

07/18/2013

Monday July 15

6:00–8:30 p.m.

Pre-registration & welcome reception

Larkspur Foyer, Hilton Garden Inn, Bozeman

Tuesday July 16

7:30–8:00 a.m.

Registration & continental breakfast

Larkspur Foyer, Hilton Garden Inn

8:00–8:10

Introductory remarks

Larkspur Ballroom

Paul Sturman, CBE Industrial Coordinator

Chuck Pettigrew, IA Vice-Chair, Procter & Gamble

Phil Stewart, CBE Director

SESSION 1: Oral Biofilms

8:10–8:20

Session introduction

Garth James, Medical Projects Manager, CBE; Associate Research Professor, Chemical & Biological Engineering, MSU

8:20–9:00

Visualizing the spatial organization of microbes in oral biofilms

Jessica Mark Welch, Assistant Research Scientist, Marine Biological Laboratory, The Josephine Bay Paul Center

9:00–9:30

Evaluating oral biofilm treatments using the CDC biofilm reactor and treatment imaging flow cell

Garth James

9:30–10:00

Survey of emerging approaches for control of oral biofilms

Phil Stewart

10:00–10:30 Networking Break

SESSION 2: Cyclic-di-GMP

10:30–10:50

Cyclic-di-GMP: A universal signaling molecule for bacterial biofilm formation

Michael Franklin, Associate Professor, Microbiology, CBE

10:50–11:25

Probing second messenger molecules in biofilm formation: C-di-GMP and pGpG inhibitors and chemical probes

William Wuest, Assistant Professor, Chemistry, Temple University

11:25–12:00

Elucidating and targeting cyclic-di-GMP signaling

Chris Waters, Assistant Professor, Microbiology and Molecular Genetics, Michigan State University

12:00–1:00

Catered lunch, Hilton Garden Inn

SESSION 3: Biofuels/Algal Biofilms

1:00–1:10

Session introduction

Matthew Fields, Associate Professor, Microbiology, CBE

1:10–1:40

Biofilm-based sustainable production of wastewater algae for biofuels and other co-products

Ron Sims, Biological Engineering Department Head & Co-Director, Sustainable Waste-to-Bioproducts Engineering Center, Utah State University

1:40–2:10

Direct measurement and characterization of active photosynthesis zones inside biofuel producing and wastewater remediating microalgal biofilms

Rob Gardner, Postdoctoral Researcher, CBE

2:10–2:40

Lipid profiling of *Chlamydomonas reinhardtii* cultured under three different inorganic carbon regimes

Egan Lohman, PhD Candidate, Chemical & Biological Engineering, CBE

CBE Open House: Lab demonstrations and poster session

3:00–5:00

CBE Laboratories, 3rd Floor EPS Building, MSU
Detailed schedule provided at registration

Wednesday July 17

7:30–8:00 a.m.

Registration & continental breakfast

Larkspur Foyer, Hilton Garden Inn

SESSION 4: Medical Biofilms

8:00–8:05

Session introduction

Garth James

8:05–8:40

Molecular snapshots of pilus biogenesis, UTI pathogenesis and biofilm formation: Blueprint for therapeutics

Scott Hultgren, Professor, Molecular Microbiology; Director, Center for Women's Infectious Disease Research, Washington University Medical School

8:40–9:15

Defining biofilms on intravascular catheters as microbial communities

Rodney Donlan, Research Microbiologist/Biofilm Laboratory, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention

9:15-9:50

Catheter-associated urinary tract infection: How pathogenesis affects prevention and management

Rabih Darouiche, MD,
VA Distinguished Service
Professor, Medicine, Surgery and
PM&R; Director, Center for
Prostheses Infection, Baylor
College of Medicine, Baylor
University

9:50-10:20 Networking Break

10:20-10:55

Efficacy of disinfection devices and protocols to remove bacterial spore contamination of needle-free connectors

Elinor Pulcini, Biosafety Manager,
CBE; Assistant Research
Professor, Chemical & Biological
Engineering, MSU

10:55-11:15

Medical Biofilms Panel Discussion

Rod Donlan, CDC
Matt Trebella, Bard Access Systems
Phil Stewart, CBE
Garth James, CBE

11:15-11:50

2013 State of the CBE

Phil Stewart

11:50-12:00

CBE Award Presentations:

W.G. Characklis
Outstanding Researcher
Student Citizen
Phil Stewart

12:00-1:00

Catered lunch, Hilton Garden Inn

**SESSION 5:
Biofilm-Mineral
Interactions**

1:00-1:20

Session introduction: Minerals and biofilms at the CBE

Robin Gerlach, Associate Professor,
Chemical & Biological
Engineering, CBE

1:20-1:45

Controlling permeability reduction in the subsurface through biofilm-induced mineral precipitation:

A multi scale approach

Adie Phillips, PhD Candidate,
Chemical & Biological
Engineering, CBE

1:45-2:10

Image-based modeling of biofilm-induced calcium carbonate precipitation

James Connolly, PhD Candidate,
Chemical & Biological
Engineering, CBE

2:10-2:35

Critical occlusion via biofilm induced calcite precipitation in porous media

Tianyu Zhang, Assistant
Professor, Mathematical
Sciences, CBE

2:45-3:50

**CBE Industrial Associates
Business Meeting**

6:00-9:00

Banquet

Rockin TJ Ranch, Bozeman

**Thursday
July 18**

7:30-8:00 a.m.

**Registration & continental
breakfast**

Larkspur Foyer, Hilton Garden Inn

**SESSION 6:
Biomimicry**

8:00-8:10

Session introduction

Phil Stewart

8:10-8:40

The art and science of biomimicry

Dayna Baumeister, Co-founder,
Biomimicry 3.8

8:40-9:10

**Natural product mimetics that
inhibit and disperse bacterial
biofilms**

Christian Melander, Co-founder &
Chief Research Officer, Agile
Sciences; Associate Professor,
Chemistry, North Carolina State
University

9:10-9:40

**Activity of antimicrobial peptide
mimetics against fungal biofilms
in vivo**

Gill Diamond, Associate Professor,
Oral Biology, UMDNJ-New
Jersey Dental School

9:40-10:10

**Packing them in: Using self-
assembled protein cages to direct
synthesis and packaging of
polymers, minerals, and proteins**

Trevor Douglas, Professor,
Chemistry/Biochemistry, MSU

10:10-10:40 Networking Break

**SESSION 7:
Biofilm Methods**

10:40-11:10

**Results of a multi-laboratory
evaluation of the Single Tube
Method (ASTM Method E2871)**

Darla Goeres, Assistant Research
Professor, Chemical & Biological
Engineering, CBE

11:10-11:40

**Putting proteomics and
metabolomics to work for you**

Brian Bothner, Associate Professor,
Chemistry/Biochemistry, MSU

11:40-12:10

**Biofilms on orbit and on Earth:
Current methods, future needs**

Leticia Vega, Scientist, Water
Recovery Systems Group,
NASA-Johnson Space Center

12:10-12:20

Meeting Wrap-up