



RICE NATURAL SCIENCES

Department of Chemistry

GRADUATE STUDIES AT RICE UNIVERSITY

Graduate students in the Department of Chemistry at Rice University have established an extraordinary record of achievement. A 2013 study by the Max Planck Society ranked Rice Chemistry at No. 1 in the world, based on the citation records of student publications. Coupled with a prolific publication rate (seven publications and nearly three first authorships), a typical student in the program publishes multiple papers cited in the top 10% worldwide.

Underlying the development of Rice chemists is a strong, dynamic, interdisciplinary faculty which included Nobel Laureates, six members of the National Academy of Sciences, and two members of the National Academy of Engineering. The low student to faculty ratio (3:1) ensures that students have ample access to faculty time, instrumentation, and other resources.



The doctoral program at Rice is built around a close-knit community that promotes student achievement. This collaborative environment was critical to the development of nanotechnology, having facilitated the work of two Nobel laureates in the discovery of buckminsterfullerene.

Rice's culture of collaboration has minimized barriers between research areas for decades. Chemistry faculty members hold appointments in four of the seven departments in the School of Natural Sciences at Rice and in six of the nine engineering departments (most Chemistry faculty members also hold appointments in an engineering department).

Rice chemists do not take a prescribed set of courses, but construct an individualized curriculum consisting of six courses in any area of science or engineering. This flexibility to customize courses is ideal for chemists who want to branch out into other areas and for people who want to move into chemistry from another discipline.

Rice University Department of Chemistry

P.O. Box 1892, MS-60
Houston, TX 77251-1892
Phone: 713-348-5820
Fax: 713-348-5155

Rice Chemistry website: chemistry.rice.edu/

Graduate recruiting email: gradchem@rice.edu

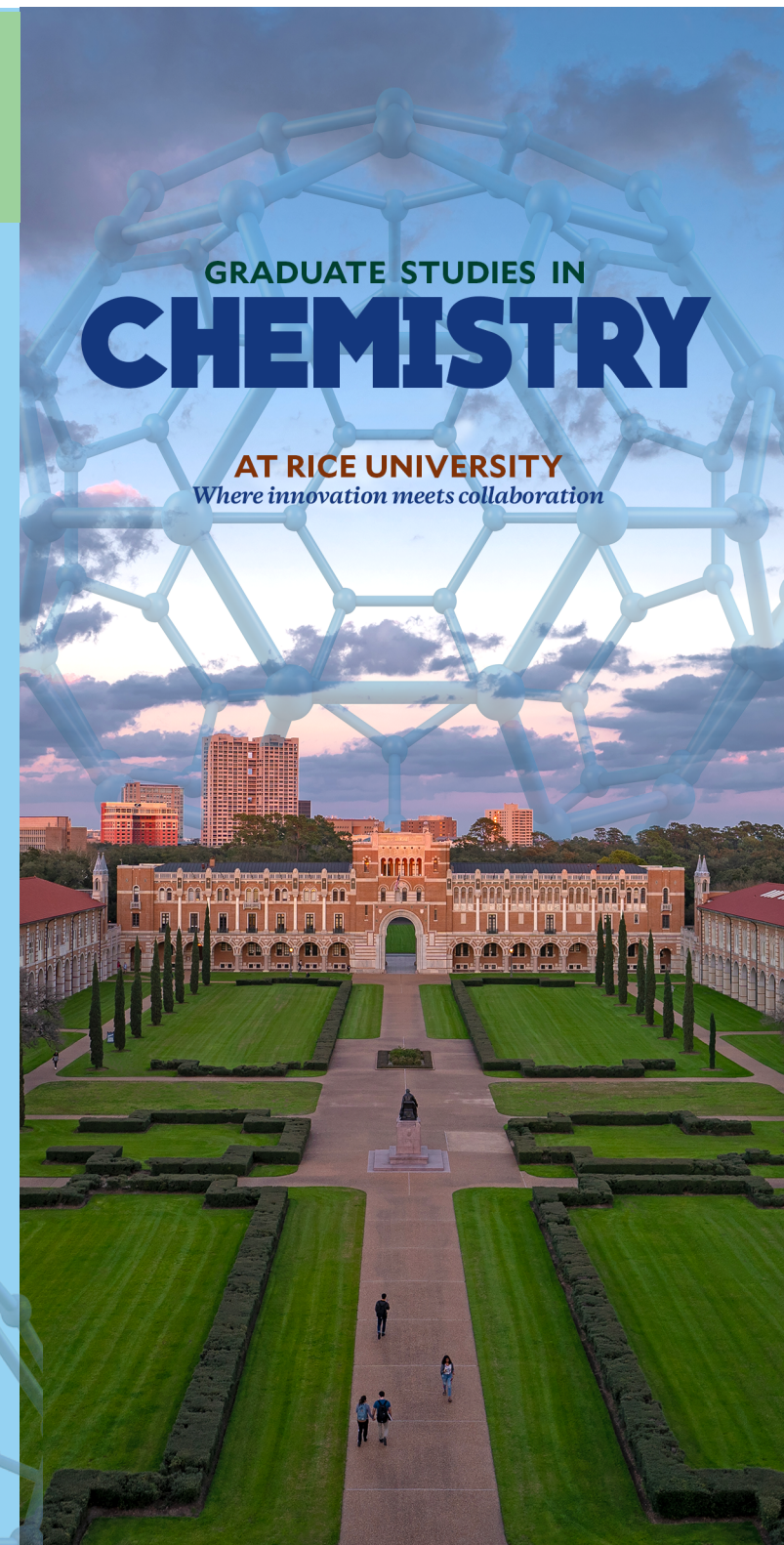
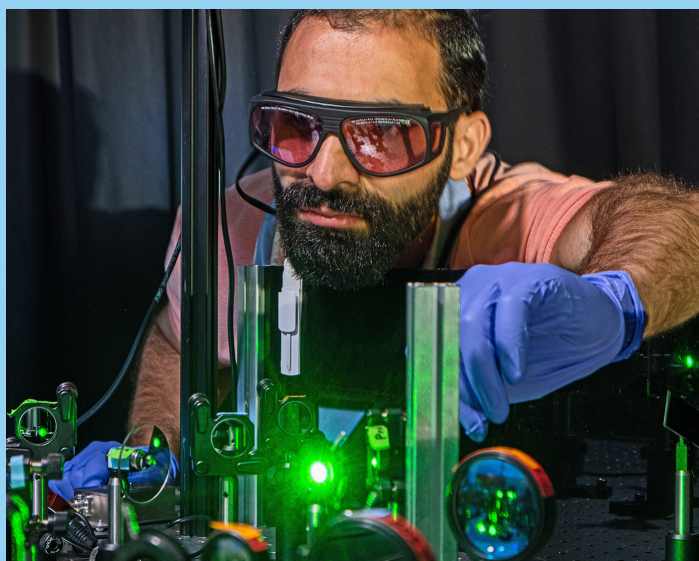
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How to apply



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Department of Chemistry

CORE FACULTY

Kushal Bagchi, Ph.D. (UW-Madison, 2020)
Experimental physical chemistry and materials science. Studying molecular packing and dynamics in functional organic materials for electronics, sustainability, and healthcare applications.

Zachary T. Ball, Ph.D. (Stanford, 2004)
Bioconjugation methodology, biomimetic catalysis, and aqueous transition metal catalysis. Particular interests include boronic acid reactions for chemical biology and organometallics for biology and medicine.

Anna-Karin Gustavsson, Ph.D.
(U Gothenburg, 2015) Development and application of 3D single-molecule, super-resolution microscopy with the goal of answering questions in physical chemistry, biophysics, and biomedicine related to cancer and other diseases.

Jeffrey D. Hartgerink, Ph.D. (Scripps, 1999)
Self-assembly of nanostructured materials with a focus on molecular structures of proteins and peptide based biomaterials for tissue regeneration, drug delivery, and other biomedical applications.

Raúl Hernández Sánchez, Ph.D.
(Harvard, 2015) Synthetic organic/inorganic chemistry towards the development of supramolecular scaffolds for water purification, conjugated molecular nanotubes, and small molecule activation at polynuclear metal catalysts.

John S. Hutchinson, Ph.D. (UT Austin, 1980)
Chemistry education research. Development and assessment of new teaching materials and approaches.

Matthew Jones, Ph.D. (Northwestern, 2014)
Experimental materials chemistry focused on understanding nanoparticle synthesis, self-assembly, and dynamics for applications in metamaterials and heterogeneous catalysis.

Anatoly B. Kolomeisky, Ph.D. (Cornell, 1998)
Theoretical physical chemistry, biophysics and statistical mechanics. Modeling of biological transport systems and protein-DNA interactions and investigation of nanocars and artificial nanoscale devices.

László Kürti, Ph.D. (U Penn, 2006)
Synthetic organic chemistry specializing in the development of new catalytic asymmetric transformations, modes of chirality transfer, methods for the synthesis of bioactive N- and O-hetero cycles, novel aminating agents, and transition metal-free amination reactions

Yuan Ma, Ph.D. (Shanghai Jiao Tong, 2018)
Design novel chemical biology tools to advance RNA biology, disclose their relationship with disease, and develop new analytical methods for disease early detection.

Angel Marti, Ph.D. (U Puerto Rico, 2004)
Development of molecules to diagnose and treat disorders like Alzheimer's that involve protein aggregates and development of supramolecular materials based on nanoscale building blocks.

Seiichi P. T. Matsuda, Ph.D. (Harvard, 1994)
Bioorganic and organic chemistry, terpenoid biosynthesis, enzyme evolution, redesign of enzymes to have new activities, and genomic approaches to find biologically active molecules.

Quanbing Mou, Ph.D. (Shanghai Jiao Tong, 2018)
Development of chemical biology tools for understanding RNA spatial information and promoting the application of RNA-based therapeutics.

K.C. Nicolaou, Ph.D. (U London, 1972)
Specializing in organic chemistry with a focus on the synthesis of natural and designed molecules of biological and medical importance to cancer research.

Lea Nienhaus, Ph.D. (U Illinois, 2015)
Developing multimodal optical spectroscopy/scanning probe microscopy methods to investigate the optoelectronic properties of emerging materials and understand light-matter interactions.

Hans Renata, Ph.D. (Scripps, 2013)
Development of new biocatalytic reactions for organic synthesis and novel chemoenzymatic approaches to complex molecules of medicinal importance.

Peter Rossky, Ph.D. (Harvard, 1978)
The elucidation of the fundamental molecular-level origins of chemical behavior in condensed phases and clusters using theory and computation.

David Sarlah, Ph.D. (Scripps, 2011)
Discovery and development of new reactivity as well as total synthesis of complex natural products and related chemical biology.

Gustavo E. Scuseria, Ph.D. (U Buenos Aires, 1983)
Development of theoretical and computational quantum chemistry techniques. Application of quantum mechanics to predict the structure and properties of molecules, materials and nanostructures.

James Shee, Ph.D. (Columbia, 2019)
Electronic structure theory with stochastic and quantum algorithms for d- and f- block chemistry.

James M. Tour, Ph.D. (Purdue, 1986)
Organic chemistry, materials science, polymer chemistry, nanoscience, and nanotechnology.

R. Bruce Weisman, Ph.D. (U Chicago, 1977)
Basic studies of carbon nanotube spectroscopy and photophysics and related analytical, mechanical engineering and biomedical applications.

Julian G. West, Ph.D. (Princeton, 2017)
Design and development of new catalytic reactions for synthetic organic chemistry and cancer research.

Kenton H. Whitmire, Ph.D. (Northwestern, 1982)
Inorganic and organometallic chemistry; precursor design for advanced nanomaterials; structural and mechanistic chemistry; catalysis; bioactivity of heavy main group elements.

Peter G. Wolynes, Ph.D. (Harvard, 1976)
Theoretical chemical physics; theory of glasses; protein dynamics and folding; Stochastic cell biology.

Han Xiao, Ph.D. (Scripps, 2015)
Development of chemical biology tools to study complex biology system and develop novel therapeutic strategies.

Samantha Yruegas, Ph.D. (Baylor, 2019)
Biocompatible and sustainable main group-based catalyst and method development for synthesis of innovative pharmaceuticals, optoelectronic devices, and polymers.

Eugene R. Zubarev, Ph.D. (Russian Academy of Sciences, 1996)
Organic chemistry and polymer chemistry, synthesis and characterization of self-assembling molecules.

JOINT FACULTY

Pulickel Ajayan, Ph.D.
Materials Science and NanoEngineering

Pedro J. Alvarez, Ph.D.
Civil and Environmental Engineering

Gang Bao, Ph.D. Bioengineering

Mingjie Dai, Ph.D. Bioengineering

Michael Diehl, Ph.D. Bioengineering

Henry Everitt, Ph.D.

Electrical and Computer Engineering

Jason H. Hafner, Ph.D.

Physics and Astronomy

Naomi Halas, Ph.D.

Electrical and Computer Engineering

Yimo Han, Ph.D.

Materials Science and NanoEngineering

Oleg Igoshin, Ph.D. Bioengineering

Jun Lou, Ph.D.

Materials Science and NanoEngineering

Fred MacKintosh, Ph.D.

Chemical and Biomolecular Engineering

Amanda Marciel, Ph.D.

Chemical and Biomolecular Engineering

Carrie Masiello, Ph.D.

Earth, Environmental and Planetary Sciences

Kevin McHugh, Ph.D. Bioengineering

Antonios G. Mikos, Ph.D. Bioengineering

Emilia Morosan, Ph.D.

Physics and Astronomy

Andriy Nevidomskyy, Ph.D.

Physics and Astronomy

Jose Onuchic, Ph.D.

Physics and Astronomy

Matteo Pasquali, Ph.D.

Chemical and Biomolecular Engineering

George N. Phillips, Jr., Ph.D. BioSciences

Haotian Wang, Ph.D.

Chemical and Biomolecular Engineering

Michael S. Wong, Ph.D.

Chemical and Biomolecular Engineering

Boris I. Yakobson, Ph.D.

Materials Science and NanoEngineering

Laurence Y. Yeung, Ph.D.

Earth, Environmental and Planetary Sciences