

NC State BAE Presentations at 2018 ASABE AIM

Monday, July 30th – 14 Presentations:

- Session 128 - Biochemical Conversion and Bioprocess Modeling in Room 338
 - **10:20 AM - Quan Zhou**, Kinetic modeling of mixed sugar effects on butanol fermentation by *Clostridium saccharoperbutylacetonicum*

- Session 109 – Safety Considerations in Agriculture in Room 142B
 - **11:00 AM - Charles Collins**, FAA 14 CFR Part 107 for Commercial UAS and UAS as Agriculture Field Equipment: A Review for Agriculture Safety Standards

- Session 115 - Robotics and Co-Robotics for Agriculture - Part 1 in Room 252A
 - **11:00 AM – Sierra Young (New Faculty Member starting in January 2019)**, Telemanipulation by Unmanned Aerial Vehicles for Agricultural Data Applications

- Session 145 - Machinery Data & Task Optimization - Part 1 in Room 141
 - **2:35 PM – Jason Ward**, Peanut Planting Optimization with Machinery Data

- Session 152 - Agricultural Drainage: Past, Present, and Future – Honoring the Career of Dr. Norm Fausey in Room 140G
 - **2:35 PM – Wayne Skaggs**

- Session 156 - Managing Manure and Agricultural Byproducts for Sustainability - Part 1 in Room 335
 - **2:35 PM - John Classen**, Are recoverable manure nutrients worth the effort? A comparative analysis
 - **3:05 PM - Briana Hess**, Assessment of Probable Interfering Species Present in Swine Lagoons Effect on Copper Adsorption by Eggshell Biomass
 - **3:20 PM - Zac Lentz**, Adsorption of urea by swine manure hydrochar

- Session 157 - Nutrient Removal, Recovery and Recycle - Part 1 in Room 336
 - **2:50 PM - Alison Deviney**, Ammonium Ion Selective Electrode Response in Swine Urine Solutions

- Session 150 - Environmental and Applied Tracers in Groundwater and Surface Water Systems in Room 331B
 - **3:50 PM - Dani Winter**, Comparison of Pre-Restoration and Post-Restoration In-Stream Solute Transport and Treatment in a Restored Coastal Plain Stream

- Session 163 - Measurement and Mitigation of Air Pollutants from Livestock and Poultry Housing in Room 356
 - **4:30 PM – Ali Ajami**, Windbreak wall-vegetative strip system to reduce pollutant emissions from fan-ventilated swine and poultry barns

- Session 159 - Natural Resources & Environmental Systems Poster Session in Atrium
 - **5:00-7:00 PM - Ehsan Bagheri**, Real-time Water Table Management for optimizing crop yield, conserving water and reducing nutrient losses from artificially drained cropland (Poster #26)
 - **5:00-7:00 PM - Dani Winter**, Comparison of Pre-Restoration and Post-Restoration In-Stream Solute Transport and Treatment in a Restored Coastal Plain Stream (Poster #89)
 - **5:00-7:00 PM - Rachel Taylor**, Optimizing Regenerative Stormwater Conveyance for Nutrient Removal (Poster #95)

Tuesday, July 31st – 15 Presentations:

- Gunlogson Environmental Design Student Competition in Room 359
 - **9:30 AM - Craig Ballard, Sam Fasking, Emily Magoon, and Nick Smirne**
- Session 224 - Advances in Drainage Design, Monitoring and Modeling in Room 336
 - **9:35 AM – Lamyaa Negm**, Determining Management Protocols for Automated Drainage/Sub-irrigation systems: A Modelling Study
- Session 212 - UAV for Sensing, Imaging, and Crop Material Application - Part 1 in Room 250B
 - **9:50 AM – Charles Collins**, The Assessment of Accuracy and Stability for a UAS Sensor Platform as a Precision Agriculture Management Tool in Detecting and Mapping Geospatial Field Variability
- Session 230 - Ecological Engineering Applications in Room 356
 - **10:35 AM – Matthew Campbell**, Biologically Dominated Submerged Breakwaters for Shoreline Stabilization and Habitat Restoration
- Session 229 - Nutrient Removal, Recovery and Recycle - Part 2 in Room 355
 - **10:20 AM – Manal Askar**, DRAINMOD-P, a model for simulating phosphorus dynamics in artificially drained croplands
- AGCO National Student Design Competition in Room 359
 - **11:00 AM - Ben Cranfill, Ben Cauthen, Alex Greeson, Matthew Parker, and Will Marsh**
- Session 253 - Complexity and Dynamics in Coupled Natural and Human Systems in Room 251C
 - **2:35 PM – Lise Montefiore**, Coupling climate, land use, and sea level rise projections to identify threatened estuaries across the South Atlantic and Gulf Coasts
- Session 254 - Leveraging Big Data and Computational Tools for Tackling Environmental Problems in Room 252A
 - **3:20 PM – Mahmoud Sharara (New Faculty Member starting in August)**, Improving the spatial and temporal resolution of agricultural nutrient balances
 - **4:00 PM – Charlie Stillwell**, A Statistical Machine Learning Approach to Guide Stormwater Management in North and South Carolina, USA

- Session 255 - Innovative Hydrology and Water Quality Monitoring and Analysis in Room 252B
 - **2:35 PM – François Birgand**, Effect of Stream Restoration on Water Quality and Quantity in the Coastal Plain of North Carolina
 - **4:00 PM – Chadi Sayde**, Towards Multi-scale Tracking of Water Movement Across the Soil-Plant-Atmosphere Continuum Using Fiber Optics Temperature Sensing

- Session 266 - Reusing Rain & Wastewater On-site in Non-Irrigation Ag Setting: Opportunities & Challenges in Room 333
 - **2:35 PM – Al Rubin**, Non-Potable Water Treatment and Use at a Private Educational Facility
 - **3:45 PM – Praveen Kolar**, Catalytic Ozonation of Household Graywater

- Session 256 - BMPs and Water Quality: Conservation Systems - Part 2 in Room 334
 - **3:05 PM – Austin Wissler**, The Role of Woody Vegetation in Stormwater Volume Control and Treatment Performance in Dry Detention Basins

- Session 261 – Ecological Engineering Education: Homework Problems and Projects (Mini-Presentations) in Room 331C
 - **3:05 PM – Steve Hall**, Analysis of Oyster Aquaculture for Nutrient Removal and Ecosystem Services

Wednesday, August 1st – 19 Presentations:

- Session 323 - Aquaculture and Engineered Aquatic Environments in Room 332
 - **7:35 AM – Steve Hall**, Engineering Challenges in Marine Aquaculture
 - **7:50 AM – Diplina Paul**, Review of conventional and alternative media used in biofiltration of aquaculture effluents
 - **9:15 AM – Matthew Campbell**, Hydrodynamic Effects on Oyster Aquaculture Systems

- Session 324 - Measurement and Modeling of Ecosystem Services in Room 333
 - **7:50 AM – François Birgand**, Integrative indicators as robust metrics of catchment biogeochemical function

- Session 304 - Energy Utilization and Application in Agricultural Facilities, Processes and Operations in Room 140D
 - **7:50 AM – Li Yu**, Evaluation of a Landscape-Fabric Based Solar Air Heater in a Pig Nursery

- Session 320 - Stream Processes and Restoration in Room 331A
 - **8:05 AM – Lucie Guertault**, Suitability of a Linear Model for Predicting Cohesive Soil Detachment: Investigations with a Jet Erosion Test (JET)
 - **8:20 AM – Garey Fox**, Groundwater Flux Estimation in Streams: A Thermal Equilibrium Approach

- Session 326 - Air Emission from Livestock and Poultry Production in Room 335
 - **8:45 AM – Yijia Zhao**, Atmospheric Modeling of Precursor Gases to Inorganic PM_{2.5} in a Regional Scale Coupled with an Improved Ammonia Emission Inventory for Animal Agriculture
 - **9:00 AM – Bin Cheng**, Dynamics of Rural and Urban Inorganic Aerosols
 - **9:15 AM – Bin Cheng**, Emissions and Characteristics of Particulate Matter As Impacted by Air Velocity Treatment for Heavy Broilers: A Chamber Study
 - **9:30 AM – Derek West**, Ammonia Emission as Impacted by Air Velocity Treatment for Heavy Broilers: A Chamber Study

- Ethics in Engineering Essay and Video Presentation in Room 354
 - **9:30 AM** – Ethics Video Competition Screening with video by **Kayla Kassa, Katie Balaze, and Katy Mazer**
 - **9:30 AM** - Ethics essay competition finalist – **Kayla Kassa**

- Session 352 - Plant, Animal, & Facility Systems Poster Session in Atrium
 - **10:15-12:15 PM – Devon Wilcox**, Integrated Multi-Trophic Aquaculture Utilizing Atlantic Striped Bass, *Morone saxatilis*, and Microalgae, *Thalassiosira* (Poster #8)
 - **10:15-12:15 PM – Melody Thomas**, Modeling rapid chilling of eastern oysters (*Crassostrea virginica*) (Poster #12)

- Session 342 - Precision Spray Applications with UAVs and Drones in Room 251C
 - **10:20 AM – Josh Rudd**, Using unmanned aircraft systems to develop variable rate prescription maps for cotton defoliant

- Session 348 - 348 Edge-of-Field Best Management Practices for Agricultural Drainage Systems - Part 2 in Room 333
 - **10:35 AM – Bryan Maxwell**, Can drying-rewetting cycles in woodchip bioreactors increase short and long-term nitrate removal rates?

- Session 335 - Dielectric Properties and Sensing Applications in Room 142A
 - **11:35 AM – Mahmoud Shehata**, New Techniques to Measure the Spatial Variability of the Soil Moisture Content

- Session 345 - Computational Ecohydrology in Room 331C
 - **12:05 PM – Natalie Nelson**, Estimating estuary-scale detention of freshwater and dissolved organic matter by oyster reefs using satellite imagery