



Montana Biofilm Science & Technology Meeting and Workshop



July 12-14, 2022



Final AGENDA

8/17/2022 4:54 PM

Monday July 11

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

Tuesday July 12

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
Paul Sturman, Industrial
Coordinator, CBE

SESSION 1: Defining a Biofilm

8:10-8:15
Session Introduction
Darla Goeres, Research Professor
of Regulatory Science, CBE

8:15-8:40
**Biological films: Keeping the cart
behind the horse**
Matthew Fields

8:40-9:10
**Industrial perspective on
biofilm biology: Formation,
maintenance, and mitigation**
Chris Jones, Director, R&D,
Sharklet Technologies

9:10-9:35
**Important factors for defining
medical biofilms**
Garth James, PI, Medical Biofilms
Laboratory, CBE; Associate
Research Professor, Chemical &
Biological Engineering, MSU

9:35-10:05 Break

10:05-10:30
**The importance of clearly
defining biofilm in laboratory
standard test methods**
Darla Goeres

10:30-11:00
**Why evolution in biofilms is
different, and some remarkable
consequences**
Vaughn Cooper, Professor,
Microbiology & Molecular
Genetics, Computational &
Systems Biology, University of
Pittsburgh

11:00-11:45
Panel Discussion
Vaughn Cooper
Matthew Fields
Garth James
Chris Jones
Moderator: Darla Goeres

11:45-12:00
Poster Pitches
CBE Researchers

12:00-1:00 Lunch

SESSION 2: CBE Imaging and Analysis Capabilities

1:00-1:20
Microscopy Core
Heidi Smith, Manager, Bio-
Imaging Facility, CBE;
Assistant Research Professor,
Microbiol. & Cell Biology, MSU

1:20-1:40
CBE Analytical capabilities
Kristen Brileya, Technical
Operations Manager, CBE

1:40-2:00
**Statistical considerations in
image analysis**
Al Parker, Biostatistician, CBE;
Associate Research Professor,
Mathematical Sciences, MSU

2:00-2:15
**MONT Highlight: Montana
Microfabrication Facility (MMF)
and the Imaging and Chemical
Analysis Laboratory (ICAL)**
Sara Zacher, Lab Manager,
Imaging and Chemical Analysis
Laboratory, MSU

2:15-2:40
**Correlative microscopy links
identity, morphology,
biochemistry, and activity of
uncultured microbes**
Anthony Kohtz, PhD Student,
Chemistry & Biochemistry,
MSU, CBE

CBE Open House: Poster session and lab demonstrations

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

Wednesday July 13

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

Meeting: Larkspur Ballroom

SESSION 3: Medical Biofilms

8:00-8:10
Session Introduction
Garth James

8:10-8:40
**Is there a universal biofilm
defense?**
Phil Stewart, Regents Professor,
Chemical & Biological
Engineering, MSU, CBE

8:40-9:10

Using organoid models to analyze gastrointestinal bacterial infections

Diane Bimczok, Associate Professor, Microbiology & Cell Biology, MSU, CBE

9:10-9:40

Biofilms and chronic wounds: An overview of recent Medical Biofilms Lab research

Elinor Pulcini, Assistant Research Professor, Chemical & Biological Eng., MSU, CBE

9:40-10:10 Break

10:10-10:40

Accumulation of protoporphyrin IX by biofilm bacteria attenuates bovine neutrophil responses

Joey Lockhart, Postdoctoral Researcher, Biological Sciences, University of Calgary
*Young Investigator

10:40-11:10

Application of PNA-FISH based-methods for bacterial detection and localization in biofilms

Laura Cerqueira, Junior Researcher, Chemical Engineering, University of Porto
*Young Investigator

Special Presentation

11:10-11:55

Functions of the *Pseudomonas aeruginosa* biofilm matrix proteins

Boo Shan Tseng, Assistant Professor, School of Life Sciences, University of Nevada Las Vegas

12:00-1:00 Lunch

**SESSION 4:
Engineered Biofilms**

1:00-1:05

Session Introduction

Matthew Fields

1:05-1:35

From bones to sustainable building material

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

1:35-2:05

Untapped potential of fungal-based biofilms for water treatment and resource recovery

Erika Espinosa-Ortiz, Assistant Research Professor, Chemical & Biological Eng., CBE, MSU

2:05-2:35

Building synthetic biofilm with 3D hydrogel printing

Isaak Thornton, PhD Student, Mechanical & Industrial Engineering, MSU, CBE
Kathryn Zimlich, PhD Student, Microbiology & Cell Biology, MSU, CBE

2:35-3:05

Ureolytically-induced calcium carbonate composites as natural adhesives

Sobia Anjum, PhD Student, Chemical & Biological Eng., MSU, CBE

Strategic Planning Meeting for CBE Members

3:15-5:00

Hilton Garden Inn

6:00 BBQ Dinner

Big Yellow Barn, Bozeman

**Thursday
July 14**

7:30-8:00 am

Registration & continental breakfast

Larkspur Foyer

Meeting: Larkspur Ballroom

**SESSION 5:
Biofilms in Space**

8:00-8:45

Session Introduction

Potential for biofouling control by nutrient removal in an ISS water system

Liz Sandvik, Research Engineer, CBE

8:45-9:15

Sensing slime: Microfabricated sensors to detect biofilm for space applications

Haley Ketteler, Masters Student, Electrical & Computer Eng., MSU, CBE

Matthew McGlennen, PhD Student, Mechanical & Industrial Eng., MSU, CBE

9:15-9:45

Off-planet production of high protein foods using fungal biomats

Ross Carlson, Professor, Chemical & Biological Eng., MSU, CBE

9:45-10:15 Break

10:15-10:45

Microbial isolation and characterization from two flex lines from the urine processor assembly onboard the International Space Station

Hang Nguyen, Microbiologist, JES Tech, NASA

10:45-11:15

Preliminary results of the ISS-operated *Pseudomonas aeruginosa* 'Space Biofilms' experiment

Pamela Flores, PhD Student, Molecular Cellular & Developmental Biology, University of Colorado, Boulder
Luis Zea, Assistant Research Professor, Aerospace Engineering Sciences, University of Colorado, Boulder

11:15 Meeting Wrap up



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