



# Montana Biofilm S&T Meeting Final AGENDA: July 17–19, 2018



MONTANA  
STATE UNIVERSITY



8/2/2018

## Monday July 16

6:00–8:30 pm

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

## Tuesday July 17

7:30–8:00 am

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

8:00–8:10

**Introductory remarks**  
Larkspur Ballroom  
Matthew Fields, CBE Director  
Paul Sturman, CBE Industrial  
Coordinator  
Laura Wahlen, Research Scientist,  
Baxter Healthcare,  
Round Lake, IL

### SESSION 1: Biofilm Methods

8:10–8:35

**Biofilm removal and control issues  
in food processing: Biofilm reactor  
and drain models**  
Charles Giambrone, Vice President,  
Technical Services, Rochester  
Midland Corp., Rochester, NY

8:35–9:05

**Novel methods to study  
multispecies biofilms**  
Nuno Filipe Azevedo, Assistant  
Professor, Chemical Engineering,  
University of Porto, Porto,  
Portugal

9:05–9:35

**Advances in 3D hydrogel printing  
for biofilm engineering**  
Jim Wilking, Assistant Professor,  
Chemical & Biological Eng.,  
MSU, CBE

9:35–10:05 **Networking Break**

10:05–10:30

**Shear stress mediates metabolism  
and growth in electroactive  
biofilms**

Andrew Jones, Postdoctoral  
Researcher, Mechanical &  
Industrial Eng., Northeastern  
University, Boston, MA; CBE  
Young Investigator Awardee

10:30–11:00

**The versatility of shockwaves in  
destroying biofilms**

Iulian Cioanta, Vice President,  
Research & Development,  
SANUWAVE Health,  
Suwanee, GA

### SESSION 2: Bacteriophage and Biofilm

11:00–11:30

**A bacteriophage integrase  
regulates virulence factor  
production by *Pseudomonas  
aeruginosa***

Pat Secor, Assistant Professor,  
Biological Sciences,  
University of Montana; CBE  
Young Investigator Awardee

11:30–12:00

**A potential biocontrol strategy for  
healthcare facilities using a  
surfactant-supplemented  
bacteriophage cocktail for the  
control of carbapenemase-  
producing *Klebsiella pneumoniae*  
biofilms**

Ariel Santiago, ORISE Research  
Fellow, Biofilm Laboratory,  
Centers for Disease Control,  
Atlanta, GA; CBE Young  
Investigator Awardee

12:00–1:00 pm

Catered lunch, Hilton Garden Inn

### Special Presentation:

1:00–1:30

**Life in the human gut microbiome**  
Seth Walk, Assistant Professor,  
Microbiology & Immunology,  
MSU

### SESSION 3: Strategic Communication and Data Resources

1:30–2:00

**BRaID: Biofilm data fusion**  
Dave Millman, Assistant  
Professor, Gianforte School of  
Computing, MSU

2:00–2:30

**Fostering a common vision to  
mobilize innovation across  
government, industry and  
academic partnerships**  
Jayne Morrow, Senior Science  
Policy Advisor, National  
Institute of Standards and  
Technology, Gaithersburg, MD

### CBE Open House: Poster session and lab demonstrations

3:00–5:00

3rd Floor Barnard Hall, MSU  
Schedule available onsite

## Wednesday July 18

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7:30–8:00 am

### Registration & continental breakfast

Larkspur Foyer, Hilton Garden Inn

## SESSION 4: Medical Biofilms

8:00–8:05

### Session introduction

Garth James, Associate Research  
Professor, Chem. & Biological  
Eng., MSU; PI, Medical Biofilms  
Laboratory, CBE

8:05–8:15

### Clinical efficacy of biofilm disruption technology developed with testing at the CBE

Alicia Tetlak, Microbiologist, Next  
Science LLC, Jacksonville, FL

8:15–8:45

### Diabetic wound care in our veteran population

MaryCloud Ammons Anderson,  
Research Scientist, Idaho  
Veterans Research and  
Education Foundation, Boise VA  
Medical Center, Boise, ID

8:45–9:15

### How bacteria in biofilms withstand antibiotics

Phil Stewart, Distinguished  
Professor, Chemical &  
Biological Eng., MSU, CBE

9:15–9:45

### Microplate hydrogel assay for antibiofilm testing

Kenneth Scott Phillips, Biofilms  
Research Group Leader, Center  
for Devices & Radiological  
Health, US Food & Drug Admin.,  
Silver Spring, MD

### 9:45–10:15 Networking Break

10:15–10:45

### Biofilm: The clinical dilemma

Eric Johnson, MD, Bozeman Health  
Wound and Hyperbaric Center,  
Bozeman, MT

10:45–11:15

### Characterization of *Mycobacterium chimaera* biofilms on medical device materials

Archana Siddam, Commissioner's  
Fellow, Winchester Engineering  
& Analytical Center, US Food &  
Drug Admin., Winchester, MA

11:15–11:45

### Design, synthesis, and evaluation of prodrug antimicrobials to control biofilms

Danica Walsh, PhD Student,  
Chemistry & Biochemistry,  
MSU, CBE

11:45–12:00

### Presentation of CBE awards

Matthew Fields

12:00–1:00 pm

### Catered lunch, Hilton Garden Inn

## SESSION 5: Biofilm Physiology

1:00–1:30

### Investigating single cell growth using drop-based microfluidic incubation

Shawna Pratt, PhD Student,  
Chemical & Biological  
Engineering, MSU, CBE

1:30–2:00

### Heterogeneity in *Pseudomonas aeruginosa* populations

Tatsuya Akiyama, Postdoctoral  
Researcher, Microbiology &  
Immunology, MSU

2:00–2:30

### Spatiotemporal mapping of oxygen in a microbially-impacted packed bed using <sup>19</sup>F nuclear magnetic resonance oximetry

Jeffrey Simkins, PhD Student,  
Chemical & Biological  
Engineering, MSU, CBE

2:30–3:00

### CRISPR-mediated defense and bacteriophage counter-defense in *P. aeruginosa*

MaryClare Rollins, Research  
Associate, Microbiology &  
Immunology, MSU

3:00–3:15

### State of the CBE Address

Matthew Fields

3:30–5:00

### Business Meeting

Hilton Garden Inn

### Dinner

6:00 pm

Rockin' TJ Ranch, Bozeman

## Thursday July 19

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7:30–8:00 am

### Registration & continental breakfast

Larkspur Foyer, Hilton Garden Inn

## SESSION 6: Biofilm Imaging

8:00–8:30

### CBE imaging capabilities: An overview

Heidi Smith, Postdoctoral  
Researcher, CBE

8:30–9:00

### Quantification of biofilm characteristics from images with error bars

Al Parker, Biostatistician, CBE;  
Assistant Research Professor,  
Mathematical Sciences, MSU

9:00–9:30

### Characterizing biofilms using centrifuge force microscopy

Tom LeFevre, PhD Student,  
Chemical & Biological  
Engineering, MSU, CBE

### 9:30–10:00 Networking Break

## SESSION 7: Industrial Biofilms

10:00–10:30

### Biofilms in industrial water handling systems: An overview of real-time biomonitoring and system performance

David Vela, Senior Research  
Scientist; Angela Delegard,  
Research Scientist, Chem-Aqua,  
Irving, TX

10:30–11:00

### Microbial defacement of building materials

Erika Espinosa-Ortiz, Postdoctoral  
Researcher, CBE

11:00–11:30

### Scale in water systems: A biomaterial?

Adrienne Phillips, Assistant  
Professor, Civil Engineering,  
MSU, CBE

11:30–11:40

### Meeting wrap up