Department of Chemical and Biological Engineering
UNIVERSITY OF WISCONSIN–MADISON

RESEARCH

RESEARCH FOCUS AREAS

- Bioengineering and Biotechnology
- Catalysis, Surface Science and Reaction Engineering
- Materials, Polymers and Transport Processes
- Theory, Data Science and Systems

FACULTY

Styliani Avraamidou
Circular economy systems; energy systems; multi-level optimization; robust optimization; supply-chain optimization

Rose K. Cersonsky
Molecular modeling and simulation; applied mathematics and machine learning; self-assembly and interactions of complex building blocks; colloids, soft matter, and nanomaterials

Quentin Dudley (joining Jan. 2024)
Plant synthetic biology; metabolic engineering; cell-free systems; genome editing

Matthew A. Gebbie
Interfaces; electrochemistry; soft materials; nanoscience; electrocatalysis; energy storage; electrolytes; ionic liquids

Michael D. Graham
Fluid mechanics; flow and rheology of complex and multiphase fluids; blood flow; nonlinear dynamics

George W. Huber
Heterogeneous catalysis; renewable fuels and chemicals; biomass conversion; plastic recycling

Daniel J. Klingenberg
Colloid science; complex fluids; suspension rheology

Siddarth H. Krishna
Heterogeneous catalysis; kinetics and mechanisms; microporous materials; sustainable fuels and chemicals; pollution control

Whitney S. Loo
Polymers; soft materials; nanomaterials; sustainability

David M. Lynn
Soft materials; surfaces and interfaces; polymers; nanotechnology; biotechnology; drug delivery

Manos Mavrikakis
Thermodynamics; kinetics and catalysis; surface science; computational chemistry; fuel cells; sensors; nanoscience

Mai Ngo (joining Sept. 2024)
Tissue engineering, cell engineering, mammalian synthetic biology, biomaterials, cell-cell communication

Sean P. Palecek
Stem cell engineering; therapeutic cell biomanufacturing; antimicrobial agents; cell signaling

Brian F. Pfleger
Synthetic biology; biotechnology; protein engineering; sustainable chemical production

Thatcher W. Root
Green chemistry; renewable resources; catalysis; spectroscopy

Marcel Schreier
Electrocatalysis; renewable energy; electrified interfaces; kinetics and catalysis; surface chemistry; electrochemical synthesis of chemicals

Eric V. Shusta (Chair)
Drug delivery; protein engineering; stem cell engineering; biopharmaceutical design

Ross E. Swaney
Process design, synthesis, modeling and optimization

Reid C. Van Lehn
Molecular simulations; nanomaterials; soft materials; nano-bio interactions; cell membranes; solvent effects

John Yin
Systems biology; virus-cell interactions; immunology; microfluidics

Victor M. Zavala
Optimization; control; data science; energy and environmental systems

AFFILIATE FACULTY

AJ Boydston
Additive manufacturing (3D printing); photoredox-catalyzed polymerizations; polymerizations in continuous flow; mechanochemistry

Padma Gopalan
Polymer synthesis and characterization; electro-optic and photonic materials; self-assembly of block copolymers; photonic devices; liquid crystalline polymers

Ive Hermans
Sustainable chemistry and catalysis engineering

Vatsan Raman
Systems and synthetic biology; protein design; biosensors; synthetic bacteriophages; high-throughput functional assays; sequence-function landscapes

Philip A. Romero
Protein engineering; machine learning; computational biology; high-throughput technology

James J. Schauer
Measurement and chemical characterization tools; air pollution origin and impacts; sensing

Saverio E. Spagnolie
Fluid mechanics; soft matter; biophysics; applied mathematics; numerical methods

Ophelia S. Venturelli
Synthetic & systems biology; computational modeling; microbial communities, microbiome engineering for bioprocessing, human health and agriculture applications; high-throughput experiments; microfluidics

For more information, please contact:
gradrecruit@che.wisc.edu
Phone: 608/263-3138 | engineering.wisc.edu/cbe

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