

**Monday**  
**June 28**

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**6:00–7:30 p.m.**  
**Pre-registration and**  
**Welcome Reception**  
GranTree Inn  
North 7<sup>th</sup> Ave, Bozeman

**Tuesday**  
**June 29**

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**7:45–8:45 a.m.**  
**Registration and**  
**Continental Breakfast**  
Strand Union Building (SUB)  
Room 275 / 276

**8:45–9:00**  
**Introductory Remarks**  
SUB Ballroom D  
Paul Sturman, CBE Industrial  
Coordinator  
Bobby Orr, C.R. Bard, Inc.,  
TAC Chair

**Invited Presentation:**  
**9:00–10:00**  
**Defining the *Vibrio harveyi***  
**Quorum Sensing Network**  
Bonnie Bassler, Professor,  
Molecular Biology,  
Princeton University, New Jersey

**10:00–10:20 Break**

**State of the CBE Address:**  
**10:20–11:10**  
Bill Costerton, CBE Director

**SESSION 1:**  
**Biofilm Methods**

**11:10–11:20**  
**Session Introduction**  
Darla Goeres, CBE Research  
Engineer

**11:20–11:35**  
**Standard Method Development:**  
**Efficacy Testing in Dental Unit**  
**Water Lines**  
Shannon Goeres, BSTL  
Undergraduate Intern

**11:35–11:55**  
**Parallel Testing to Determine the**  
**Influence of Biofilm Growth**  
**Conditions on Antimicrobial Log**  
**Reduction**  
Kelli Buckingham-Meyer, CBE  
Laboratory Specialist

**11:55–12:10**  
**Long Term Monitoring of an Oilfield**  
**Bacterial Consortium**  
Brandon Brooks, Recent MSU B.S.  
Graduate, Chemical & Biological  
Engineering

**12:10–1:30**  
**Lunch, Catered**  
SUB Ballroom C

**SESSION 2:**  
**Environmental Biofilms**

**1:30–1:40**  
**Session Introduction**  
Anne Camper, Associate Professor,  
Civil Engineering, CBE

**1:40–2:00**  
**Influence of Siderophores on Metal**  
**Mobility and Transport**  
Abigail M. Aiken, Visiting PhD  
Student, Chemical Engineering  
Washington State University

**2:00–2:20**  
***Escherichia coli* Capture by**  
**Established *Pseudomonas***  
***aeruginosa* Biofilm in a Capillary**  
**Flow Cell**  
Benjamin Klayman, PhD Candidate,  
Environmental Engineering

**2:20–2:40**  
**Biofilms in the Environment:**  
**Understanding Pathogens in**  
**Drinking Water Distribution**  
**Systems**  
Stewart Clark, PhD Candidate,  
Microbiology

**2:40–3:00**  
**Modeling Drinking Water System**  
**Biofilms Using Cellular Automata**  
Al Cunningham, Professor,  
Civil Engineering, CBE

**3:00–3:20**  
**Discovering the Microbial Diversity**  
**in Natural Biofilms:**  
**The forest or the trees?**  
Mark Burr, Senior Research  
Associate, CBE

**3:20–3:30**  
**Wrap-Up and Industry Comment**

**3:30–3:50 Break**

**3:50–4:45**  
**FDA Regulatory Outlook**  
Janine Morris, Branch Chief,  
Urology and Lithotripsy Devices  
Branch, Division of Reproductive,  
Abdominal, and Radiology Devices,  
Office of Device Evaluation, Center  
for Devices and Radiological Health,  
US Food and Drug Administration

**5:00–6:30**  
**Poster Session**

**Wednesday**  
**June 30**

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**7:30–8:20 a.m.**  
**Registration and**  
**Continental Breakfast**  
Strand Union Building (SUB)  
Room 275 / 276

**SESSION 3:**  
**Biofilm Structure-Function**

**8:20–8:30**  
**Session Introduction**  
Zbigniew Lewandowski, Professor,  
Civil Engineering, CBE

**8:30–8:50**  
**Importance of Electron Shuttling**  
**Compounds in Biological Systems**  
Robin Gerlach,  
Assistant Research Professor, CBE

**8:50–9:10**  
**Bacterially Derived Environmentally**  
**Compatible Adhesives**  
Gill Geesey, Professor,  
Microbiology, CBE

**9:10–9:30**

**Modeling Interactions between Fluid Forces and Biofilm Deformation**

Brett Towler, Postdoctoral Researcher, Civil Engineering

**9:30–9:50**

**Predicting Biofilm Structural Parameters Using Artificial Neural Networks**

Raaja Raajan Angathevar Veluchamy, MS Candidate, Environmental Engineering

**9:50–10:10**

**Magnetic Resonance Microscopy of the Impact of Biofilm Growth on Mass Transport in Bioreactors and Porous Media**

Joe Seymour, Assistant Professor, Chemical & Biological Engineering, CBE

**10:10–10:30 Break**

**SESSION 4:**

**The CBE Imaging Facility**

**10:30–10:40**

**Session Introduction**

Betsey Pitts, CBE Research Associate and Facilities Manager, Microscopy

**10:40–11:00**

**Flow Cytometry: A Complement to the Biofilm Imaging Facility**

Jennifer Sestrich, CBE Research Assistant

**11:00–11:20**

**Fluorescent Stains and Probes Used at the CBE**

Betsey Pitts

**11:20–11:40**

**Imaging Biofilms on Alternative Surfaces**

Steve Fisher, CBE Research Assistant

**11:40–12:00**

**Image Analysis Using MetaMorph: Quantitative Techniques**

Willy Davison, PhD Candidate, Chemical & Biological Engineering

**12:00–12:20**

**Qualitative Image Analysis Using Imaris**

Patrick Norris, MS Candidate, Mechanical Engineering

**12:20–1:20**

**Lunch, Catered**  
SUB Ballroom C

**Imaging Forum:**

**1:20–1:50**

**A Discussion of Imaging Issues in Industrial Applications**

Betsey Pitts

**1:50–2:10**

**Education Initiative Overview**

Rocky Ross, Professor, Computer Science, CBE

**3:00–5:00**

**TAC Business Meeting**

Springhill Pavilion

**6:00–8:00**

**Dinner**

Springhill Pavilion

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**Thursday**  
**July 1**

**7:30–8:30 a.m.**

**Registration and Continental Breakfast**

Strand Union Building (SUB)  
Room 275 / 276

**Special Presentations:**

**8:30–9:10**

**Linking Identity and Function of Uncultured Bacteria in Biofilms**

Per Nielsen, Professor, Environmental Engineering University of Aalborg, Aalborg, Denmark

**9:10–9:50**

**Biomedical Applications of Viruses as Templates for Nanomaterials Synthesis**

Mark Young, Associate Professor, Plant Sciences and Plant Pathology, MSU

**SESSION 5:**

**Biofilm Control—Medical**

**9:50–10:00**

**Session Introduction**

Phil Stewart, Professor, Chemical & Biological Engineering, CBE

**10:00–10:20**

**Multicellular Nature of Biofilm Antimicrobial Tolerance**

Phil Stewart

**10:20–10:40 Break**

**10:40–11:00**

**Virulence Factors Associated with *Pseudomonas aeruginosa* Biofilms**

Mike Franklin, Assistant Professor, Microbiology, CBE

**11:00–11:20**

**Is the Nasopharyngeal Colonization with *Streptococcus pneumoniae* a Biofilm-Related Process ?**

Christoph Fux, MD, Visiting Researcher, University of Bern, Bern, Switzerland

**11:20–11:40**

**Growth Limitation of *Staphylococcus epidermidis* in Biofilms Contributes to Rifampin Tolerance**

Phil Stewart

**11:40–11:50**

**Wrap-Up and Industry Comment**

**11:50–12:00**

**Meeting Wrap-Up**