

# Materials Chemistry

Department of Chemistry  
University of Illinois Urbana-Champaign

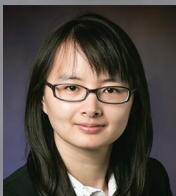


For more information on Materials Chemistry faculty, scan →



**Paul V. Braun**

Electrochemical energy storage; responsive polymers; self-healing materials; mesoscale materials; optical materials; chemical sensors; self-assembly



**Qian Chen**

Colloidal nanoparticles: synthesis, assembly, property (catalysis, plasmonic, mechanical); multivalent ion batteries; polymer physics; *in-situ* electron microscopy imaging; bioimaging and machine learning



**Majed S. Fataftah**

Inorganic and bioinorganic chemistry: synthesis, spectroscopy, and electronic structure; metal-organic frameworks; molecular magnetism; quantum information science



**Hee-Sun Han**

Droplet microfluidics; High throughput imaging; Single virus omics; Spatial omics; Bottom-up construction of synthetic cells



**Nicholas E. Jackson**

Theoretical chemistry; soft materials simulations; machine learning; coarse-graining; polymer chemistry; organic electronics



**Prashant K. Jain**

Nanocrystals; energy chemistry; plasmonics; artificial photosynthesis; nanocatalysis; multielectron catalysis



**Christy F. Landes**

New spectroscopic tools to image chemical dynamics at interfaces at the limit of a single event; creating new models to understand and predict macroscale processes like protein separation and photocatalysis

# Materials Chemistry

chemistry.illinois.edu

## Other faculty with interests in Materials Chemistry

### Mikael Backlund

Quantum sensing with solid-state defects; applications in hard and soft condensed matter physics

### Qing Cao (faculty affiliate)

Materials for novel (opto)electronic devices

### Ying Diao (faculty affiliate)

Polymer processing, additive manufacturing, non-equilibrium assembly, chiral emergence, liquid crystals, organic electronics, and applications in energy and sustainability

### Mary L. Kraft (faculty affiliate)

Biological membrane imaging

### Lisa Olshansky

Switchable materials for renewable energy applications

### Xing Wang (research faculty)

Nucleic acids-based nanomaterials for applications in chemistry, biology, and medicine

### Hong Yang (faculty affiliate)

Nanomaterials for catalysis



### Stephan Link

Photophysics and photochemistry of nanomaterials, plasmonics; solar energy conversion; single-particle imaging; ultrafast spectroscopy



### Xiaotang Lu

Brain circuit imaging for understanding development and pathology of the central nervous system: correlated multidimensional (from nanoscale to whole brains) and multiplexed (transcriptomic and proteomic) imaging of the brain; (bio)chemical probes; tissue chemistry; imaging methods



### Liviu M. Mirica

Development and characterization of homogeneous and heterogeneous transition metal catalysts



### Catherine J. Murphy

Synthesis, characterization, biological applications and environmental implications of colloidal inorganic nanoparticles; surface chemistry and plasmonic properties of gold nanoparticles; sustainability



### Joaquín Rodríguez-López

Interfacial electrochemistry; scanning electrochemical microscopy (SECM); spectroelectrochemistry; automated electrochemistry; nanoelectrodes; batteries; electrocatalysis; graphene electrodes; redox polymers; electrochemical simulation; reactive oxygen species



### Benjamin Snyder

Inorganic spectroscopy and electronic structure; porous materials; heterogeneous catalysis; zeolites; metal-organic frameworks



### Michael J. Strauss

Discovery and development of synthetic methods to (1) engineer emergent phenomena in polymers and other soft materials, (2) transform plastic waste into high-value and high-demand small molecules, and (3) access structurally dynamic multi-dimensional polymeric materials



### Josh Vura-Weis

Femtosecond X-ray spectroscopy of catalytic reaction intermediates

*also see reverse side*