Biofilm Induced Mineralization Workshop: Modeling & Experiment
DRAFT AGENDA: August 7–10, 2012

Sponsors: National Science Foundation (NSF) Center for Biofilm Engineering

Tuesday
August 7

Optional Session: Biofilm Modeling
8:00 a.m.–5:00 p.m.
EPS 108
Montana State University

Cristian Picioreanu, Associate Professor, Biotechnology, Delft University of Technology

8:00–12:00
Part one topics:
- Basic modeling assumptions
- Models for biomass processes
- Solute processes
- Examples of multidimensional biofilm models

Break: 10:00–10:20

12:00–1:30 Lunch on own. See list for options within walking distance

1:30–5:00
Part two topics:
- Computer-aided exercises
- Problem description and basic steps in model setup with Comsol Multiphysics
- Models extensions by individual participants

Wednesday
August 8

9:00–9:40
Experimental approaches to investigate microbe-mineral interactions and applied aspects in subsurface environments
Andy Mitchell, Lecturer, Institute of Geography and Earth Sciences, Aberystwyth University, UK

9:40–10:20
Modeling microbial metabolism in soils and aquifers: From genome to pore to Darcy scales
Tim Schelbe, Staff Scientist, Pacific Northwest National Laboratory

10:20–10:40 Break

Thursday
August 9

9:00–9:40
A positivity-preserving numerical method for a model of bio-mineralization
Benito Chen-Charpentier, Professor, Mathematics, University of Texas at Arlington

Friday
August 10

Optional Yellowstone National Park Tour
Pick up at the Homewood Suites in Bozeman

Detailed schedule:

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  - Venue: EPS 108, Montana State University
  - Topics:
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    - Models for biomass processes
    - Solute processes
    - Examples of multidimensional biofilm models
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  - Venue: Institute of Geography and Earth Sciences, Aberystwyth University, UK
- Modeling microbial metabolism in soils and aquifers: From genome to pore to Darcy scales
  - Venue: Pacific Northwest National Laboratory, US

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  - Pick up at the Homewood Suites in Bozeman, US