Mikael Backlund
Optical microscopy, quantum sensing, magnetic resonance, single-molecule and super-resolution microscopy, metrology, biophysics, condensed matter
chemistry.illinois.edu/mikaelb

Martin Gruebele
Dynamics of complex systems by experiments, computation and theory, from single molecule absorption spectroscopy on surfaces to vibrational energy flow in molecules, glass dynamics, protein folding in live cells, and vertebrate behavior
chemistry.illinois.edu/mgruebel

Hee-Sun Han
Development of a new imaging platform for high throughput single molecule imaging in tissues; creation of a microfluidic platform for high throughput single virus sequencing; deciphering multi-level regulatory network in complex biological system
chemistry.illinois.edu/hshan

So Hirata
Electronic and vibrational quantum many-body theories for molecules, polymers, and solids; computational spectroscopy; high-performance computing; computer algebra for many-body theory formulation and programming
chemistry.illinois.edu/sohirata

Nick Jackson
Theoretical soft materials chemistry, electron and ion transport, machine learning applied to molecular and polymeric systems, multiscale all-atom and coarse-grained simulations
chemistry.illinois.edu/jacksonn

also see reverse side
Other faculty with interests in Physical Chemistry

Dana D. Dlott (emeritus faculty)
Laser spectroscopy under extreme conditions

Robert B. Gennis (emeritus faculty)
Membrane proteins; bioenergetics

Andrew A. Gewirth
Spectroscopy and microscopy of energy-related interfaces

Gregory S. Girolami
Chemical vapor deposition; catalysis; molecule-based magnets

Catherine J. Murphy
Inorganic nanomaterials

Lisa Olshansky
Spectroscopic interrogation of transient states formed during solar to fuels conversion and within switchable artificial metalloproteins

Taras Pogorelov (research faculty)
Biomolecular computation

Charles M. Schroeder (faculty affiliate)
Single-molecule studies of polymers and biomolecules

Kenneth S. Suslick (emeritus faculty)
Sonochemistry; sensor arrays

Jonathan V. Sweedler
Neurochemistry; cell-cell signaling pathways

Emad Tajkhorshid
Computational structural biology and molecular biophysics; membrane proteins; drug design

Prashant K. Jain
Molecular and nano-optics; plasmonics; near-field manipulation of photophysics and photochemistry; super-resolution imaging of active sites in heterogeneous catalysis; phase transformations in single nanodomains; artificial photosynthesis
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Deborah E. Leckband
Kinetics and thermodynamics of biological recognition and bio-adhesion; single molecule techniques; molecular force probes; molecular dynamics simulations; measurements of binding between single cells
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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-RNA and protein-DNA interactions; statistical mechanics of the genome and DNA replication
chemistry.illinois.edu/zan

Nancy Makri
Development and application of path integral and trajectory-based methods for simulating quantum dynamical processes in the condensed phase
chemistry.illinois.edu/nmakri

Eric Oldfield
Drug discovery using NMR, X-ray, and computational methods
chemistry.illinois.edu/eoldfiel

Kenneth S. Schweizer
Statistical mechanical theory of the structure, phase behavior, properties and dynamics of soft materials composed of molecules, polymers, colloids, and nanoparticles in the liquid, crystal, glass and gel states
chemistry.illinois.edu/kschweiz

Josh Vura-Weis
Tabletop femtosecond X-ray spectroscopy of excited-state nuclear and electronic dynamics in transition metal complexes, focusing on short-lived states in inorganic catalysts and photomagnetic materials
chemistry.illinois.edu/vuraweis