

07/17/2015

### Monday July 13

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**6:00–8:30 pm**

**Registration & welcome reception**  
Larkspur Foyer, Hilton Garden Inn  
Bozeman

### Tuesday July 14

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**7:30–8:00 am**

**Registration & continental  
breakfast**  
Larkspur Foyer, Hilton Garden Inn

**8:00–8:10**

**Introductory remarks**  
Larkspur Ballroom  
Paul Sturman, CBE Industrial  
Coordinator  
Chuck Pettigrew, Chair, CBE  
Industrial Associates; Principal  
Scientist, Procter & Gamble  
Matthew Fields, CBE Director

### SESSION 1: Oilfield Biofilms

**8:10–8:15**

**Session introduction**  
Paul Sturman

**8:15–8:45**

**Visualization and quantification of  
biofilm removal**  
TJ Tidwell, Principal Microbiologist,  
Nalco Champion Company,  
Sugar Land, TX

**8:45–9:20**

**Mechanisms and mitigation of  
severe microbial corrosion by  
sulfate-reducing bacteria**  
Dennis Enning, Senior Research  
Engineer, ExxonMobil Upstream  
Research Company, Houston, TX

**9:20–9:50**

**Modeling the growth and  
chemistry of sulfate-reducing  
biofilms**  
Robin Gerlach, Professor,  
Chemical & Biological  
Engineering, MSU-CBE

**9:50–10:20 Networking Break**

**10:20–10:50**

**Thiosulfate-reducing microbes in  
oil field systems: Too often  
overlooked**

Kathleen Duncan, Research  
Associate Professor,  
Microbiology & Plant Sciences,  
University of Oklahoma,  
Norman, OK

**10:50–11:20**

**Transformation of hydraulic  
fracturing chemicals  
underground—Focus on  
glutaraldehyde**

Genevieve Kahrilas, PhD Candidate,  
Chemistry, Colorado State  
University, Fort Collins, CO

**11:20–11:50**

**Enhancement of biogenic coalbed  
methane production**

Katie Davis, PhD student,  
Chemical & Biological  
Engineering, MSU-CBE

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**12:00–1:00**

**Catered lunch, Hilton Garden Inn**

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### SESSION 2: Regulatory Agency Update

**1:00–1:30**

**Meeting Highlights: Anti-biofilm  
Technologies—Pathways to  
Product Development, Feb 2015**  
Paul Sturman

**1:30–1:55**

**Biofilm claims for antimicrobial  
products: U.S. EPA regulatory  
perspective**

Steve Tomasino, Senior Scientist,  
U.S. EPA Office of Pesticide  
Programs, Fort Meade, MD

**1:55–2:20**

**Results from continued  
optimization of the Single Tube  
Method**

Darla Goeres, Associate Research  
Professor, Chemical & Biological  
Engineering, MSU-CBE

**CBE Open House:  
Lab demonstrations and  
poster session**

**3:00–5:00**

3rd Floor EPS Building, MSU  
Detailed schedule available onsite

### Wednesday July 15

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**7:30–8:00 am**

**Registration & continental  
breakfast**  
Larkspur Foyer, Hilton Garden Inn

### SESSION 3: Medical Biofilms

**8:00–8:05**

**Session introduction**  
Garth James, Associate Research  
Professor, Chemical & Biological  
Engineering, MSU-CBE

**8:05–8:30**

**3D imaging of oral biofilms**  
Garth James

**8:30–9:00**

***Clostridium difficile* and health  
care-associated infection**  
Seth Walk, Assistant Professor,  
Microbiology & Immunology,  
MSU

**9:00–9:30**

**In vitro analysis of *Clostridium  
difficile* biofilms: Imaging and  
antimicrobial treatment**  
Elinor deLancey Pulcini, Assistant  
Research Professor, Chemical &  
Biological Engineering, MSU-CBE

**9:30–10:00 Networking Break**

**10:00–10:30**

**Antimicrobial and anticancer  $\beta$ 2,  
2-amino acid derivatives: Peptide  
mimetics with potential for oral  
administration**  
Dominik Ausbacher, CBE visiting  
Postdoctoral Researcher,  
Department of Pharmacy, UiT—  
The Arctic University of Norway,  
Tromsø, Norway

**10:30–11:00**

***Staphylococcus aureus* biofilms and keratinocyte apoptosis**

Kelly Kirker, Assistant Research Professor, Chemical & Biological Engineering, MSU-CBE

**Young Investigators**

**11:00–11:30**

**Phenazine antibiotic inspired discovery of biofilm-eradicating small molecules**

Robert Huigens III, Assistant Professor, Medicinal Chemistry, University of Florida, Gainesville, FL

**11:30–12:00**

**Coupling multi-scale in situ determination of biofilm mechanical properties to mathematical modeling of biofilm fluid-structure interaction**

Juan Pavissich, Postdoctoral Researcher, Department of Biotechnology, Delft University of Technology, The Netherlands

**12:00–12:10**

**Presentation of CBE awards**

Phil Stewart, Professor, Chemical & Biological Engineering, MSU-CBE

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**12:10–1:10**

**Catered lunch, Hilton Garden Inn**

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**SESSION 4:  
Biofilm Mineral Interactions**

**1:10–1:15**

**Session introduction**

Robin Gerlach

**1:15–1:35**

**From speleogenesis to sewer corrosion**

Phil Stewart

**1:35–2:15**

**Subaerial biofilms: New horizons in stone biodeterioration research**

Federica Villa, CBE Visiting Postdoctoral Researcher, University of Milan, Italy

**2:15–2:45**

**Biomining of kidney stones**

Logan Schultz, Postdoctoral Researcher, MSU-CBE

**2:45–3:15**

**Overview of biofilm mediated mineralization and engineering applications**

Adie Phillips, Assistant Professor, Civil Engineering, MSU-CBE

**3:30–5:00**

**Business Meeting**

Hilton Garden Inn

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**6:00**

**Dinner/Banquet**

Rockin' TJ Ranch, Bozeman

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**Thursday  
July 16**

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**7:30–8:00 am**

**Registration & continental breakfast**

Larkspur Foyer, Hilton Garden Inn

**8:00–8:05**

**Introductory Remarks**

Renee Reijo Pera, Vice President, Research & Economic Development, MSU

**SESSION 5:  
Biofilm Fundamentals**

**8:05–8:10**

**Session introduction**

Matthew Fields

**8:10–8:35**

**Novel extracellular membrane structures in a sulfate-reducing biofilm**

Lauren Franco, PhD student, Microbiology & Immunology, MSU-CBE

**8:35–9:00**

**Antimicrobial tolerance in biofilms**

Phil Stewart

**9:00–9:25**

**Biofilms formed by the archaeon *Haloferax volcanii* exhibit cellular differentiation and social motility, and facilitate horizontal gene transfer**

Thane Papke, Associate Professor, Molecular & Cell Biology, University of Connecticut, Storrs, CT

**9:25–9:50**

**Biofilm formation mechanisms of *Pseudomonas aeruginosa* predicted via metabolic models**

Francisco Vital-Lopez, Research Scientist, DoD Biotechnology High-Performance Computing Software Applications Institute (BHSAI), Frederick, MD

**9:50–10:20 Networking Break**

**SESSION 6:  
New Tools & Methods**

**10:20–10:25**

**Session introduction**

Jim Wilking, Assistant Professor, Chemical & Biological Engineering, MSU-CBE

**10:25–10:50**

**Quantifying biofilm characteristics over time from 3-D confocal microscope movies**

Al Parker, Assistant Research Professor, Mathematical Sciences; Bio-statistician, MSU-CBE

**10:50–11:15**

**Drop-based microfluidics for high-throughput biological assaying**

Connie Chang, Assistant Professor, Chemical & Biological Engineering, MSU-CBE

**11:15–11:40**

**Developing materials-based understanding of biofilm mechanics**

Jim Wilking

**11:40–12:05**

**Applications of microelectrodes for biofilm kinetics and inhibition studies**

Ellen Lauchnor, Assistant Professor, Civil Engineering, MSU-CBE