

# Materials Chemistry

Department of Chemistry  
University of Illinois at Urbana-Champaign

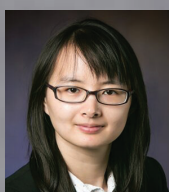
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**Paul V. Braun**

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

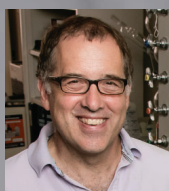
[chemistry.illinois.edu/pbraun](http://chemistry.illinois.edu/pbraun)



**Qian Chen**

Soft matter design, characterization, and applications

[chemistry.illinois.edu/qchen20](http://chemistry.illinois.edu/qchen20)



**Andrew A. Gewirth**

Materials properties of surfaces and interfaces with relevance to energy storage; electrocatalysis; materials fabrication; electrochemistry

[chemistry.illinois.edu/agewirth](http://chemistry.illinois.edu/agewirth)



**Gregory S. Girolami**

Synthesis of transition metal and f-metal complexes and their use in catalysis, as precursors for the chemical vapor deposition of micro- and nanoelectronic devices, in energy applications, and for the reprocessing of nuclear fuel

[chemistry.illinois.edu/ggirolam](http://chemistry.illinois.edu/ggirolam)



**Hee-Sun Han**

Development of microfluidics & imaging technologies for systems biology; modeling the ensemble behavior of complex biological systems; imaging-based spatial omics; microfluidics-based high-resolution assays; bottom-up construction of synthetic cells

[chemistry.illinois.edu/hshan](http://chemistry.illinois.edu/hshan)

# Materials Chemistry

## 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

Dana D. Dlott (emeritus faculty)

Laser spectroscopy under extreme conditions

Damien S. Guironnet

Development of novel (de)polymerization methodologies; self-assembled polymers; catalyst encapsulation

Mary L. Kraft (faculty affiliate)

Biological membrane imaging

Lisa Olshansky

Switchable materials for renewable energy applications

Kenneth S. Suslick (emeritus faculty)

Sonochemistry; sensor arrays

Xing Wang (research faculty)

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

Hong Yang (faculty affiliate)

Nanomaterials for catalysis



**Nicholas E. 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](http://chemistry.illinois.edu/jacksonn)



**Prashant K. Jain**

Plasmonics; near-field manipulation of photophysics and photochemistry; super-resolution imaging of active sites in heterogeneous catalysis; artificial photosynthesis; imaging phase transformations in single nanocrystals

[chemistry.illinois.edu/jain](http://chemistry.illinois.edu/jain)



**Deborah E. Leckband**

Protein function at interfaces and under confinement; hybrid biomaterials; protein interactions with polymers; colloidal and surfaces forces; bio interface engineering

[chemistry.illinois.edu/leckband](http://chemistry.illinois.edu/leckband)



**Catherine J. Murphy**

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

[chemistry.illinois.edu/murphycj](http://chemistry.illinois.edu/murphycj)



**Joaquín Rodríguez-López**

Nanoelectrochemistry; electrochemical imaging of batteries, electrocatalysts, and interfaces; redox polymers; ultrathin electrodes; electrochemical microfluidics; electrochemical simulation

[chemistry.illinois.edu/joaquinnr](http://chemistry.illinois.edu/joaquinnr)



**Josh Vura-Weis**

Femtosecond X-ray spectroscopy of catalytic reaction intermediates

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