

Chemical Biology

Department of Chemistry
University of Illinois at Urbana-Champaign

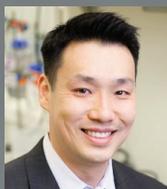
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chemistry.illinois.edu



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

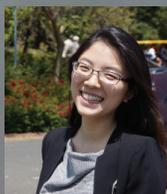
chemistry.illinois.edu/jeffchan



Martin Gruebele

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

chemistry.illinois.edu/mgruebel



Hee-Sun Han

Inventing microfluidics and imaging technologies for systems biology; modeling the ensemble behavior of complex biological systems; synthetic cells; microfluidics-based high-resolution assays; imaging-based spatial omics

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

chemistry.illinois.edu/zan

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



Angad Mehta

Developing and using synthetic biology (i) to combat emerging viral pathogens and drug-resistant bacteria; (ii) for directed endosymbiosis (an engineered, symbiotic cell within a host cell) to develop platforms for evolutionary studies and photosynthetic biosynthesis; and (iii) engineering selectivity in targeting cancer

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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