

Biological and Environmental Engineering

Third Annual

BEE Research Symposium: Friday, March 4th, 2011

Oral Presentations Riley Robb 125 11:00AM – 1:00PM

11:00 .**Elliot Friedman** – *Angenent Lab*

Bioelectrochemical systems as biosensors – remote monitoring of bacterial respiration in Arctic peat soils

11:15 .**Pichamon Kiatwuthinon** – *Luo Lab*

DNA hydrogel for a 3-D cell culture system

11:30 .**JMR Apollo Arquiza** – *Hunter Lab*

Taking care of garbage in outer space: Drying astronaut trash for stabilization and water recovery in long-duration space missions

11:45 .**Benjamin Brown-Steiner** – *Hess Lab*

Asian influence on surface ozone in the United States: a comparison of regional chemistry, seasonality, and transport mechanisms

12:00 .**Todd Anderson** – *Soil & Water Lab*

Denitrification in a northeastern agricultural landscape

12:15 .**Christine Baver** – *Soil & Water Lab*

Examining the Wetting Front through the Dynamic Contact Angle

12:30 .**Jiajie Yu** – *March Lab*

Recreating 3D human small intestine villus model in vitro

12:45 .**Michael Walsh** – *Ahner Lab*

Determination of metal-thiol stability constants using a fluorescent probe

Poster Session Riley Robb 400 1:00 – 3:00PM

Lunch Available

Group A presenters will be at their posters from 1:30-2:00; Group B 2:00-2:30

Closing Reception Riley Robb 400 2:45 – 3:00PM

Refreshments Available

Biological and Environmental Engineering

POSTER SESSION (Presenter/Lab/Title)

A: Presenters will be at their posters from 1:30-2:00pm

B: Presenters will be at their posters from 2:00-2:30pm

[1A] Robert Frost Angenent Lab

Feasibility of home biogas generation from kitchen waste

[2B] John Connelly Baemner Lab

Biosensor with Integrated Pre-concentration Module for the Detection of Enteric Viruses

[3A] Matthew Agler Angenent Lab

Improving specificity and yield of the carboxylate platform with continuous and product-specific pertraction

[4B] Josephine Archibald TWalter-Soil & Water Lab

Climate change impacts on nitrogen dynamics in hydrologically active areas

[5A] Matthew Hall Wu Lab

Mapping 3D Cellular Traction in Real Time using a Fluorescent Microscope

[6B] Cassandra Greene and Arne Behrent Baemner Lab

Microfluidic Nucleic Acid Amplification System for a Lab-on-a-Chip

[7A] Devin Doud Angenent Lab

Improving Photobioreactors Using Advanced Photonics

[8B] Rebecca Marjerison TWalter-Soil & Water Lab

Exploring interactions between meteorological and hydrological characteristics of flash flood events in the Northeast United States

[9A] David Keifer Spanswick Lab

Sucrose Uptake in Developing Embryos of Canola

[10B] Maureen Murage Anderson Lab

Optimal Integration of Wind and Hydropower in African States

[11A] Rong Long Wu Lab

Measuring Soft Gel Modulus Using A Microscope

[12B] Zhongjian Li Angenent Lab

Bacteria-Based AND Logic Gate: A Decision-Making and Self-Powered Biosensor

[13A] Brian Buchanan TWalter-Soil & Water Lab

Hydrologic Impact of Roadside Ditch Networks in an Agricultural Watershed: Implications for Non-Point Source Pollutant Transport

[14B] Lei Meng Hess Lab

Improving estimates of wetland methane emissions from the tropics and the globe

[15A] Sheila Saia Steenhuis-Soil & Water Lab

Modeling the Impact of Landscape Variability and Placement of Best Management Practices on Hillslope-Scale Contaminant Transport

[16A] Dong Yang Walker Lab

Investigation of *Thermobifida fusca* cellulases binding mechanism on BMCC and supercritical CO₂ pretreated biomass

[17A] Hanno Richter Angenent Lab

Long-term conversion of butyrate to n-butanol with *Clostridium saccharoperbutylacetonicum* using a two-stage continuous culture and online product removal

[18B] Hnin Aung Walker Lab

Applying Reconstructed Metabolic Networks to Model Microbial Conversion of Mixed Sugars to Biofuels

[19A] Kasyap T V Wu Lab

Tracer diffusion in bacterial suspensions

[20B] Alexander Esche Angenent Lab

Modeling fixed-bed alcohol production from pyrolysis gas

[21A] Shuting Zhao Wu Lab

Biomatrix stiffness modulates tumor cell proliferation in 3D cell culture

[22B] Joseph Usack Angenent Lab

Anaerobic Co-Digestion with Inhibitory Organic Wastes: Microbial Community Response and Dynamics

[23A] Ben Heavner Walker Lab

Curating Yeastnet: the Iterative Process of Validating Reconstructed Metabolic Networks

[24B] BJ Kim Wu Lab

A 3D Microfluidic In Vitro Model for Studies of Cancer Cell Migration and Invasion

[25A] Nongnoot Wongkaew Baemner Lab

Multi-channel microfluidic biosensor for nucleic acid detection

[26B] Wendy Hoose Angenent Lab

Metabolic bioengineering of purple algae with *clostridial solventogenesis* genes to produce n-butanol via photoreduction of n-butyrate

[27A] Mark Hartman Luo Lab

Branched DNA nanostructures for pathogen detection

[28A] Davina Widjaja Angenent and Wu Labs

Parameter Optimization of Bioelectrochemical Systems Using a Microsystems Engineering Approach

[29B] Christine Pitner and Marion Schelling Baemner Lab

Nanofiber-Enhanced Microfluidic Biosensors for Pathogen Detection

[30B] Arvind Venkataraman Angenent Lab

Pseudomonas aeruginosa – A model organism for understanding ecological networks in bioelectrochemical systems

[31A] Asha Sharma TWalter-Soil & Water Lab

Recession Slope Analysis Coefficients, Low Flows, Groundwater and Precipitation Responses for Climate Change Studies

[32B] Michaela TerAvest Angenent Lab

Characterizing the Effect of Microaerobic Conditions on *Shewanella oneidensis* in Bioelectrochemical Systems

[33A] Jose Perez Angenent Lab

Production of n-butanol from syngas using *Clostridium ljungdahlii*

[34B] Katie Edwards Baemner Lab

Rapid detection of rotavirus in whole feces