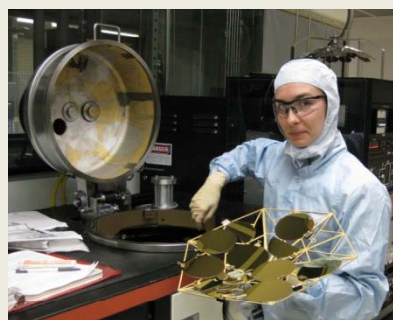
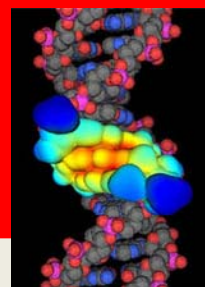


ONE WORD To Drive Discovery – RENSSELAER

Chemistry and

Chemical Biology

AT RENSSELAER



What is the best Ph.D. Chemistry program for you?

Choosing the right Ph.D. Chemistry program depends on many factors, including the area of your research interests, your academic background and your professional goals as well as on the quality of the faculty, the strength and the flexibility of the program, and the financial support of the department. If you are interested in working in an interdisciplinary environment, with outstanding faculty in an excellent mentoring environment, and a flexible program tailored to your research interests, we suggest that you consider the department of Chemistry and Chemical Biology at Rensselaer.

WHY RENSSELAER?

- Projects in emerging fields of science and technology at the intersection of traditional disciplines
- Personal interactions with faculty mentors across departments
- Vibrant geographical region with ties to top researchers in biomedical science and nanotechnology

The **Department of Chemistry and Chemical Biology at Rensselaer** invites applications from students interested in pursuing a Ph.D. degree in an interdisciplinary environment with research opportunities in emerging fields, such as energy and the environment, nanotechnology, biotechnology and computational science.

We offer research opportunities in a number of traditional and interdisciplinary areas, including biochemical solar energy research, artificial photosynthesis and bio-inspired photovoltaics, design, synthesis, and characterization of polymers and nanomaterials, biosensors, computational drug design, glycobiology, medicinal and synthetic chemistry, bioanalytical chemistry, state-of-the-art advanced NMR and EPR spectroscopy and protein misfolding diseases.

A full financial package with a competitive stipend is available to qualified students.

TIMELINE

Review of applications will commence during the Fall. The application deadline is January 1, but late applications may be considered at our discretion. Early applications are encouraged, especially for IGERT, GAANN, NSF and NIH fellowship programs.

APPLICATION PROCESS

Application forms must be obtained and submitted online at <http://gradadmissions.rpi.edu>. The additional required materials must be submitted via regular mail to:

Graduate Admissions Rensselaer Polytechnic Institute
110 8th Street
Troy, NY 12180-3590 USA
[http://gradadmissions.rpi.edu/](http://gradadmissions.rpi.edu)
gradadmissions@rpi.edu

For more information, visit: <http://www.rpi.edu/dept/chem/>
or contact:

Prof. Peter H. Dinolfo
Chair, Graduate Admissions Committee
Email: dinolf@rpi.edu Phone: (518) 276-2326

Ms. Sharon Gardner
Graduate Program Administrator
Email: derris@rpi.edu Phone: (518) 276-2140

Department of Chemistry and Chemical Biology
Cogswell Research Laboratories
Rensselaer Polytechnic Institute
110 8th Street
Troy, NY 12180-3590



Rensselaer

Faculty Research

Ronald A. Bailey, Professor and Associate Head

Coordination chemistry and transition metal chemistry in molten salts.

Blanca Barquera, Assistant Professor *

Na⁺ bioenergetics in bacteria on a number of levels, from global gene expression studies and bacterial physiology to biochemistry and mechanistic enzymology.

Curt Breneman, Professor and Acting Department Head

Early computational screening of drug candidates for possible side-effects, RECON/TAE transferable atom equivalent (TAE) modeling, and machine learning in virtual high-throughput molecular property screening.

Group webpage: <http://reccr.chem.rpi.edu/>

Wilfredo Colón, Associate Professor

Mechanisms of protein misfolding and aggregation leading to amyloid formation and human diseases, proteomics, high throughput detection of kinetically stable proteins, protein folding and design.

James V. Crivello, Professor

New polymer forming reactions, novel initiators, block polymers, and metal-catalyzed ring opening polymerization.

Peter H. Dinolfo, Assistant Professor

Surface functionalization methods for solar to electrical energy conversion, synthesis of multi-electron redox catalysts, and the electrochemical and spectroscopic examination of supramolecular coordination compounds.

Group webpage: <http://homepages.rpi.edu/~dinolp/>

James Kempf, Assistant Professor

Biomolecular NMR spectroscopy to study the influence of intra-molecular motions on chemical function, with emphasis on dynamics in post-translationally modified proteins.

Group webpage: <http://homepages.rpi.edu/~kempj2/>

Gerald M. Korenowski, Professor

Non-linear optics, spectroscopy, surface imaging, interfacial studies, and optical materials.

K. V. Lakshmi, Assistant Professor

Advanced solids NMR and pulsed EPR spectroscopy methods to (i) study energy and signal transduction by membrane proteins and (ii) elucidate the structure and function on DNA- and RNA-binding proteins.

Group webpage: <http://baruch60center.org/group/index.php>

Robert Linhardt, Senior Constellation Professor of Biocatalysis and Metabolic Engineering #,*

Glycobiology, glycomics, chemoenzymatic synthesis, microanalysis and high-throughput screening.

Group webpage: <http://www-heparin.rpi.edu/>

George Makhatadze, Chaired Constellation Professor in Biocomputation and Bioinformatics *

Rational protein engineering and design with emphasis on protein stability, computational and experimental studies of the mechanism of protein folding and stability, thermodynamics of protein-protein, protein-DNA/RNA, and protein-ligand interactions.

Linda B. McGown, William Weightman Walker Professor

Optical spectroscopy, capillary electrophoresis and MALDI-mass spectrometry; design and characterization of nanostructured biomaterials; affinity techniques; the role of genomic architecture in disease; forensic analysis.

Group webpage: <http://homepages.rpi.edu/~mcgowl/>

* Faculty members with joint appointments in the biology department.

Faculty members with joint appointments in the engineering departments.

Individual faculty profiles can be found at:

http://www.rpi.edu/dept/chem/chem_faculty/index.html

James A. Moore, Professor

Multifunctional polyelectrolytes, novel polymers and polymerization methods, and ways to produce novel polymers from renewable resources such as cellulose.

Marianne Nyman, Associate Professor

Environmental analytical chemistry, sediment remediation, fate and transport of hydrophobic organic compounds in natural and engineered systems, and aquatic chemistry.

Group webpage: <http://homepages.rpi.edu/~nymann/>

Mark Platt, Assistant Professor

Mass spectrometry to identify peptides and proteins within biological systems, focusing on proteomics, protein phosphorylation, and differential analysis.

Chang Ryu, Associate Professor

Macromolecular separation and adsorption, block copolymer self-assembly in solution and thin films, and electroactive organic materials.

Group webpage: <http://homepages.rpi.edu/~ryuc/>

Chunyu Wang, Associate Professor *

Application of NMR spectroscopy to study significant and interesting problems in neuroscience and aging, such as Alzheimer's disease.

Mark Wentland, Professor

Design and synthesis of novel agents to treat cocaine addiction in humans.

Group webpage: <http://homepages.rpi.edu/~wentmp/>

Participating Research Centers

The Baruch '60 Center for Biochemical Solar Energy Research

The Baruch '60 Center for Biochemical Solar Energy Research is focused on elucidating the fundamental processes involved in the light-driven reactions found in natural photosynthetic systems, and applying them to new energy technologies.

Center for Biotechnology and Interdisciplinary Studies

The Center for Biotechnology & Interdisciplinary Studies serves as the primary focus of biotechnology research, training, and outreach at Rensselaer. The Center facilitates multidisciplinary research in the basic life sciences, engineering sciences, and technology development and maximizes the impact of Rensselaer's investment to benefit society.

Computational Center for Nanotechnology Innovations

The Computational Center for Nanotechnology Innovations is one of the world's most powerful university-based supercomputers which is used to support a wide variety of research activities at Rensselaer.

New York Center for Astrobiology

The New York Center for Astrobiology is devoted to investigating the origins of life on Earth and the conditions that lead to formation of habitable planets in our own and other solar systems.

New York State Center for Polymer Synthesis

The New York State Center for Polymer Synthesis houses advanced technology for the discovery, scale-up, processing, and evaluation of unique polymers needed by many industries. The Center's focus is grounded in three areas: ground-breaking research, corporate and government partnerships, and undergraduate and graduate education.

Rensselaer Exploratory Center for Cheminformatics Research

The Rensselaer Exploratory Center for Cheminformatics Research is dedicated to advancing the field of Cheminformatics and increasing the availability of new methods within the Cheminformatics user community.