

## UO Department of Chemistry - Faculty Research Interests

**Boettcher, Shannon W.** - The Boettcher laboratory utilizes inorganic synthesis, nano and microscience, surface chemistry, simulation, physical measurement, and device fabrication to design, build and study new materials and structures that have applications in solar energy harvesting and electrochemical energy storage.

**Brozek, Carl** - The Brozek Lab synthesizes soft materials and uses physical inorganic methods to investigate their unique redox properties for catalysis, energy capture, and electronic devices.

**Cina, Jeffrey A.** - The Cina group works on the theory and simulation of time-resolved optical spectroscopy.

**Cook, Amanda** - Research in the Cook group develops new catalysts for the transformation of organic molecules. The catalysts studied are molecular organometallic complexes, as well as heterogeneous materials with well-defined active sites. We also use elements of physical organic chemistry to study the mechanisms of these transformations.

**DeRose, Victoria J.** - The DeRose lab is investigating chemical activity and structure in nucleic acids and proteins, with an emphasis on metal interactions.

**Doxsee, Kenneth M.** - Research in the Doxsee group revolves around various aspects of molecular recognition phenomena.

**Guenza, Marina G.** - The Guenza group studies the structure and dynamics of complex fluids.

**Haley, Michael M.** - The Haley lab specializes in organic synthesis for the preparation of new pi-electron-rich molecules for use in organic electronics, as sensors for environmental contaminants, and as potential therapeutic agents.

**Hansen, Scott** - The Hansen lab uses biochemistry and quantitative cell biology to characterize the enzymology and system level behavior of membrane associated signaling reactions.

**Harms, Michael** - The overarching goal of the Harms lab is to understand the relationship between the biophysical properties of proteins and their evolution.

**Hawley, Diane K.** - Hawley's research group is interested in the enzymology of RNA polymerases and the mechanisms by which eukaryotic transcription is regulated.

**Hendon, Christopher H.** - The Hendon Materials Simulation group using quantum mechanics and super computers to explore chemical properties arising in metal-organic frameworks and on the surfaces of catalysts.

**Hutchison, James E.** - The Hutchison lab focuses on molecular-level design and synthesis of functional surface coatings and nanomaterials.

**Jasti, Ramesh** - The Jasti research group uses organic synthesis to probe structure-property relationships of graphitic nanomaterials.

**Johnson, Darren W.** - Research in the DW Johnson group explores problems in coordination chemistry and organic synthesis using the relatively new field of supramolecular chemistry as a tool.

**Johnson, David C.** - Dave Johnson's research is at the interface of chemistry and physics. His group has pioneered a new approach to the synthesis of extended solids that permits them to prepare families of new nanostructured and kinetically stable compounds.

**Kellman, Michael E.** - Theoretical dynamics of highly excited molecules are the focus of research in the Kellman group. A recent new direction is quantum statistical mechanics and thermodynamics of quantum states of molecules embedded in a quantum

**Loneragan, Mark C.** - Research in the Loneragan group blends synthesis, physical measurement and rational design to better understand or discover interesting electrical and electrochemical phenomena in solid-state systems.

**Marcus, Andrew** - The Marcus group studies the structure and dynamics of macromolecules in biological environments.

**Nazin, George** - The Nazin group investigates the connection between the chemical structure and properties of nanoscale materials

**Nolen, Brad J.** - The Nolen lab is investigating the molecular basis for regulation of the cytoskeleton, the molecular framework that provides physical support for cells.

**Page, Catherine J.** - Research in the Page laboratory is focused on the synthesis and characterization of new solid-state materials that have relevance to developing technologies.

**Pluth, Michael D.** - Research in the Pluth group focuses on extending traditional uses of molecular recognition by the rational design of systems poised to activate small molecules for use in catalysis and sensing.

**Prehoda, Kenneth E.** - Research in the Prehoda lab focuses on the biochemical processes that allow cells to respond to changes in their environment.

**Prell, James S.** - The Prell group uses state-of-the-art mass spectrometry and ion mobility techniques, along with computational modeling, to probe the organization of complex condensed-phase materials at the nanoscale. Focusing primarily on biomaterials, we investigate the physical chemistry principles that govern the function and dynamics of megadalton-sized macromolecular assemblies of proteins, lipids, and other biomolecules as well as their interactions with pharmaceuticals.

**Richmond, Geraldine L.** - The Richmond group uses experimental and computational methods in their fundamental studies of surfaces and interfaces that have relevance to important environmental, technological and biological processes.

**Tyler, David R.** - The research in Tyler's laboratory focuses on mechanistic organometallic and inorganic chemistry, polymer chemistry, catalysis, and photochemistry.

**von Hippel, Peter H.** - The von Hippel lab uses physical biochemical solution and spectroscopic approaches to study the molecular mechanisms of the 'macromolecular machines' involved in DNA replication and RNA transcription.

**Wong, Cathy** - Develops in situ time-resolved non-linear laser spectroscopies to measure, understand, and control the self-assembly of nanoscale building blocks, such as organic molecules, polymers, and quantum dots.

## Faculty Research Interests by Research Area

Analytical/Bioanalytical Chemistry	Inorganic, Organometallic Chemistry	Physical Chemistry
James S. Prell		Jeffrey A. Cina
Biochemistry, Molecular Biology	Shannon W. Boettcher	Marina G. Guenza
Alice Barkan (biology)	Carl Brozek	Christopher H. Hendon
Bruce Bowerman (biology)	Amanda Cook	Michael E. Kellman
Victoria J. DeRose	Victoria J. DeRose	David C. Johnson
Chris Doe (biology)	Kenneth M. Doxsee	Mark C. Lonergan
Karen Guillemain (biology)	Michael M. Haley	Andrew H. Marcus
Scott Hansen	Christopher H. Hendon	George Nazin
Mike Harms	James E. Hutchison	James S. Prell
Diane K. Hawley	Ramesh Jasti	Geraldine L. Richmond
Tory Herman (biology)	David C. Johnson	Cathy Wong
Eric Johnson (biology)	Darren W. Johnson	
Diana Libuda (biology)	Catherine J. Page	Polymer Chemistry
Andrew H. Marcus	Michael D. Pluth	Marina G. Guenza
Jeff McKnight (biology)	David R. Tyler	Carl Brozek
Brad J. Nolen	Materials Chemistry	James E. Hutchison
Annie Powell (biology)	Shannon W. Boettcher	Mark C. Lonergan
Kenneth E. Prehoda	Carl Brozek	Andrew H. Marcus
James S. Prell	Amanda Cook	David R. Tyler
S. James Remington (physics)	Kenneth M. Doxsee	
Eric Selker (biology)	Marina G. Guenza	Solid-State Chemistry
George Sprague (biology)	Michael M. Haley	Shannon W. Boettcher
Peter H. von Hippel (retired, research active)	Christopher H. Hendon	Carl Brozek
Philip Washbourne (biology)	James E. Hutchison	Amanda Cook
Bioorganic Chemistry & Chemical Biology	Ramesh Jasti	Kenneth M. Doxsee
Victoria J. DeRose	Darren W. Johnson	Christopher H. Hendon
Kenneth M. Doxsee	David C. Johnson	Ramesh Jasti
Michael M. Haley	Mark C. Lonergan	David C. Johnson
Darren W. Johnson	Andrew H. Marcus	Catherine J. Page
Michael D. Pluth	George Nazin	Statistical Mechanics of Liquids & Complex Fluids
Biophysics	Catherine J. Page	Marina Guenza
Eric Corwin (physics)	James S. Prell	Andy Marcus
Victoria J. DeRose	Geraldine L. Richmond	
Marina G. Guenza	David R. Tyler	Surface & Interfacial Chemistry
Scott Hansen	Cathy Wong	Shannon W. Boettcher
Mike Harms	Optics & Spectroscopy	Carl Brozek
Diane K. Hawley	Jeffrey A. Cina	Amanda Cook
James E. Hutchison	Victoria J. DeRose	Christopher H. Hendon
Shawn Lockery (biology)	Michael E. Kellman	James E. Hutchison
Andrew H. Marcus	Andrew H. Marcus	David C. Johnson
Jeff McKnight (biology)	George Nazin	Mark C. Lonergan
Brad J. Nolen	Geraldine L. Richmond	George Nazin
Raghuveer Parthasarathy (physics)	Cathy Wong	Catherine J. Page
Kenneth E. Prehoda	Organic Synthesis	Geraldine L. Richmond
James S. Prell	Amanda Cook	Theoretical Chemical Physics
S. James Remington (physics)	Victoria J. DeRose	Jeffrey A. Cina
Tristan Ursell (physics)	Kenneth M. Doxsee	Marina G. Guenza
William Roberts (biology)	Michael M. Haley	Christopher H. Hendon
Peter H. von Hippel (retired, research active)	James E. Hutchison	Michael E. Kellman
Environmental Chemistry	Ramesh Jasti	
James E. Hutchison	Darren W. Johnson	
Darren W. Johnson	Catherine J. Page	
David C. Johnson	Michael D. Pluth	
Mark C. Lonergan	David R. Tyler	
Geraldine L. Richmond		
David R. Tyler		