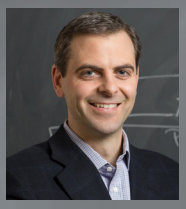
Chemical Biology

Department of Chemistry
University of Illinois at Urbana-Champaign

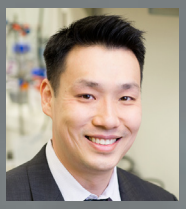
For more information, visit
chemistry.illinois.edu



Martin D. Burke

Synthesis and study of small molecules with protein-like functions; molecular prosthetics; synthesis of complex natural products; iterative cross-coupling; MIDA boronates

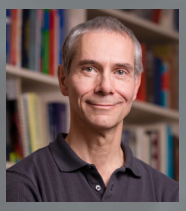
chemistry.illinois.edu/mdburke



Jefferson Chan

Development of advanced imaging agents to study the chemical biology of neurological disorders and cancer; synthesis of activity-based sensing probes to discover new mechanisms of premature aging; design of chemically responsive platforms for on-demand and site-selective drug delivery

chemistry.illinois.edu/jeffchan



Martin Gruebele

Protein and RNA folding and interactions in vitro, in cells and in vivo

chemistry.illinois.edu/mgruebel

Hee-Sun Han

Developing new bioimaging and sequencing platforms to unveil the molecular mechanisms driving the ensemble behavior of biological systems; imaging-based spatial transcriptomics; microfluidic-based single virus genomics; lab-on-a-chip platforms for disease diagnostics

chemistry.illinois.edu/hshan

Paul J. Hergenrother

Use of small molecules to identify and define novel targets for the treatment of cancer, neurodegeneration, and drug-resistant bacteria

chemistry.illinois.edu/hergenro

Zaida Luthey-Schulten

Integration of experiments, theory, and simulations into whole-cell models; stochastic simulations of biological processes in minimal cells; physics of metabolism and ribosome biogenesis; dynamical networks of protein-nucleic interactions; statistical mechanics of the genome and DNA replication

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also see reverse side

rev. 10/2021

Chemical Biology

Other faculty with interests in Chemical Biology

Raven Huang (faculty affiliate)
Structural biology

Mary L. Kraft (faculty affiliate)
Biomembrane surface science

Deborah E. Leckband
Biological adhesion

Susan A. Martinis (faculty affiliate)
RNA-protein structure/function

Catherine J. Murphy
Biophysical chemistry

Satish K. Nair (faculty affiliate)
Structural biology

Eric Oldfield
Drug discovery and NMR/X-ray

Elena V. Romanova (research faculty)
Mass spectrometry of peptides

Stanislav Rubakhin (research faculty)
Microbioanalytical chemistry & imaging

Stephen G. Sligar (emeritus faculty)
Nanobiotechnology and drug discovery

Huimin Zhao (faculty affiliate)
Biocatalysis and synthetic biology

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Angad Mehta

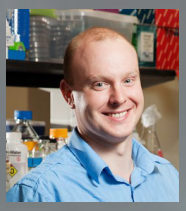
Using synthetic chemistry, biocatalysis and synthetic biology to develop (i) live attenuated vaccine platforms, (ii) phenotypic platforms for broad-spectrum antivirals identification, and (iii) engineered endosymbiotic platform for evolutionary studies and metabolic engineering

chemistry.illinois.edu/apm8

Liviu M. Mirica

Development of bifunctional therapeutic and diagnostic agents for amyloid peptide disorders such as Alzheimer's disease; study of the role of transition metal ions in neurodegenerative diseases

chemistry.illinois.edu/mirica



Douglas A. Mitchell

Natural product chemical biology; mechanistic enzymology; structure-function studies of complex small molecules; bioinformatic and bioorganic methodology to accelerate biomedical discovery

chemistry.illinois.edu/douglasm

Lisa Olshansky

Engineering conformationally gated artificial metalloproteins for the investigation of enzyme mechanism, energy conversion, switchable catalysis, and biomedical imaging

chemistry.illinois.edu/lolshans

Scott K. Silverman

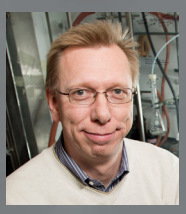
DNA as an enzyme

chemistry.illinois.edu/sks

Jonathan V. Sweedler

Neurochemistry: the characterization of unusual neurotransmitters and neuromodulators and the determination of their function

chemistry.illinois.edu/jsweedle



Wilfred A. van der Donk

Antibiotic biosynthesis; combinatorial chemistry of cyclic peptides; enzymology

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Steven C. Zimmerman

Small-molecule therapeutic agents that target DNA and RNA; development of chemical catalysts for chemical biology; drug and cellular delivery agents; biomaterials; nanomedicine

chemistry.illinois.edu/sczimmer