



Center for Biofilm Engineering

About this Facility

Montana State University's Center for Biofilm Engineering has been a world leader in biofilm research for more than 25 years. The mission of the CBE is to advance the basic knowledge, technology, and education required to learn, control and exploit biofilm processes. The CBE has an extraordinary history of truly outstanding people working together to advance its own mission. The combination of creativity, teamwork, excellence, and inclusiveness fosters the open environment that leads to shared success. This environment regularly attracts visiting researchers and collaborators from around the world.

www.biofilm.montana.edu

Fundamental Topics

Biofilms in nature: microbes in hot & cold environments | role of biofilms in natural processes | biomimetics | biogeochemistry

Cellular/intracellular: phenotype | genetics | metabolic pathways | proteomics

Multicellular/extracellular: flow and transport in biofilm systems | material properties | quorum sensing | structure-function | heterogeneities | matrix

Ecology/physiology: population characterization | spatial and temporal population dynamics

Analytical Tools & Techniques

Instrumentation: microscopy | nuclear magnetic resonance imaging | gas chromatography | microfluidics

Methods development: experimental design | variability | ruggedness | repeatability | statistical evaluation

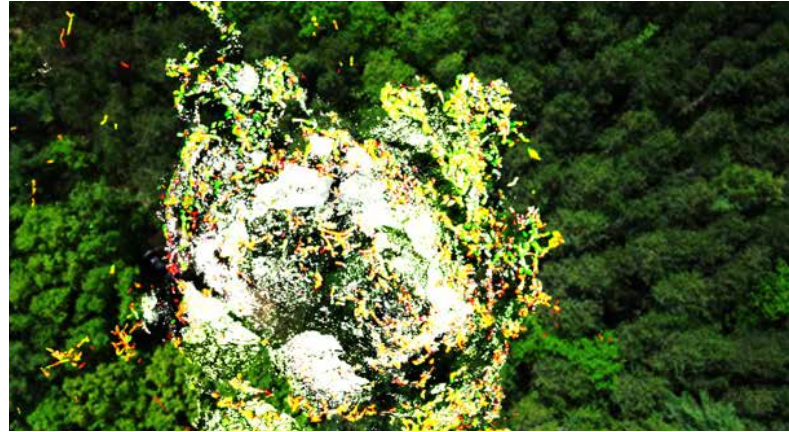
Modeling: cellular automata modeling | mathematics | hydrodynamics

Basic microbiology techniques: total and direct counts | MIC determination | viable cell counts

Molecular biology techniques: DNA extraction | PCR | DGGE | microarrays | sequencing

Applied Research Areas & Projects

Biofilm control strategies: antimicrobial efficacy | biocides | bioelectric effect | disinfectants | inhibitory coatings | bioactive compounds



Energy solutions: biofuels | product souring | coalbed methane production | microbial fuel cells

Environmental technologies: bioremediation | wetlands | CO2 sequestration | biobarriers | biomineralization | microbes & mining issues

Health/medical biofilms: chronic wound healing | catheter infections | oral health | food safety

Industrial systems & processes: biofouling | biocorrosion | product contamination | microbe-metal interactions

Water systems: drinking water quality | premise plumbing | water treatment | distribution systems

To talk more in detail about how we may be able to help you, contact MONT director David Dickensheets at davidd@montana.edu

Dr. Phil Stewart is the CBE MONT user Liason

CBE is a part of MONT, the Montana Nanotechnology Facility, supported by NSF. MONT supports open access to 6 research facilities at MSU and is a part of the National Nanotechnology Coordinated Infrastructure (NNCI) with access to 15 additional sites across the US. If MONT does not have the instrumentation you need, we will find what you're looking for at one of our partner institutions.

www.nnci.net

