Ho Chi Minh City, Long Xuyen City, An Giang Province, Vietnam (Lloyd H. C. Chua, Shih Dong-Sin, Linh H. Ha, Linh H. Nguyen, Huyen N. Kieu, Linh M. Duong, Ninh V. Luu, Hoa V. Nguyen, Lan X. Nguyen, Thai V. Huynh, An T. Ngo, Hung T. Nguyen, Chau N. Tran, Chi T. C. Le) 2200074

9:50am *Predicting Soil Water Dynamics in a Vineyard using Random Forest and Satellite Remote Sensing* • Presenting Author: Srinivasa Rao Peddinti, Department of Land, Air and Water Resources, University of California Davis, Davis, California (Isaya Kisekka, William P. Kustas, Andrew J. McElrone, Nicolas Bambach-Ortiz, Lynn McKee, Wim Bastiaanssen) 2200737

10:05am *Soil Clay Minerals Identification and Quantification Using Flow Cytometry* • Presenting Author: Yujin Choi, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois (Jorge A. Guzman, Martin Pentrak, Maria L. Chu, Adriana Turriago, Yuji Arai) 2200557

10:20am *Evaluating the Long-term Impacts of Rainwater Harvesting for Landscape Irrigation with Rain Barrels/Cisterns* • Presenting Author: Siyu Li, State University of New York, University at Albany, Albany, New York (Yaoze Liu) 2200306

219 NRES-Regional Manure Nutrient Balance - Guest Speaker Session

Tuesday, July 19, 9:30am-12:00pm

Location: Texas A

Sponsored By: NRES-27 Ag Byproducts & Animal Mortality Systems

Moderated By: Clifford Fedler; Zong Liu

9:35am *CAFO Operation and Manure Management in Texas* • Presenting Author: Catherine Stanley, NRCS Texas, Weatherford, Texas 2201278

9:55am *Fast Growing Texas Dairy Industry* • Presenting Author: Darren Turley, Texas Association of Dairymen, Austin, Texas 2201275

10:15am *Cattle Feeding and the Environment* • Presenting Author: Matt Davis, Texas Cattle Feeders Association, Amarillo, Texas 2201280

10:35am BREAK

10:45am *CAFO Operation Permit and Regulation in Texas* • Presenting Author: Charles Schneider, Texas Commission on Environmental Quality, Austin, Texas 2201277

11:05am *We Have a Plan, What Does it Mean?* • Presenting Author: Norman Mullin, Enviro-Ag Engineering Corporate, Amarillo, Texas 2201276

11:20am *We Have a Plan, What Does it Mean?* • Presenting Author: Matthew Gray, Enviro-Ag Engineering Corporate, Stephenville, Texas 2201279

220 PAFS-Plant, Animal & Facilities POSTER SESSION

Tuesday, July 19, 9:30am-12:00pm

Location: Houston Ballroom Foyer

Sponsored By: PAFS-01 POSTER SESSION, PAFS-50 Environmental Air Quality, PAFS-20 Structures Group, PAFS-30 Plant Systems Group, PAFS-40 Facilities & Systems Group

Moderated By: Shafiqur Rahman; Ademola Ajayibanji

34 *Some basic concepts of mathematical modeling for agricultural digitalization* • Presenting Author: Lin Wei, South Dakota State University, Brookings, South Dakota 2200522

35 *Modeling and Assessing Heat Transfer of Piglet Microclimates* · Presenting Author: Brett Ramirez, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa (Benjamin Smith, Steven Hoff) 2200319

36 *Gaseous Emissions from In-House Broiler Litter* · Presenting Author: Carly Graves, North Carolina State University, Raleigh, North Carolina (Mahmoud Sharara, Praveen Kolar, Sanjay Shah, Jesse Grimes) 2200235

37 *How sensitive is a swine barn environment to ventilation control settings?* · Presenting Author: Erin Cortus, University of Minnesota, St. Paul, Minnesota (Brett Ramirez) 2200639

38 *Effect of hydraulic and organic loading rates in a vermifilter system treating dairy wastewater* · Presenting Author: Gilbert Miito, Washington State University, Pullman, Washington 2200406

39 *Air quality in the cage-free house during pullets rearing* · Presenting Author: Lilong Chai, Department of Poultry Science, University of Georgia, Athens, Georgia (Ramesh Bahadur Bist, Lilong Chai, Xiao Yang, Sachin Subedi, Yangyang Guo) 2200329

40 *Variation of litter quality in cage-free houses during pullets production* · Presenting Author: Lilong Chai, Department of Poultry Science, University of Georgia, Athens, Georgia (Xiao Yang, Lilong Chai, Ramesh Bist, Sachin Subedi, Yangyang Guo) 2200925

41 *A Novel Surrogate Model Based on Piecewise Physics Informed Neural Networks* · Presenting Author: Youngjoon Jeong, Department of Rural Systems Engineering, Seoul National University, Seoul, Gwanak-gu, Republic of Korea (Won Choi) 2200525

221 AI and Data Science Application in Food and Biological Material Processing-HYBRID Session

Tuesday, July 19, 9:30am-12:15pm

Location: Briargrove B

Sponsored By: 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

Moderated By: Sarah Wu; Juliana Vasco-Correa

9:35am *A Smart Technology for Early Detection and Control of Insect in Food and Agricultural Products* · Presenting Author: Zhongli Pan, USDA Western Regional Research Center, UC Davis, Davis, California 2200040

9:55am *AI and Imaging-guided Smart Food Processing Lines* · Presenting Author: Yang Tao, University of Maryland, College Park, Maryland 2200050

10:15am *AI-Enabled Innovations in Food Safety and Food Quality* · Presenting Author: Nitin Nitin, UC Davis, Davis, California 2200513

10:35am BREAK

10:45am *Funding at USDA-NIFA in AI and Data Science for Food and Biological Engineering* · Presenting Author: Steven Thomson, USDA NIFA, Kansas City, Missouri 2200047

11:05am *Detection of Aflatoxin B1 in Shelled Almonds using SWIR Hyperspectral Imaging* · Presenting Author: Chandra B. Singh, Centre for Applied Research, Lethbridge College, Lethbridge, Alberta, Canada (Gayatri Mishra, Wilmer Ariza Ramirez, Hye-Won Jung, Chandra B Singh Sang-Heon Lee, Ivan Lee) 2201214

11:20am *Assessing drivers of mango, tomato and maize postharvest losses: An analysis of the Yieldwise Initiative data in Kenya, Nigeria, and Tanzania* · Presenting Author: Hory Chikez, Iowa State University, Ames, Iowa (Dirk Maier, Sigurdur Olafsson, Steve Sonka) 2200880

11:35am Q&A with discussion

222 ASABE-Listening Session – BIPOC Community-RAP Session

Tuesday, July 19, 10:30am-11:30am

Location: Liberty A

Sponsored By: ASABE BIPOC community, E-03 Inclusion, Diversity, Equity, and Access Committee, EOPD-210 Department Heads, EOPD-203 Undergraduate and Graduate Instruction

Moderated By: Janie Moore

223 ASABE-Becoming Inclusive: A Worthy Pursuit in Cultivating Access - Guest Speaker Session

Tuesday, July 19, 2:30pm-5:00pm

Location: Liberty A

Sponsored By: E-03 Inclusion, Diversity, Equity, and Access, EOPD-203 Undergraduate and Graduate Instruction; ASABE BIPOC

Moderated By: Sue Nokes; Mark Riley

Becoming Inclusive · Presenter: Dr. Helen Fagan, Ph.D., University of Nebraska, Lincoln, Nebraska

224 ASE-Applied Science and Engineering POSTER SESSION

Tuesday, July 19, 2:30pm-5:00pm

Location: Houston Ballroom Foyer

Sponsored By: ASE

Moderated By: Catie Brewer

1 *Optimizing the Performance of a Spiral Water Wheel Pump* · Presenting Author: Agnes Millimouno, University of Illinois, Urbana, Illinois (Richard Cooke) 2200582

2 *Food system resilience and sustainability compass: A case of Food Choices Overview Dashboard for nudging consumers towards healthy and environmentally diet choice* · Presenting Author: Prince Agyemang, University of Arkansas, Fayetteville, Arkansas (Ebenezer Kwofie, Jamie Baum) 2200887

3 *Nitrate disks for monitoring saturated buffers: Calibration of diffusive gradients in thin-film technology* · Presenting Author: Carolina Diaz-Garcia, University of Illinois,

Tuesday, July 19

Urbana-Champaign, Illinois (Reid Christianson, Michael Wallace, Laura Christianson) 2200936

4 *Modeling Agriculture, Hydrology and Sustainable Development in the Brazilian Amazon Basin Utilizing the Overview Design Concepts and Details (ODD) Protocol*

• Presenting Author: Jaime Thissen, Center for Sustainability Studies, Bemidji State University, Bemidji, Minnesota 2201227

5 *Novel in-silico technique to design peptides against citrus greening*

• Presenting Author: Kasun Samavath Mallawarachchi, Department of Biological and Agricultural Engineering, Texas A&M University, College Station, Texas (Kranthi Mandadi, James Borneman, Sandun Fernando) 2200077

6 *Smart tree crop sprayer sensing system utilizing sensor fusion and artificial intelligence*

• Presenting Author: Lucas Costa, University of Florida, Immokalee, Florida (Yiannis Ampatzidis) 2200585

7 *Encapsulation of Antimicrobial Peptides in Bicontinuous Microemulsions For Topical Delivery*

• Presenting Author: Madison Oehler, The University of Tennessee, Knoxville, Tennessee (Douglas Hayes, Doris D'Souza, Manju Mudiyansele, Viswanathan Gurumoorthy, Sai Venkatesh Pingali) 2200818

8 *Material characterization of cotton gin waste biochar for soil amendment applications*

• Presenting Author: Nathan Howell, West Texas A&M University, Canyon, Texas (Sanjoy Bhattacharia, Craig Bednarz, Saman Aria, Omar Garcia) 2200706

9 *Designing a feed-back control system for optimizing a novel low-dust almond pickup machine*

• Presenting Author: Reza Serajian, University of California Merced, Merced, California (Reza Ehsani) 2201253

225 Modernizing African Agriculture

Tuesday, July 19, 2:30pm-5:00pm

Location: Memorial

Sponsored By: E-2050 Global Engagement

Moderated By: Kumar Mallikarjunan; Margaret Gitau
Four Breakout Working Sessions

226 EOPD-Education, Outreach, & Professional

Development POSTER SESSION

Tuesday, July 19, 2:30pm-5:00pm

Location: Houston Ballroom Foyer

Sponsored By: EOPD-203 Undergraduate & Graduate Instruction, EOPD-205 Engineering Technology & Management Education, EOPD-206 Ag Technology & Mgmt Curriculum Review & Program Recog

Moderated By: Jennifer Keshwani

10 *Navigating Science and Communication Aspects of Sustainable Dairy Production: Pilot Scale Program*

• Presenting Author: Baitong Chen, University of Minnesota, St. Paul, Minnesota (Erin Cortus, Bob Lefebvre) 2200645

11 *Developing Energy Extension and Outreach Initiatives in Maryland*

• Presenting Author: Drew Schiavone, University of Maryland, Keedysville, Maryland 2200415

12 *Structural equation modeling to analyze knowledge, attitudes, practice and skills in a professional practices*

technical management course • Presenting Author: Jonathan Adam Watson, Agricultural and Biological Engineering Department - University of Florida, Gainesville, Florida 2200332

13 *Teaching Introduction to Agricultural Informatics*

• Presenting Author: Joseph Dvorak, University of Kentucky, Lexington, Kentucky (Ankita Raturi, Tanya Dvorak) 2201091

14 *Bias towards Female Instructors of Agricultural*

Technology Courses • Presenting Author: Michael Pate, Utah State University, Logan, Utah (S. Kjersti Clawson, Don Edgar, Tyson Sorensen) 2200984

15 *Identifying the Tools and Equipment Available for*

Career and Technical Education Teachers to Teach Small Gas Engines • Presenting Author: P. Ryan Saucier, Sam Houston State University, Huntsville, Texas (Ryan Anderson, P. Ryan Saucier, A. Preston Byrd, P. Troy White, Cassidy Leamon) 2201012

16 *Understand the Social Impact Brought by the Data*

Framework in Digital Agriculture • Presenting Author: Songzi Wu, University of Florida, Gainesville, Florida (Songzi Wu, Jonathan A Watson, Ioannis Ampatzidis, Yilin Zhuang, David Daniel Sokol, Sandra Guzman, Ziwen Yu) 2200886

17 *Quantifying cotton and peanut sustainability metrics in Georgia using the field to market fieldprint calculator*

• Presenting Author: Wesley Porter, University of Georgia, Tifton, Georgia (Kaylyn Reagin) 2200323

227 ES-Energy Systems POSTER SESSION

Tuesday, July 19, 2:30pm-5:00pm

Location: Houston Ballroom Foyer

Sponsored By: ES-220 Biomass Energy & Industrial Products

Moderated By: Jaya Shankar Tumuluru; Ganti Murthy

18 *Chemical-free production and recovery of value-added bioproducts from oilcane bagasse*

• Presenting Author: Yuyao Jia, Agricultural and Biological Engineering, University of Illinois, Urbana, Illinois (Shraddha Maitra, Vijay Singh) 2200312

19 *Determining Friction Coefficient and Traction Adhesion Force Between Corn Stover Particles of Anatomical Fractions*

• Presenting Author: James Slosson, Penn State, University Park, Pennsylvania (Hojae Yi, Yiming Li) 2200583

20 *Life cycle assessment of air classification as a sulfur mitigation technology in pin residue feedstocks*

• Presenting Author: Jian Shi, University of Kentucky, Lexington, Kentucky (Ashlee Edmonson, Yingqian Lin, Ling Ding, Wenqi Li) 2200180

21 *Lignin-based hydrophobic deep eutectic solvents as sustainable extractants for biomass-derived molecules*

• Presenting Author: Yuxuan Zhang, Biosystems and Agricultural Engineering Department, University of Kentucky, Lexington, Kentucky (Qi Qiao, Usman Abbas, Can Liu, Qing Shao, Jian Shi) 2200813

22 *Low severity pretreatment to enhance enzymatic hydrolysis efficiency of industrial hemp processing waste*

• Presenting Author: Anindita Paul, Dept. of Chemical Engineering,

Tuesday, July 19

SUNY-ESF, Syracuse, New York (Linjing Jia, Erica Majumder, Chang G. Yoo, Esteban Villarreal, Karthik Rajendran, Deepak Kumar) 2200804

23 *Analyzing the techno-economic aspects of co-processing fast pyrolysis bio-oil with conventional vacuum gas oil for the production of liquid fuels* • Presenting Author: Arun Sreekumar, University of Alberta Edmonton, Alberta, Canada (A.O. Oni, Vinoj Kurian, Amit Kumar) 2201031

24 *Life cycle assessment of biodegradable plastic film production using biobased feedstocks* • Presenting Author: Ashish Manandhar, The Ohio State University, Wooster, Ohio (Ajay Shah) 2201220

25 *Toward advancing the resource recovery from carbon dioxide through microwave-irradiated gasification of biomass sourced biochar* • Presenting Author: Chenxi Wang, Washington State University, Richland, Washington (Moriko Qian, Rongge Zou, Wendy Mateo, Hanwu Lei) 2200354

26 *Cost Assessment of Centralizing a Swine Manure and Corn Stover Co-Digestion System* • Presenting Author: Gabrielle Myers, Iowa State University, Ames, Iowa (D. Raj Raman, Daniel S. Andersen) 2200594

27 *Techno-economic analysis of wheat straw based ethanol system consisting of torrefaction and alkaline pretreatment technologies* • Presenting Author: Jaya Tripathi, Penn State, University Park, Pennsylvania (Daniel Ciolkosz) 2201155

28 *Co-Production of Nanocellulose and Sugars via Selective Enzyme Hydrolysis* • Presenting Author: Julia Cunniffe, North Carolina State University, Raleigh, North Carolina (Nathalie Lavoine, Wayne Yuan, William Joe Sagues) 2200222

29 *Simultaneous consumption of sugars in oilcane juice and hydrolysate by metabolically engineered *Saccharomyces cerevisiae** • Presenting Author: Kristen K. Eilts, DOE Center for Advanced Bioenergy and Bioproducts Innovation, University of Illinois at Urbana-Champaign, Illinois (Chinmay Kurambhatti, Shraddha Maitra, Nurzhan Kuanyshev, Yong-Su Jin, Vijay Singh) 2201138

30 *Thermophilic Anaerobic Digestion of Lemnaceae for Biogas Production* • Presenting Author: Lillian Lower, North Carolina State University, Raleigh, North Carolina (Jay Cheng, William Joe Sagues) 2200572

31 *Adsorptive treatment of Aquacultural wastes by pine bark derived nitrogen-doped biochars* • Presenting Author: Nitesh Kasera, North Carolina State University, Raleigh, North Carolina (Praveen Kolar, Steven Hall) 2200829

32 *Modeling Agrivoltaic Systems in Processing Tomatoes Crop in California* • Presenting Author: Omar Samara, UC Davis, Davis, California 2200831

33 *Potential of cyanobacterial species *Synechococcus elongatus* UTEX 2973 as a feedstock for sugar production during mixed wastewater bioremediation* • Presenting Author: Rifat Hasan, North Carolina State University, Raleigh, North Carolina (Ashley Beck, Steven Hall) 2200798

34 *Structural safety review and analysis of design standard of agrophotovoltaic system considering various crop cultivation conditions* • Presenting Author: Sang-ik Lee, Seoul

National University, Seoul, South Korea (Jong-hyuk Lee, Young-joon Jeong, Byung-hun Seo, Dong-su Kim, Ye-jin Seo, Ahmed Fawzy Eid, Won Choi) 2200524

35 *CoRncrete: A Corn-based Construction Material to Replace Cement* • Presenting Author: Shibli Sadik Tulip, North Dakota State University, Fargo, North Dakota (Nurun Nahar, Mijia Yang, Ewumbua Monono) 2200483

36 *A quantitative review of algal biomass production from anaerobic digestate* • Presenting Author: Qichen Wang, Auburn University, Auburn, Alabama 2200138

228 ESH-Ergonomics, Safety, & Health POSTER SESSION

Tuesday, July 19, 2:30pm-5:00pm

Location: Houston Ballroom Foyer

Sponsored By: 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

Moderated By: Michael Pate

37 *Development of Selected Safety Indicators for Breweries in North America* • Presenting Author: Jaime Thissen, Bemidji State University, Bemidji, Minnesota 2201194

38 *Development of Occupational Safety Indicators for Wineries in Selected States* • Presenting Author: Jaime Thissen, Bemidji State University, Bemidji, Minnesota 2201195

39 *Safety and health of women farmers using farm tools – a survey* • Presenting Author: Jianfeng Zhou, University of Missouri, Columbia, Missouri (Marcia C. Shannon, Karen Funkenbusch) 2200199

40 *Development and Validation of a Basic Ground Skills Assessment (BGSA) for Injury Risk Prevention in Equine-assisted Services* • Presenting Author: Michael Pate, Utah State University, Logan, Utah (Sarah Andersen, Holly Clement, Judy Smith, Rose Judd-Murray) 2200297

229 Innovations in Precision Agriculture

Tuesday, July 19, 2:30pm-5:00pm

Location: Briargrove A

Sponsored By: MS-54 Precision Agriculture, ITSC-353 Instrumentation & Controls

Moderated By: Michael Sama

2:35pm *Drone based temperature inversion profile mapping for understanding the effectiveness of wind machine based frost mitigation in fruit crops* • Presenting Author: Basavaraj R Amogi, Biological Systems Engineering, Washington State University, Prosser, Washington (Matthew D. Cann, Gajanan S. Kothawade, Venkata S. R. S. Gorthi, Karisma Yumnam, Gwen-Alyn Hoheisel, Lav R Khot) 2201213

2:50pm *Seed spacing estimator using convolutional neural networks and seed localization system* • Presenting Author: Rahul Harsha Cheppally, Kansas State University, Manhattan, Kansas (Rahul Harsha Cheppally, Ajay Sharda) 2201251

3:05pm *Hay yield estimation using proximal ultrasonic and LiDAR sensing based on machine learning* • Presenting Author: Kyuho Lee, University of Missouri, Columbia, Missouri 2201178

Tuesday, July 19

3:20pm *Opportunities for Agriculture through Industrial Internet of Things / Industry 4.0 - A comparison between US and Europe* • Presenting Author: Heinz Bernhardt, Technical University of Munich, Freising, Germany (Maximilian Treiber, Paulo Flores, Xin Sun, Leon Schumacher) 2200131

3:35pm **BREAK**

3:45pm *Efficient Smartphone-Based Tractor Guidance System* • Presenting Author: Virendra K. Tewari, Indian Institute of Technology Kharagpur, Kharagpur, West Bengal, India 2200450

230 Machinery Data and Task Optimization II

Tuesday, July 19, 2:30pm-5:00pm

Location: Sugarland B

Sponsored By: MS-49 Crop Production Systems, Machinery, and Logistics

Moderated By: John Long; Mark Siemens

2:35pm *Yield Monitor Data within On-Farm Research* • Presenting Author: John Fulton, Ohio State University, Columbus, Ohio (A.A. Gauci, A. Lindsey, S.A. Shearer, D. Barker, E.M. Hawkins) 2201132

2:50pm *Row-Crop Combine Harvest Load States Determination and Performance Analysis Using CAN Bus Data and Unsupervised Learning* • Presenting Author: Chee Town Liew, University of Nebraska-Lincoln, Lincoln, Nebraska (Santosh Pitla) 2200824

3:05pm *Design and experiments of an integrated manual-automatic navigation hydraulic steering system for crawler combine harvesters and its control method* • Presenting Author: Zhuohuai Guan, Nanjing Research Institute for Agricultural Mechanization Ministry of Agriculture, Nanjing City, Jiangsu Province, P.R.China (Gang Wang, Senlin Mu, Tao Jiang, Haitong Li, Min zhang, Chongyou Wu) 2200081

3:20pm *Development of Tire Stiffness Coefficient Measurement System for The Development of Dynamics Simulation Model for Agricultural Tractor* • Presenting Author: Hyeon-Ho, Jeon, Chungnam National University, Yuseong-Gu, Daejeon, South Korea 2201140

3:35pm **BREAK**

3:45pm *Analysis of Load Factor for the 67 kW Class Agricultural Tractor during Major Operations* • Presenting Author: Seung-Yun Baek, Chungnam National University, Daejeon, South Korea (Seung-Yun Baek, Yong-Joo Kim) 2201162

4:00pm *Analysis of Exhaust Gas of Emissions by Harvesting of Combine Harvester* • Presenting Author: Jun-Ho Lee, Chungnam National University, Daejeon, Yuseong-Gu, Republic of Korea (Hyeon-Ho Jeon, Seung-Yun Baek, Seung-Min Baek, Yong-Joo Kim) 2201166

4:15pm *Development of Working Mode for Agricultural tractors according to Rotary Tillage and Baler Operation* • Presenting Author: Hyun-Jun Oh, Chungnam National University, Daejeon, Republic of Korea (Seung-Yun Baek, Wan-Soo Kim, Seung-Min Baek, Hyeon-Ho Jeon, Jun-Ho Lee, Yong-Joo Kim) 2201240

4:30pm *Development and Validation of simulation model for three point-hitch during agricultural operation* • Presenting

Author: Mo-A Son Chungnam National University, Daejeon, Republic of Korea (Hyeon-Ho Jeon, Yong-Joo Kim) 2201242

231 Robotics & Mechanization for Production and Postharvest of Specialty Crops I

Tuesday, July 19, 2:30pm-5:00pm

Location: River Oaks A

Sponsored By: 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

Moderated By: Jianfeng Zhou; Long He

2:35pm *Conceptual design of mechanical harvesting solutions for American elderberry* • Presenting Author: Jianfeng Zhou, University of Missouri, Columbia, Missouri 2200200

2:50pm *Mechanized Harvest of Onions in South Texas* • Presenting Author: Stephen W. Searcy, Texas A&M AgriLife Research, College Station, Texas (Dante Galeazzi) 2200054

3:05pm *A Simulated Orchard Environment for Robotic Apple Harvesting Research* • Presenting Author: Renfu Lu, USDA-ARS, East Lansing, Michigan (Lu, R., Dickinson, N., Lammers, K., Chu, P., Zhang, K., Li, Z.) 2200761

3:20pm *Testing a combinatorial-based melon harvesting scheduling algorithm on fruit orchard harvesting and the effects of varying the robot's geometric configuration* • Presenting Author: Natalie Pueyo Svoboda, UC Davis, Davis, California (Stavros Vougioukas) 2200427

3:35pm **BREAK**

3:45pm *Computer-aided design and optimization of a shake-catch soft fruit harvester* • Presenting Author: Kaiming Fu, University of California, Davis, Davis, California (Stavros G. Vougioukas, Brian N. Bailey) 2200344

232 Agricultural Water Management: Monitoring and Modeling

Tuesday, July 19, 2:30pm-5:00pm

Location: River Oaks B

Sponsored By: NRES

Moderated By: Asmita Murumkar; Laxmi Prasad

2:35pm *Quantification of Unreported Water Use for Crop Irrigation* • Presenting Author: Laljeet Sangha, Virginia Tech, Blacksburg, Virginia (Julie Shortridge, Robert Burgholzer, Joseph Kleiner, Ryan Green, Durelle Scott) 2200930

2:50pm *Spatially distributed groundwater footprints of cropping systems in the Irrigated Indus Basin (IIB)* • Presenting Author: Arfan Arshad, Department of Biosystems and Agricultural Engineering, Oklahoma State University, Stillwater, Oklahoma (Ali Mirchi) 2200477

3:05pm *Design of floodwave analysis methodology based on pointcloud segmentation* • Presenting Author: Jonghyuk Lee, Seoul National University, Seoul, South Korea (Sang-ik Lee, Youngjoon Jeong, Byunghoon Seo, Dongsoo Kim, Yejin Seo, Ahmed Fawzy Eid, Won Choi) 2200924

3:20pm *An L-moments Scaling bias correction method for precipitation and temperature, for hydrological applications* • Presenting Author: Rohith A N, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India (Cibin Raj, K P Sudheer) 2200960

3:35pm BREAK

3:45pm *Improving Orchard Irrigation System Design With an Open-Source Hydraulic Calculation Tool* • Presenting Author: Liyuan Yang, Biological System Engineering at University of California - Davis, Davis, California (Brian Bailey, Isaya Kisekka) 2200897

4:00pm *Promoting sensor-based irrigation management in western Nebraska* • Presenting Author: Xin Qiao, University of Nebraska Lincoln, Scottsbluff, Nebraska 2201248

4:15pm *Performance analysis of AquaCrop model for simulating forage sorghum yield in western Kansas under different irrigation conditions* • Presenting Author: Farzam Moghbel, Southwest Research-Extension Center, Kansas State University, Garden City, Kansas (Forough Fazel, Jonathan Aguilar, Hossein Ansari) 2201255

4:30pm *Using spatial crop modeling to improve the regional agricultural water planning* • Presenting Author: Ali Ajaz, Texas Water Resources Institute - Texas A&M AgriLife, College Station, Texas (Allen Berthold, Shubham Jain) 2200956

233 Application of Data Driven Models in Irrigation System Design, Analysis and Management

Tuesday, July 19, 2:30pm-5:00pm

Location: River Oaks C

Sponsored By: NRES-24 Irrigation Group, ITSC-254 Emerging Information Systems

Moderated By: Brad King; Sandra Guzman

2:35pm *Use of Self-Organizing Maps to Estimate Furrow Sediment Loss in the Western U.S.* • Presenting Author: Bradley King, USDA-ARS NWISRL, Kimberly, Idaho (David L. Bjorneberg) 2200425

2:50pm *Irrigation Scheduling Models Assisted by Soil Water Content Data* • Presenting Author: Kelly Thorp, USDA-ARS, Maricopa, Arizona 2200058

3:05pm *Machine learning derived non-stressed canopy temperature for thermal baseline development and irrigation management of maize in semi-arid environments* • Presenting Author: Hope Njuki Nakabuye, University of Nebraska-Lincoln West Central Research Extension and Education Center, North Platte, Nebraska (Hope Njuki Nakabuye, Daran Rudnick, Kendall DeJonge, Tsz Him Lo, Trenton Franz, Xin Qiao, Derek Hereen, Abia Katimbo, Jiaming Duan) 2200776

3:20pm *Estimation of Alfalfa Hay Crop Yield in Northern Nevada using two different regression methods* • Presenting Author: Diego Quintero, College of Agriculture, Biotechnology and Natural Resources, University of Nevada-Reno, Reno, Nevada (Manuel A. Andrade, Uriel Cholula, Juan Solomon) 2201103

3:35pm BREAK

3:45pm *Use of short-term weather forecast data in irrigation scheduling to improve water and nutrient use in*

humid climates: Experimental Results in Corn and Cotton • Presenting Author: Lajeet Sangha, Virginia Tech, Blacksburg, Virginia (Julie Shortridge, William Frame) 2200736

4:00pm *Comparison of Crop Water Stress Index with varying water stress levels based on Neutron soil moisture measurements* • Presenting Author: Abia Katimbo, University of Nebraska-Lincoln, North Platte, Nebraska (Daran Rudnick, Kendall C. DeJonge, Tsz Him Lo, Xin Qiao, Trenton Franz, Hope Njuki Nakabuye, Jiaming Duan) 2200911

4:15pm *Estimation of daily evapotranspiration by spatiotemporal interpolation of Landsat-derived evapotranspiration* • Presenting Author: Jeongho Han, Department of Agricultural and Biological Engineering University of Illinois at Urbana-Champaign, Urbana, Illinois (Jeongho Han, Jorge A. Guzman, Maria L. Chu) 2200411

234 Barriers and Opportunities of Adoption of Manure and Agricultural Byproducts Management

Tuesday, July 19, 2:30pm-5:00pm

Location: Kingwood A

Sponsored By: NRES-27 Ag Byproducts & Animal Mortality Systems

Moderated By: Linda Schott; John Classen

2:35pm *Impact of Compost Age on Composition: A Case Study* • Presenting Author: John P. Chastain, Clemson University, Clemson, South Carolina 2200402

2:50pm *Influence of manure application and soil physicochemical properties on leaching of metals in pastures* • Presenting Author: Kritika Malhotra, Auburn University, Auburn, Alabama 2200986

3:05pm *Comparative Assessment of Drying Technologies for Lagoon Sludge Management* • Presenting Author: Mahmoud Sharara, North Carolina State University, Raleigh, North Carolina 2200953

3:20pm *Delivery of extension educational materials on manure management using Virtual Reality videos* • Presenting Author: Danadhi Gunawardana, Department of Biological and Agricultural Engineering, Texas A&M University, College Station, Texas (Zong Liu) 2201040

3:35pm BREAK

3:45pm *Identifying optimal locations for advancing the circular bioeconomy on dairy farms using manure-grown duckweed: A case study of the Chesapeake Bay Watershed* • Presenting Author: Femeena Pandara Valappil, Department of Civil and Environmental Engineering, The Pennsylvania State University, University Park, Pennsylvania (Christine Costello, Rachel A. Brennan) 2201027

4:00pm *Determining The Amount and Frequency of Using Milk as A Liquid Source to Improve Manure Compost* • Presenting Author: Amirhossein Mahdaviarab, Texas A&M University Department of Biological and Agricultural, College Station, Texas (Ruiji Cheng, Xiao Wang, Zong Liu) 2200996

4:15pm *Assessing the impact of dumping excess milk produced by the dairy farms, into the dairy waste lagoon on*

Tuesday, July 19

the quality of the dairy waste lagoons • Presenting Author: Ruiji Cheng, Texas A&M, College Station, Texas (Amirhossein Mahdaviarab, Xiao Wang, Zong Liu) 2200994

235 Extreme Event Hydrologic and Water Quality Modeling

Tuesday, July 19, 2:30pm-5:00pm

Location: Kingwood B

Sponsored By: 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

Moderated By: Jasmeet Lamba; Hemendra Kumar

2:35pm *Does climate data bias correction method influence multimodal uncertainty?* • Presenting Author: Rohith A N, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India (Cibin Raj, K P Sudheer) 2200963

2:50pm *Assessment of projected change in Intensity-duration-frequency (IDF) curves for Southeastern, United States using Artificial Neural Networks* • Presenting Author: Bijoychandra S. Takhellambam, Auburn University, Department of Biosystem Engineering, Auburn, Alabama (Puneet Srivastava, Jasmeet Lamba, Wenpeng Zhao, Hemendra Kumar, Di Tian) 2200175

3:05pm *Hydrodynamic modeling of the Mississippi Sound* • Presenting Author: Anna Linhoss, Auburn University, Auburn, Alabama 2200107

3:20pm *Assessment of BMP practices on water quality of coastal watersheds in Mississippi* • Presenting Author: Shreeya Bhattarai, Mississippi State University, Starkville, Mississippi (Prem B. Parajuli) 2200357

3:35pm **BREAK**

3:45pm *Assessment of compound hot and drought extreme (CHDE) events in Illinois across scales* • Presenting Author: Manas Khan, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois (Rabin Bhattarai) 2200398

4:00pm *Hydrologic Modeling of Green Stormwater Infrastructure at the Watershed-Scale During Extreme Hydrologic Events* • Presenting Author: Caleb Mitchell, North Carolina State University, Raleigh, North Carolina 2200576

4:15pm *Simulation of soil freeze dynamics with improved RZ-SHAW model* • Presenting Author: Zhiming Qi, McGill University, Sainte Anne de Bellevue, Quebec, Canada 2200598

4:30pm *Analyzing Hurricane Florence Flood Water Quality Dynamics Using Weather and Watershed Characteristics* • Presenting Author: Emine Fidan, NC State University, Raleigh, North Carolina (Natalie Nelson, Ryan Emanuel, Brian Reich, Angela Harris) 2200400

4:45pm *The Impacts of Extreme Weather on Water Availability in the Brazos River Basin, Texas Using Multiple Hydrological Models* • Presenting Author: Hao-Po Chang, Texas A&M University-Kingsville, Kingsville, Texas (Tushar Sinha) 2201192

Future ASABE Meetings and Conferences:

- **IHC 2022-International Symposium on Mechanization, Precision Horticulture, and Robotics** ASABE endorsed event, August 14-20, 2022, Angers, France
- **11th International Drainage Symposium** ASABE endorsed event, August 30-September 9, 2022, Des Moines, Iowa
- **Sustainable Energy for a Sustainable Future** October 24-26, 2022, San Jose, Costa Rica
- **Soil Erosion Research under a Changing Climate Symposium** January 8-13, 2023, Aguadilla, Puerto Rico
- **2023 Agricultural Equipment Technology Conference** February 12-14, 2023, Fresno, California
- **2023 Annual International Meeting** July 9-12, 2023, Omaha, Nebraska
- **2024 Annual International Meeting** July 28-31, 2024, Anaheim, California

236 Monitoring Standards: Applications, Methods and Technologies-HYBRID Session

Tuesday, July 19, 2:30pm-5:00pm

Location: Meyerland B

Sponsored By: NRES-21 Hydrology Group

Moderated By: Adel Shirmohammadi; Darren Harmel

2:35pm *Water Quality Monitoring on Field-Scale and Small Watersheds: Data Quality and Resource Constraints* • Presenting Author: Daren Harmel, USDA-ARS Center for Agricultural Resources Research (CARR), Fort Collins, Colorado (H.E. Preisendanz, K.W. King, B.E. Haggard, D.R. Smith, D. Busch) 2200019

2:55pm *Monitoring Within the Context of Hydrologic and Water Quality Assessment* • Presenting Author: Adel Shirmohammadi, University of Maryland, College Park, Maryland 2200020

3:15pm *Water Quality Monitoring with Grab Samples: What Do You Want to Do with the Data? It Matters* • Presenting Author: Brian Haggard, University of Arkansas, Fayetteville, Arkansas (B.J. Austin, A.N. Lasater, Z.P. Simpson, E.M. Grantz) 2200021

Tuesday, July 19

3:35pm BREAK

3:45pm *Cost Reduction Strategies for Edge-of-Field Water Monitoring* • Presenting Author: Dennis Busch, University of Wisconsin, Platteville, Wisconsin (K.W. King, R.D. Harmel, M.B. Daniels, J. Anderson) 2200022

4:05pm *Roundtable discussion and wrap-up*

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

Tuesday, July 19, 2:30pm-5:00pm

Location: Hunter's Creek A

Sponsored By: NRES-23 Drainage Group

Moderated By: Vinayak Shedekar; Lindsay Pease

Panel Discussion • Panelists: Vinayak Shedekar, The Ohio State University, Columbus, Ohio; Ehsan Ghane, Michigan State University, East Lansing, Michigan; Chandra Madramootoo, McGill University, Ste Anne de Bellevue, Quebec, Canada; Larry Brown, The Ohio State University, Columbus, Ohio

238 Nutrient Removal, Recovery, and Recycle

Tuesday, July 19, 2:30pm-5:00pm

Location: Hunter's Creek B

Sponsored By: NRES-28 Ecological Engineering, NRES-23 Drainage Group

Moderated By: Clifford Fedler

2:35pm *The effect of light intensity on duckweed growth: Improving an intrinsic growth model using new experimental data* • Presenting Author: Femeena Pandara Valappil, Department of Civil and Environmental Engineering, The Pennsylvania State University, University Park, Pennsylvania (Benjamin Roman, Rachel A. Brennan) 2200781

2:50pm *Cellulose Fiber As Phosphorus Adsorbent Material* • Presenting Author: Fidelina Flores, University of Illinois Urbana-Champaign, Urbana, Illinois (Gopu Raveendran Nair, Jorge Alberto Guzman Jaimes, Maria Librada Chu) 2200431

3:05pm *Optimization and modeling of microwave irradiated ammonia nitrogen removal from anaerobically digested liquid dairy manure* • Presenting Author: Arif Reza, University of Idaho, Twin Falls, Idaho (Arif Reza, Lide Chen, Kevin Kruger) 2200418

3:20pm *Evaluation of Novel Ammonia Recovery from the Anaerobic Effluent by Integrating Biogas Stripping and Gypsum Absorption* • Presenting Author: Do-Gyun Kim, Department of Biological Systems Engineering, Washington State University, Pullman, Washington (Liang Yu, Shulin Chen) 2200250

3:35pm BREAK

3:20pm *Characterization of Hydrochar via Hydrothermal Carbonization from Dairy Manure for Nutrient Cycling* • Presenting Author: Imran Hussain Mahdy, University of Idaho, Moscow, Idaho 2200492

3:45pm *Production and Application of Compost Products from Dairy Manure and Almond Waste as Soil Amendment on California Almond Orchards* • Presenting Author: Abdolhossein Edalati, UC Davis, Davis, California (Yike Chen, Allan Chio, Tyler Barzee,

Hamed Elmashad, Sat Darshan S Khalsa, Pramod Pandey, Patrick Brown, Ruihong Zhang) 2201046

4:00pm *Preparation of soy protein concentrate and isolate from defatted soy flour and phosphorus fractionation from the process streams* • Presenting Author: Shuchi Singh, Department of Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign, Illinois (Chinmay Kurambhatti, Vijay Singh) 2201075

4:15pm *Evaluation of An Advanced System for Manure Solids Separation for Compost Production on Dairies* • Presenting Author: Abdolhossein (Hossein) Edalati, Biol. Agric. Eng. Dept, UC Davis, Davis, California (Yike Chen, Allan Chio, Tyler J Barzee, Hamed M. El Mashad, Ruihong Zhang) 2201258

239 Water Reuse in Agriculture

Tuesday, July 19, 2:30pm-5:00pm

Location: Montrose A

Sponsored By: NRES-27 Ag Byproducts & Animal Mortality Systems, NRES-24 Irrigation Group

Moderated By: Carolyn Jones

2:35pm *The Frontier of Drainage Water Recycling* • Presenting Author: Christopher Hay, Iowa Soybean Association, Ankeny, Iowa (Benjamin Reinhart, Jane Frankenberger, Matthew Helmers, Xinhua Jia, Kelly Nelson, Mohamed Youssef) 2200489

2:50pm *Hydroponic Wastewater Characterization and Nutrient-Use Assessment to Evaluate Biological Treatment Suitability for Recirculating Irrigation* • Presenting Author: Kelsey Vought, University of Florida, Gainesville, Florida (Ana Martin-Ryals, Haimanote Bayabil, Daniel Crawford, Griffin Lay) 2200471

3:05pm *Modeling Salinity Impacts on Yield and Economic Returns of Selected Crops in California* • Presenting Author: Floyd Nicolas, University of California Davis, Davis, California (Isaya Kisekka) 2200834

3:20pm *Alternative Wastewater Pond Design for Land Applying the Effluent* • Presenting Author: Clifford Fedler, Texas Tech University, Lubbock, Texas (Luis Carlos Soares da Silva Junior, Kushal Adhikari) 2200702

3:35pm BREAK

3:45pm *Electrolysis of post-hydrothermal liquefaction wastewater to increase nitrogen availability* • Presenting Author: Barbara Camila Bogarin Cantero, Department of Agricultural and Biological Engineering, University of Illinois, Urbana-Champaign, Illinois (Yuanhui Zhang, Paul Davidson) 2200413

4:00pm *Cation Ratio of Soil Structural Stability Predicts the Potential of Soil Infiltration Problems Better Than Sodium Adsorption Ratio* • Presenting Author: Usama Al-Dughaiishi, University of California Davis, Davis, California; Sultan Qaboos University, Oman (Steve Grattan, Isaya Kisekka) 2200504

4:15pm *Assessment Groundwater Quality for a Municipality Environment- an urgent need for rural development and water reuse* • Presenting Author: Kumar Veluswamy, Former Professor & Head, Agricultural Engineering Department, ACRI-TNAU, Madurai Campus, India (Satheesh Kumar, P, Chandran, S, Dhanasekara Pandian, M, Sivasangari, S.) 2201243

Tuesday, July 19

240 Air Emission from Livestock and Poultry Production

Tuesday, July 19, 2:30pm-5:00pm

Location: Montrose B

Sponsored By: PAFS-50 Environmental Air Quality

Moderated By: Mindy Spiehs

2:35pm *Formation of Secondary Inorganic PM_{2.5} as Impacted by Ammonia Emissions from Animal Feeding Operations* • Presenting Author: Blake Stratton, Biological and Agricultural Engineering, North Carolina State, Raleigh, North Carolina 2200830

2:50pm *Rolling Unmasking Effect: Exploration of Downwind Odor Dispersion from a Model Animal Source* • Presenting Author: Jacek Koziel, Iowa State University, Ames, Iowa (Donald W. Wright, Jacek A. Koziel, David B. Parker, Anna Iwasinska, Thomas G. Hartman, Paula Kolvig, Landon Wahe) 2200335

3:05pm *Influence of manure removal depth on nitrous oxide and methane emissions from a beef cattle feedlot pen surface in Texas* • Presenting Author: Kenneth D. Casey, Texas A&M AgriLife Research, Amarillo, Texas (David B. Parker, Heidi M. Waldrip) 2201241

3:20pm *An Innovative Experimental Setup to Quantify Fugitive Emissions From Manure Spreading* • Presenting Author: Patrick Brassard, IRDA, Quebec City, Quebec, Canada (Vincent Desbiens, Mahsa Baghdadi, Valérie Létourneau, Nathalie Turgeon, Caroline Duchaine, Stéphane Godbout) 2200768

3:35pm BREAK

3:45pm *The use of ultraviolet radiation to reduce airborne Escherichia coli* • Presenting Author: Xuan Dung Nguyen, Department of Animal Science, The University of Tennessee, Knoxville, Tennessee (Yang Zhao, Jeffrey D. Evans, Jun Lin, Brynn Voy, Joseph L. Purswell) 2200439

4:00pm *Odor-Cued Grab Air Sampling for Improved Assessment of Transient Downwind Environmental Odor Events* • Presenting Author: Jacek Koziel, Iowa State University, Ames, Iowa (Donald W. Wright, Jacek A. Koziel, David B. Parker, Fred Kuhrt, Anna Iwasinska, David Eaton, Landon Wahe) 2200336

4:15pm *Continuous air cleaning by filtration and UV-C treatment of airborne pathogens and particulate matter in indoor spaces* • Presenting Author: Peiyang Li, Department of Agricultural and Biosystems Engineering, Iowa State University, Ames, Iowa (Peiyang Li, Jacek A. Koziel, Nubia Macedo, Jeffrey J. Zimmerman, Danielle Wrzesinski, Erin Sobotka, Mateo Baldera, William B. Walz, Reid Vincent Paris, Dongjie Liu) 2200192

4:30pm *Biosolids odor control through sludge holding tank aeration* • Presenting Author: Hao Luo, Virginia Tech, Loudoun, Virginia (Dian Zhang, Malcolm Taylor, Caroline Nguyen, Zhiwu Wang) 2200861

4:45pm *Effect of adding 10% aluminum sulfate to beef feedlot surface material on ammonia, hydrogen sulfide, and greenhouse gas flux* • Presenting Author: Mindy J. Spiehs, USDA ARS Meat Animal Research Center, Aurora, Nebraska (Bryan L. Woodbury) 2200659

241 ASABE - New Standards for HVAC in Indoor Plant Environments Without Sunlight - and CEA Session

Tuesday, July 19, 2:30pm-5:00pm

Location: Texas A

Sponsored By: PAFS-30 Plant Systems Group

Moderated By: Jonathan Maisonneuve; Mark Lefsrud

2:35pm *New Standards for HVAC in Indoor Plant Environments Without Sunlight* • Presenting Author: Nadia Sabeh, Dr. Greenhouse, Inc., Sacramento, California (Kyle Bowling, Mark Lefsrud) 2200009

3:35pm BREAK

3:45pm *Luminescent Greenhouse Films Containing Quantum Dots Optimize Spectral Quality to Enhance Crop Yield* • Presenting Author: Charles H. Parrish II, UbiQD, Inc., Los Alamos, New Mexico (Damon Hebert, Karthik Ramasamy, Hunter McDaniel, Gene A. Giacomelli, Matthew R. Bergren) 2200302

4:00pm *Study on the Influence of Different Far Red Light intensity on Growth, Photosynthetic Characteristics and Quality of Lettuce* • Presenting Author: Lili Meng, Institute of Facilities and Equipment in Agriculture, Jiangsu Academy of Agricultural Sciences, Nanjing, Jiangsu, China (Lili Meng, Jiangfeng Song, Qichang Yang, Yi Zhang, Zongchun Bai) 2200607

4:15pm *Water productivity of commercial-scale vegetable aquaponics* • Presenting Author: Nathan Howell, West Texas A&M University, Canyon, Texas (Nathan Parker) 2200274

4:30pm *Freeze-drying of Cannabis (Cannabis sativa) using Real-Time Relative Humidity Monitoring and Mathematical Modeling* • Presenting Author: Philip Wiredu Addo, McGill University, Ste-Anne-de-Bellevue, Quebec, Canada (Tristan Chauvin-Bossé, Nichole Taylor, Sarah MacPherson, Mark Lefsrud) 2200816

4:45pm *Sensor Design for Measuring Surface Electrical Potentials* • Presenting Author: Yasmeen Hitti, McGill University, Quebec, Canada (Mark Lefsrud, Jerome Trudel-Brais, Audrey Durand, Florian Golemo) 2201011

5:00pm *A next-generation framework for investigating mature root systems in 3D* • Presenting Author: G. Cody Bagnall, Donald Danforth Plant Science Center, Saint Louis Missouri (Christopher N. Topp, Tyler Dowd, Mao Li, Marcus Griffiths) 2200484

242 Technology Trends and Career Opportunities in the U.S. and Korea-HYBRID Session

Tuesday, July 19, 2:30pm-4:00pm

Location: Brazoria B

Sponsored By: E-2050 Global Engagement

Moderated By: Young Gu Her

2:35pm *Digital Agriculture, driving force for agricultural growth in South Korea* • Presenting Author: Kangjin Lee, Korean Society for Agricultural Machinery, Rural Development Administration, South Korea 2200007

3:15pm *Texas A&M AgriLife Blackland Research Center: Solving Land & Water Issues for Over 100 Years* • Presenting Author: Jaehak Jeongm Department of Biological and Agricultural Engineering, Texas A&M AgriLife Research, Texas A&M University, Temple, Texas 2200008