



# Montana Biofilm Science & Technology Meeting and Workshops

MONTANA STATE UNIVERSITY



Featuring: a day of Engineered Living Materials (ELM)

July 11-13, 2023

Hilton Garden Inn Bozeman  
**Draft AGENDA**

7/12/2023 2:31 PM

## Monday July 10

**6:00–8:30 pm**  
**Registration & Welcome Reception** Larkspur Foyer

## Tuesday July 11

**7:00–8:00 am CBE & IA Members Coffee Talk** Boardroom

**7:30–8:00 am**  
**Registration & continental breakfast** Larkspur Foyer

**Meeting:** Larkspur Ballroom

**8:00–8:10**  
**Opening Remarks**  
Matthew Fields, Director, CBE;  
Professor, Microbiology &  
Cell Biology, MSU  
Darla Goeres, Industrial  
Coordinator, CBE

### SESSION 1: Multispecies Biofilms

**8:10–8:15**  
**Session Introduction**  
Chris Jones, PI, Standardized  
Biofilm Methods Laboratory,  
CBE

**8:15–8:45**  
**War and Peace: Polymicrobial interactions during cystic fibrosis airway disease**  
Dominique Limoli, Assistant  
Professor, Microbiology &  
Immunology, University of  
Iowa

**8:45–9:15**  
**A biocide study for microbial control in the International Space Station Wastewater Recovery System**  
Liz Sandvik, Research Engineer,  
CBE

**9:15–9:45**  
**Using a fluorescent probe staining method and COMSAT to assess cell viability in *Aspergillus niger* biofilms treated with antimicrobial agents**  
Aswathy Shailaja, Postdoctoral  
Associate, Pediatrics, Duke  
University Medical Center  
**Young Investigator Award**

**9:45–10:15**  
**Food fights and conflict avoidance: A systems biology analysis of contrarian *Pseudomonas aeruginosa* substrate preferences**  
Ross Carlson, Professor, Chemical  
& Biological Engineering, MSU,  
CBE

### 10:15–10:45 Break

**10:45–11:45**  
**Panel: Challenges & rewards of using a multispecies biofilm in the lab**  
Ross Carlson  
Dominique Limoli  
Liz Sandvik  
Aswathy Shailaja  
Moderator: Chris Jones

**11:45–12:00**  
**Lightning presentations**  
CBE Student Researchers

### 12:00–1:00 Lunch

### SESSION 2: Measuring Biofilm

**1:00–1:30**  
**Session Introduction**  
**Micro-sensor technology**  
Stephan Warnat, Assistant  
Professor, Mechanical &  
Industrial Eng., MSU, CBE

**1:30–1:55**  
**Imaging for biofilm characterization**  
Heidi Smith, Manager, Bioimaging  
Facility, CBE; Asst. Research  
Professor, Microbiology & Cell  
Biology, MSU

**1:55–2:20**  
**Investigating microbial biofilms as indicators of heavy metals in the Clark Fork Basin, Montana**  
Elliott Barnhart, Research  
Hydrologist, USGS

**2:20–2:45**  
**16S Ratios method for analysis of active microbial communities**  
Hannah Goemann, PhD student,  
Microbiology & Cell Biology,  
MSU, CBE

**2:45**  
**Transport to CBE laboratories**

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

**3:00–5:00**  
3rd Floor Barnard Hall, MSU  
Schedule available onsite

## Wednesday July 12

**7:00–8:00 am CBE & IA Members Coffee Talk** Boardroom

**7:30–8:00 am**  
**Registration & continental breakfast** Larkspur Foyer

**Meeting:** Larkspur Ballroom

**8:00–8:05**  
**Opening remarks**  
Matthew Fields, Darla Goeres

### SESSION 3: Medical Biofilms & The Hospital Environment

**8:05–8:15**  
**Session Introduction**  
Kelly Kirker, Assistant Research  
Professor, Chemical &  
Biological Eng., MSU, CBE

(Continues on next page)

**8:15-8:45**

**Hydrogen peroxide vs biofilms**

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

**8:45-9:15**

**Bacterial ingress through valves  
used for venous access**

Garth James, PI, Medical Biofilms  
Laboratory, CBE; Associate  
Research Professor, Chemical &  
Biological Engineering, MSU

**9:15-9:45**

**Electrochemical bandage**

Haluk Beyenal, Professor, The  
Gene and Linda Voiland School  
of Chemical Engineering and  
Bioengineering, Washington  
State University

**9:45-10:15 Break**

**10:15-10:45**

**Metabolic niche composition  
affects bacteriophage replication  
in adherent-invasive *Escherichia  
coli* biofilms**

Robert Brzozowski, Postdoctoral  
Researcher, Biological  
Sciences, University of  
Montana  
**Young Investigator Award**

**State of the CBE**

**10:45-11:30**

Matthew Fields

**11:30-1:00 Lunch**

**SESSION 4:  
Biofilm & Surfaces  
Interactions**

**1:00-1:10**

**Session Introduction**

Madelyn Mettler, PhD Student,  
Chemical & Biological  
Engineering, MSU, CBE

**Keynote Presentation**

**1:10-1:55**

**What's a surface?: Surface  
sensing in *Pseudomonas  
aeruginosa***

Matthew Parsek, Professor,  
Microbiology, University of  
Washington

**1:55-2:30**

**Effects of surface roughness on  
Microbiologically Influenced  
Corrosion (MIC) of copper 101 by  
*Oleidosulfobvibrio alaskensis* G20**

Amit Acharjee, PhD Student,  
Materials Science, MSU, CBE

**2:30-3:00**

**Mixed domain biofilm responses  
to coated surfaces**

Madelyn Mettler

**3:00-3:30 Break**

**Strategic Planning  
Meeting for CBE  
Members**

**3:30-5:00**

Hilton Garden Inn

**BBQ Dinner**

**6:00**

Big Yellow Barn, Bozeman

**Thursday  
July 13**

**7:30-8:00 am**

**Registration & continental  
breakfast**

Larkspur Foyer

**Meeting:** Larkspur Ballroom

**SESSION 5:  
Engineered Living  
Materials**

**8:00-8:30**

**Session Introduction**

Matthew Fields  
Chelsea Heveran, Assistant  
Professor, Mechanical &  
Industrial Eng., MSU, CBE

**8:30-9:00**

**Programming bacteria to grow  
into macroscopic, tailored  
materials**

Marimikel Charrier, Senior  
Research Specialist,  
Biosciences, Rice University

**9:00-9:30**

**Engineered Living Building  
Materials: From concept to  
commercialization**

Wil Srubar, Associate Professor,  
Civil & Architectural Eng.,  
University of Colorado

**9:30-10:15**

Industry Panel

**10:15-10:45 Break**

**10:45-11:15**

**3D printing of engineered  
bacteria for the production of  
biofilms-on-a-chip**

Anne Meyer, Associate Professor,  
Biology, Univ. of Rochester

**11:15-11:45**

**Polymer platforms for 3D  
printing engineered living  
materials**

Alshakim Nelson, Professor,  
Chemistry, Univ. of Washington

**11:45-12:15**

**Biologically fabricated materials  
from engineered microbes**

Neel Joshi, Associate Professor,  
Chemistry & Chemical Biology,  
Northeastern University

**12:15-1:15 Lunch**

**1:15-2:00**

Small Group Discussion

**2:00-2:45**

Moderated Whole Group Discussion

**2:45-3:15 Break**

**3:15-4:00**

Government Agency Panel

**4:00-4:45**

Moderated Whole Group Discussion,  
Part 2

**4:45-5:00**

Closing Remarks

**6:30**

Networking Social, Bogert Park

*Thank you for attending the  
Montana Biofilm Science &  
Technology Meeting & ELM  
Workshop!*

**Save the date!**

*CBE Pathways to Product  
Development Meeting  
February 2024 Washington, D.C.*



*The Center for  
Biofilm  
Engineering  
gratefully  
acknowledges  
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