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Capillary hydrodynamics, multiphase flows, enhanced heat transfer surfaces.
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Chemical Kinetics, Catalysis, Surface Phenomena

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Fluid Mechanics, Transport and Colloidal Phenomena, Bioseparations

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Particle-Particle Interactions, Environmental Chemistry

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Sorption/desorption of Organics in Soils

JAMES A. FIELD, Associate Professor (Wagenigen Agricultural Univ.)
Bioremediation, Microbiology, White Rot Fungi, Hazardous Waste

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Affinity Protein Separations, Polymeric Surface Science

ANTHONY MUSCAT, Assistant Professor (Stanford)
Kinetics, Surface Chemistry, Surface Engineering, Semiconductor Processing, Microcontamination

KIMBERLY OGDEN, Associate Professor (Colorado)
Bioreactors, Bioremediation, Organics Removal from Soils

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Aerosols, Hazardous Waste Incineration, Microcontamination

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Stephen Beaudoin, Ph.D., North Carolina State. Semiconductor materials processing, environmentally-benign semiconductor processing, particle and thin-film adhesion, chemical-mechanical polishing, polymer dielectrics

James Beckman, Ph.D., Arizona. Unit operations, applied mathematics, energy-efficient water purification, fractionation, CMP reclamation

Veronica Burrows, Ph.D., Princeton. Surface science, environmental sensors, semiconductor processing, interfacial chemical and physical processes in sensor processing

Ann Dillner, Ph.D., Illinois, Urbana-Champaign. Atmospheric particulate matter (aerosols) chemistry and physics, ultra fine aerosols, light scattering, climate and health effects of aerosols

Chan Beum Park, Ph.D., POSTTECH, South Korea. Bioprocess *in extremis*, novel cell-free protein synthesis, biolab-on-a-chip technolgy

Gregory Raupp, Ph.D., Wisconsin. Gas-solid surface reactions mechanisms and kinetics, interactions between surface reactions and simultaneous transport processes, semiconductor materials processing, thermal and plasma-enhanced chemical vapor deposition (CVD)

Anneta Razatos, Ph.D., Texas at Austin. Bacterial adhesion, colloid interactions, AFM, biofilms, genetic engineering

Daniel Rivera, Ph.D., Caltech. Control systems engineering, dynamic modeling via system identification, robust control, computer-aided control system design

Michael Sierks, Ph.D., Iowa State. Protein engineering, biomedical engineering, enzyme kinetics, antibody engineering

Materials Science and Engineering

James Adams, Ph.D., Atomistic stimulation of metallic surfaces, adhesion, wear, and automotive catalysts, heavy metal toxicity

Terry Alford, Ph.D., Cornell. Electronic materials, physical metallurgy, electronic thin films

Nikhilesh Chawla, Ph.D., Michigan. Lead-free solders, composit ematerials, powder metallurgy

Sandwip Dey, Ph.D., Alfred. Electro-ceramics, MOCVD and ALCVD, dielectrics: leakage, loss mechanisms and modeling

Stephen Krause, Ph.D., Michigan. Characterization of structural changes in processing of semiconductors

Subhash Mahajan (Chair), Ph.D., Berkeley. Semiconductor defects, high temperature semiconductors, structural materials deformation

James Mayer, Ph.D., Purdue. Thin film processing, ion beam modification of materials

Nate Newman, Ph.D., Stanford. Growth, characterization, and modeling of solid-state materials

S. Tom Picraux, Ph.D. Caltech. Nanostructured materials, epitaxy, and thin-film electronic materials

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Mark van Schilfgaarde, Ph.D. Stanford. Methods and applications of electronic structure theory, dilute magnetic semiconductors, GW approximation

For details concerning graduate opportunities in Chemical and Materials Engineering at ASU, please call Marlene Bolf at (480) 965-3313, or write to Subhash Mahajan, Chair, Chemical and Materials Engineering, Arizona State University, Tempe, Arizona 85287-6006 (smahajan@asu.edu).

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- Pulp and Paper
- Process Systems Engineering
- Integrated Process Design
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- Catalysis and Reaction Engineering
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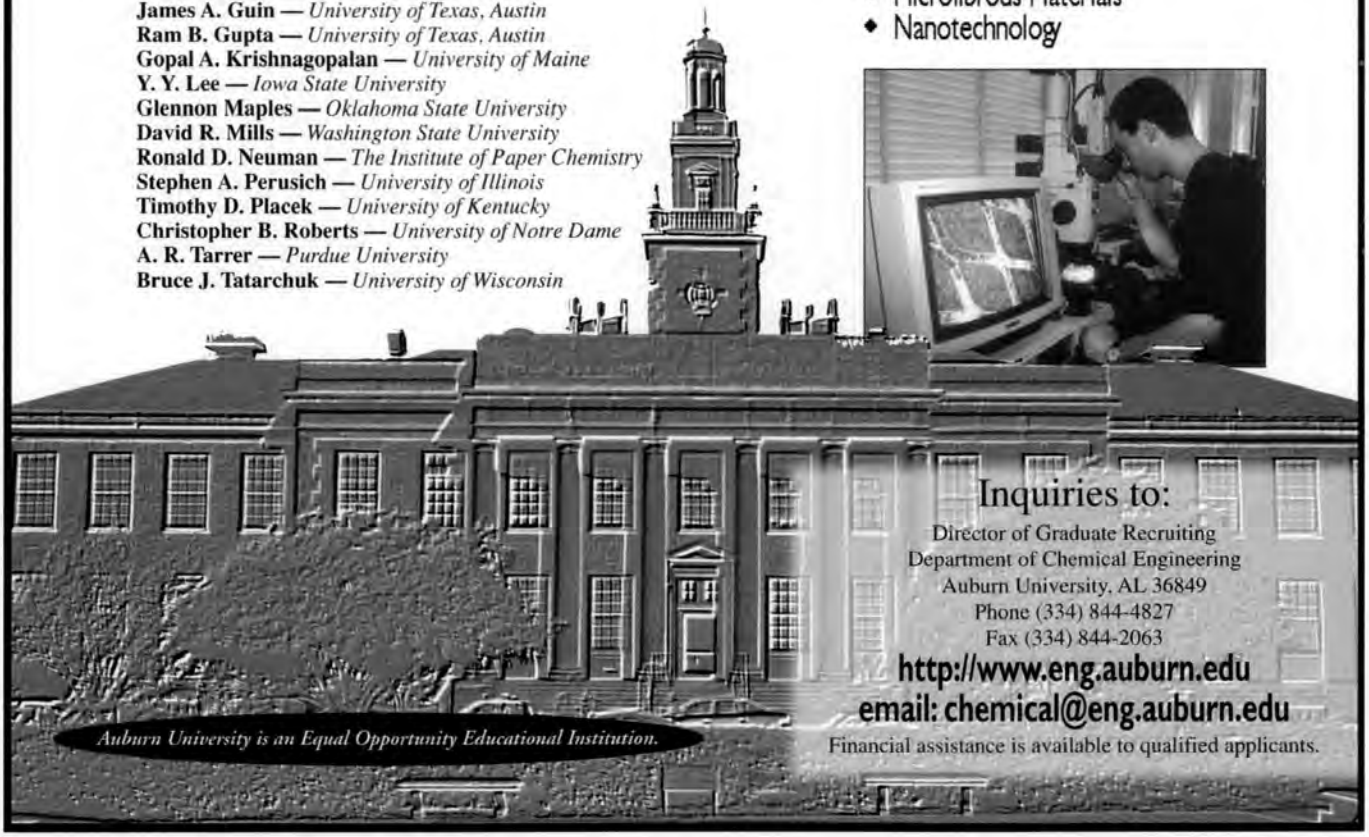

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Roland Faller, Assistant Professor • Ph.D., Max-Planck Institute for Polymer Research, 2000 • *Molecular modeling of soft-condensed matter*

Bruce C. Gates, Professor • Ph.D., University of Washington, Seattle, 1966 • *Catalysis, solid superacid catalysis, zeolite catalysts, bimetallic catalysts, catalysis by metal clusters*

Jeffery C. Gibeling, Professor • Ph.D., Stanford University, 1979 • *Deformation, fracture and fatigue of metals, layered composites and bone*

Joanna R. Groza, Professor • Ph.D., Polytechnic Institute, Bucharest, 1972 • *Plasma activated sintering and processing of nanostructured materials*

Brian G. Higgins, Professor • Ph.D., University of Minnesota, 1980 • *Fluid mechanics and interfacial phenomena, sol gel processing, coating flows*

David G. Howitt, Professor • Ph.D., University of California, Berkeley, 1976 • *Forensic and failure analysis, electron microscopy, ignition and combustion processes in materials*

Alan P. Jackman, Professor • Ph.D., University of Minnesota, 1968 • *Protein production in plant cell cultures, bioremediation*

Tonya L. Kuhl, Assistant Professor • Ph.D., University of California, Santa Barbara, 1996 • *Biomaterials, membrane interactions, intermolecular and intersurface forces in complex fluid systems*

Enrique J. Lavernia, Professor • Ph.D., Massachusetts Institute of Technology, 1986 • *Synthesis of structural materials and composites; nanostructured materials and composites, thermal spray processing*

Jörg F. Löffler, Assistant Professor • Ph.D., Swiss Federal Institute of Technology (ETH), Zürich, 1997 • *Nanostructured and amorphous materials; magnetic, structural, and thermophysical properties, neutron and x-ray scattering*

Marjorie L. Longo, Assistant Professor • Ph.D., University of California, Santa Barbara, 1993 • *Hydrophobic protein design for active control, surfactant microstructure, and interaction of proteins and DNA with biological membranes*

Karen A. McDonald, Professor • Ph.D., University of Maryland, College Park, 1985 • *Plant cell culture bioprocessing algal cell cultures*

Amiya K. Mukherjee, Professor • D.Phil., University of Oxford, 1962 • *Superplasticity of intermetallic alloys and ceramics, high temperature creep deformation*

Zuhair A. Munir, Professor • Ph.D., University of California, Berkeley, 1963 • *Combustion synthesis, multilayer combustion systems, functionally graded materials*

Alexandra Navrotsky, Professor • Ph.D., University of Chicago, 1967 • *Thermodynamics and solid state chemistry; high temperature calorimetry*

Ahmet N. Palazoglu, Professor • Ph.D., Rensselaer Polytechnic Institute, 1984 • *Process control and process design of environmentally benign processes*

Ronald J. Phillips, Professor • Ph.D., Massachusetts Institute of Technology, 1989 • *Transport processes in bioseparations, Newtonian and non-Newtonian suspension mechanics*

Robert L. Powell, Professor • Ph.D., Johns Hopkins University, 1978 • *Rheology, suspension mechanics, magnetic resonance imaging of suspensions*

Subhash H. Risbud, Professor and Chair • Ph.D., University of California, Berkeley, 1976 • *Semiconductor quantum dots, high T_c superconducting ceramics, polymer composites for optics*

Dewey D.Y. Ryu, Professor • Ph.D., Massachusetts Institute of Technology, 1967 • *Biomolecular process engineering and recombinant bioprocess technology*

Julie M. Schoenung, Associate Professor • Ph.D., Massachusetts Institute of Technology, 1987 • *Materials systems analysis; pollution prevention and waste minimization; process economics*

James F. Shackelford, Professor • Ph.D., University of California, Berkeley, 1971 • *Structure of materials, biomaterials, nondestructive testing of engineering materials*

J.M. Smith, Professor Emeritus • Sc.D., Massachusetts Institute of Technology, 1943 • *Chemical kinetics and reactor design*

Pieter Stroeve, Professor • Sc.D., Massachusetts Institute of Technology, 1973 • *Membrane separations, Langmuir Blodgett films, colloid and surface science*

Stephen Whitaker, Professor • Ph.D., University of Delaware, 1959 • *Multiphase transport phenomena*

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Adjunct Professors

Russell Chou *(Carnegie Mellon University)*
Andrew Shapiro *(University of Califoria, Irvine)*
Victoria Tellkamp *(University of Califoria, Irvine)*

The 1,510-acre UC Irvine campus is in Orange County, five miles from the Pacific Ocean and 40 miles south of Los Angeles. Irvine is one of the nation's fastest growing residential, industrial, and business areas. Nearby beaches, mountain and desert area recreational activities, and local cultural activities make Irvine a pleasant city in which to live and study.

For further information and application forms, please visit
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or contact

Department of Chemical Engineering and Materials Science
School of Engineering • University of California • Irvine, CA 92697-2575

- Biomedical Engineering
- Bioreactor Engineering
- Bioremediation
- Ceramics
- Combustion
- Composite Materials
- Control and Optimization
- Environmental Engineering
- Interfacial Engineering
- Materials Processing
- Mechanical Properties
- Metabolic Engineering
- Microelectronics Processing and Modeling
- Microstructure of Materials
- Nanocrystalline Materials
- Nucleation, Chrystallization and Glass Transition Process
- Polymers
- Recombinant Cell Technology
- Separation Processes
- Sol-Gel Processing
- Two-Phase Flow
- Water Pollution Control

CHEMICAL ENGINEERING AT

UCLA

RESEARCH AREAS

- Aerosol Science and Technology
- Biochemical Engineering
- Combinatorial Catalysis
- Complex Systems Engineering
- Electrochemistry
- Membranes
- Molecular and Cellular Bioengineering
- Pollution Prevention
- Polymer Engineering
- Process Design, Optimization, Dynamics, and Control
- Reaction Kinetics and Combustion
- Semiconductor Manufacturing

FACULTY

J. P. Chang

P. D. Christofides

Y. Cohen

J. Davis
(Vice Chancellor for Information Technology)

S. K. Friedlander

R. F. Hicks

E. L. Knuth *(Prof. Emeritus)*

J. C. Liao

V. Manousiouthakis

H. G. Monbouquette

K. Nobe

L. B. Robinson *(Prof. Emeritus)*

S. M. Senkan

Y. Tang

W. D. Van Vorst *(Prof. Emeritus)*

V. L. Vilker *(Prof. Emeritus)*

A.R. Wazzan

PROGRAMS

UCLA's Chemical Engineering Department offers a program of teaching and research linking fundamental engineering science and industrial practice. Our Department has strong graduate research programs in Bioengineering, Energy and Environment, Semiconductor Manufacturing, Engineering of Materials, and Process and Control Systems Engineering.

Fellowships are available for outstanding applicants interested in Ph.D. degree programs. A fellowship includes a waiver of tuition and fees plus a stipend.

Located five miles from the Pacific Coast, UCLA's attractive 417-acre campus extends from Bel Air to Westwood Village. Students have access to the highly regarded science programs and to a variety of experiences in theatre, music, art, and sports on campus.

CONTACT

Admissions Officer • Chemical Engineering Department
5531 Boelter Hall • UCLA • Los Angeles, CA 90095-1592
Telephone at (310) 825-9063 or visit us at www.chemeng.ucla.edu

University of California, Riverside
Department of Chemical and Environmental Engineering

The Graduate Program in Chemical and Environmental Engineering offers training leading to the degrees of Master of Science and Doctor of Philosophy. All applicants are required to submit scores from the general aptitude Graduate Record Examination (GRE). For more information and application materials, write:

Graduate Advisor
Department of Chemical and
Environmental Engineering
University of California
Riverside CA 92521

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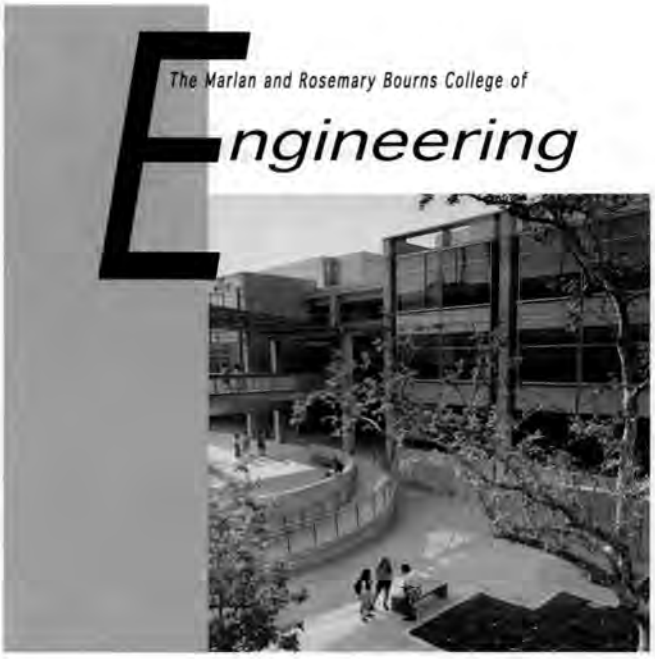

Faculty

Wilfred Chen (Cal Tech) *Environmental Biotechnology, Microbial Engineering, Biocatalysis*

David R. Cocker (Caltech) *Air Quality Systems Engineering*

Marc Deshusses (ETH, Zurich) *Environmental Biotechnology, Bioremediation, Modeling*

Robert C. Haddon (Penn State) *Carbon Nanotubes, Advanced Materials*

Eric M.V. Hoek (Yale) *Environmental Membrane Processes, Collodial and Interfacial Phenomena*

Mark R. Matsumoto (UC Davis) *Water and Wastewater Treatment, Hazardous Waste, Soil Remediation*

Ashok Mulchandani (McGill) *Bioengineering, Biomaterials, Biosensors, Environmental Biotechnology*

Joseph M. Norbeck (Nebraska) *Advanced Vehicle Technology, Air Pollutants, Renewable Fuels*

Mihri Ozkan (UC Sn Diego) *Biomedical Microdevices, Bio-MEMS and Bio-Photonics*

Anders O. Wistrom (UC Davis) *Particulate and Colloidal Systems*

Jianzhong Wu (UC Berkeley) *Molecular Simulation, Theory of Complex Fluids, Nanomaterials*

Yushan Yan (CalTech) *Zeolite Thin Films, Fuel Cells, Nanostructured Materials, Catalysis*

The 1,200-acre Riverside campus of the University of California is located 50 miles east of Los Angeles within easy driving distance to most of the major cultural and recreational offerings in Southern California. In addition, it is virtually equidistant from the desert, the mountains, and the ocean.

UNIVERSITY OF CALIFORNIA

SANTA BARBARA

FACULTY AND RESEARCH INTERESTS

ERAY S. AYDIL Ph.D. *(Houston)* • Microelectronics and Plasma Processing

SANJOY BANERJEE Ph.D. *(Waterloo)* • Environmental Fluid Dynamics, Multiphase Flows, Turbulence, Computational Fluid Dynamics

BRADLEY F. CHMELKA Ph.D. *(U.C. Berkeley)* • Molecular Materials Science, Inorganic-Organic Composites, Porous Solids, NMR, Polymers

PATRICK S. DAUGHERTY Ph.D. *(Austin)* • Protein Engineering and Design, Library Technologies

MICHAEL F. DOHERTY Ph.D. *(Cambridge)* • Design and Synthesis, Separations, Process Dynamics and Control

FRANCIS J. DOYLE III Ph.D. *(Caltech)* • Process Control, Systems Biology, Nonlinear Dynamics

GLENN H. FREDRICKSON Ph.D. *(Stanford)* • Statistical Mechanics, Glasses, Polymers, Composites, Alloys

G.M. HOMSY Ph.D. *(Illinois)* • Fluid Mechanics, Instabilities, Porous Media, Interfacial Flows, Convective Heat Transfer

JACOB ISRAELACHVILI Ph.D. *(Cambridge)* Colloidal and Biomolecular Interactions, Adhesion and Friction

EDWARD J. KRAMER Ph.D. *(Carnegie-Mellon)* • Fracture and Diffusion of Polymers, Polymer Surfaces and Interfaces

L. GARY LEAL Ph.D. *(Stanford)* • Fluid Mechanics, Physics and Rheology of Complex Fluids, including Polymers, Suspensions, and Emulsions.

GLENN E. LUCAS Ph.D. *(M.I.T.)* • Mechanics of Materials, Structural Reliability.

DIMITRIOS MAROUDAS Ph.D. *(M.I.T.)* • Theoretical and Computational Materials Science, Electronic and Structural Materials

ERIC McFARLAND Ph.D. *(M.I.T.)* M.D. *(Harvard)* • Combinatorial Material Science, Environmental Catalysis, Surface Science

DUNCAN A. MELLICHAMP Ph.D. *(Purdue)* • Computer Control, Process Dynamics, Real-Time Computing

SAMIR MITRAGOTRI Ph.D. *(M.I.T.)* • Drug Delivery and Biomaterials

DAVID J. PINE Ph.D. *(Cornell)* **(Chair)** • Polymer, Surfactant, and Colloidal Physics, Multiple Light Scattering, Photonic Crystals

ORVILLE C. SANDALL Ph.D. *(Berkeley)* • Transport Phenomena, Separation Processes

DALE E. SEBORG Ph.D. *(Princeton)* • Process Control, Monitoring and Identification

MATTHEW V. TIRRELL Ph.D. *(Massachusetts)* • Polymers, Surfaces, Adhesion Biomaterials

T. G. THEOFANOUS Ph.D. *(Minnesota)* • Multiphase Flow, Risk Assessment and Management

JOSEPH A. ZASADZINSKI Ph.D. *(Minnesota)* • Surface and Interfacial Phenomena, Biomaterials

PROGRAMS AND FINANCIAL SUPPORT

The Department offers M.S. and Ph.D. degree programs Financial aid, including fellowships, teaching assistantships, and research assistantships, is available.

THE UNIVERSITY

One of the world's few seashore campuses, UCSB is located on the Pacific Coast 100 miles northwest of Los Angeles. The student enrollment is over 18,000. The metropolitan Santa Barbara area has over 150,000 residents and is famous for its mild, even climate.

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John F. Brady	*Konstantinos P. Giapis*	*Nicholas W. Tschoegl (Emeritus)*
Mark E. Davis	*Julia A. Kornfield*	*Zhen-Gang Wang*

RESEARCH INTERESTS

Aerosol Science	*Combustion*
Applied Mathematics	*Colloid Physics*
Atmospheric Chemistry and Physics	*Fluid Mechanics*
Biocatalysis and Bioreactor Engineering	*Materials Processing*
Biomaterials	*Microelectronics Processing*
Biomedical Engineering	*Microstructured Fluids*
Bioseparations	*Polymer Science*
Catalysis	*Protein Engineering*
Chemical Vapor Deposition	*Statistical Mechanics*

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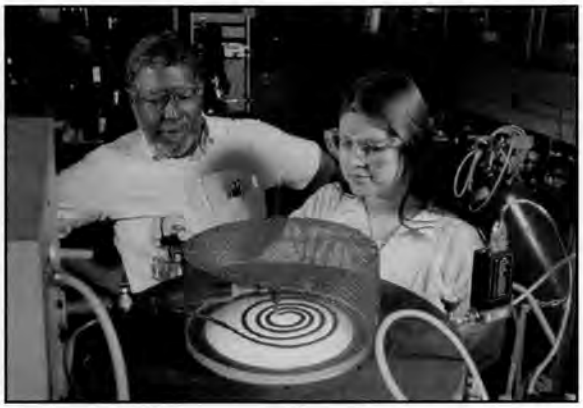
Case Western Reserve University

M.S. and Ph.D. Programs in Chemical Engineering



Faculty

John Angus
Harihara Baskaran
Robert Edwards
Donald Feke
Jeffrey Glass
Uziel Landau
Chung-Chiun Liu
J. Adin Mann
Heidi Martin
Philip Morrison
Peter Pintauro
Syed Qutubuddin
Robert Savinell
Thomas Zawodzinski

Research Opportunities

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Sensors
Microfabrication

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Transport in Biological Systems
Biomedical Sensors and Actuators
Wound Healing
Inflammation and Cancer Metastasis
Neural Prosthetic Devices

Advanced Materials and Devices

Diamond and Nitride Synthesis
Coatings, Thin Films, and Surfaces
In-Situ Diagnostics
Fine Particle Science and Processing
Polymer Nanocomposites
Electrochemical Microfabrication

For more information on Graduate Research, Admission, and Financial Aid, contact:

Graduate Coordinator
Department of Chemical Engineering
E-mail: grad@cheme.cwru.edu
Web: http://www.cwru.edu/cse/eche

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Daniel Hershey

Chia-chi Ho

Sun-Tak Hwang

Yuen-Koh Kao

Soon-Jai Khang

William Krantz

Jerry Y. S. Lin

Neville Pinto

Peter Smirniotis

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For Admission Information

Director, Graduate Studies
Chemical Engineering
PO Box 210171
University of Cincinnati
Cincinnati, Ohio 45221-0171

E-mail:
mcarden@alpha.che.uc.edu
or
jlin@alpha.che.uc.edu

The faculty and students in the Department of Chemical Engineering are engaged in a diverse range of exciting research topics. Assistantships and tuition scholarships are available to highly qualified applicants to the MS and PhD degree programs.

☐ **Advanced Materials**
Inorganic membranes, nanostructured materials, microporous and mesoporous materials, advanced materials processing, thin film technology, fuel cell and sensor materials, self-assembly

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☐ **Polymers**
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☐ **Separation Technologies**
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Chemical Engineering at The City College of New York - CUNY

(The City University of New York)

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FACULTY RESEARCH:

°**Andreas Acrivos***∞≤ Rheology of concentrated suspensions; Dielectrophoresis in flowing suspensions; Dynamical systems theory and chaotic particle motions

Alexander Couzis: Polymorph selective templated crystallization; Molecularly thin organic barrier layers; Surfactant facilitated wetting of hydrophobic surfaces; soft materials

°**Morton Denn**∞≤: Polymer science and rheology; non-Newtonian fluid mechanics

Lane Gilchrist: Bioengineering with cellular materials; Spectroscopy-guided molecular engineering; Structural studies of self-assembling proteins; Bioprocessing

Robert Graff: Coal liquefaction; Pollution prevention; Remediation

Leslie Isaacs: Preparation and characterization of novel optical materials; Recycling of pavement materials; Application of thermo-analytic techniques in materials research

Jae Lee: Theory of reactive distillation; Process design and control; Separations; Bioprocessing

°**Charles Maldarelli:** Interfacial fluid mechanics and stability; Surface tension driven flows and microfluidic applications; Surfactant adsorption, phase behavior and nanostructuring at interfaces

Irven Rinard: Process design methodol-ogy; Dynamic process simulation; Micro-reaction technology; Process control; Bioprocessing

David Rumschitzki: Transport and reaction aspects of arterial disease; Interfacial fluid mechanics and stability; Catalyst deactivation and reaction engineering

Reuel Shinnar∞: Advanced process design methods; Chemical reactor control; Spinodal decomposition of binary solvent mixtures; Process economics; Energy and environment systems

Carol Steiner: Polymer solutions and hydrogels; Soft biomaterials, Controlled release technology

Gabriel Tardos: Powder technology; Granulation; Fluid particle systems, Electrostatic effects; Air pollution

Sheldon Weinbaum•∞: Fluid mechanics, Biotransport in living tissue; Modeling of cellular mechanism of bone growth; bioheat transfer; kidney function

Herbert Weinstein: Fluidization and multiphase flows: multiphase chemical reactor analysis and design, Multiphase reactor analysis and design

ASSOCIATED FACULTY:

°**Jimmy Feng:** (Mechanical Eng.) Liquid crystals
°**Joel Koplik**: (Physics) Fluid mechanics; Molecular modeling; Transport in random media
°**Hernan Makse:** (Physics) Granular mechanics
°**Mark Shattuck:** (Physics) Experimental granular rheology; Computational granular fluid dynamics; Experimental spatio-temporal control of patterns

° *Levich Institute*
* *National Academy of Sciences*
∞ *National Academy of Engineering*
≤ *American Academy of Arts and Sciences*

CONTACT INFORMATION:

Department of Chemical Engineering
City College of New York
Convent Avenue at 140th Street
New York, NY 10031
www-che.engr.ccny.cuny.edu
che.hr@aol.com

Cleveland State University

Graduate Studies in Chemical and Applied Biomedical Engineering

Engineering Degrees

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D. Eng.	**Applied Biomedical Engineering**
D. Eng.	**Chemical Engineering**

CSU Faculty

A. Annapragada (University of Michigan)
J.M. Belovich (University of Michigan)
G. Chatzimavroudis (Georgia Institute of Technology)
G.A. Coulman (Case Western Reserve University)
J.E. Gatica (State University of New York at Buffalo)
B. Ghorashi (Ohio State University)
E.S. Godleski (Cornell University)
R. Lustig (Institute of Thermo- and Fluiddynamics of the Ruhr-University Bochum, Germany)
D.B. Shah (Michigan State University)
O. Talu (Arizona State University)
S.N. Tewari (Purdue University)
S. Ungarala (Michigan Technological University)

CCF Collaborating Faculty

J. Arendt (Ohio State University)
B. Davis (Pennsylvania State University)
K. Derwin (University of Michigan)
A. Fleischman (Case Western Reserve University)
M. Grabiner (University of Illinois)
S. Halliburton (Vanderbilt University)
G. Lockwood (University of Toronto, Canada)
C. McDevitt (University of London, U.K.)
S. Roy (Case Western Reserve University)
R. Shekhar (Ohio State University)
W. Smith (Cleveland State University)
A. van den Bogert (University of Utrecht, The Netherlands)
I. Vesely (University of Western Ontario, Canada)
G. Yue (University of Iowa)

Fenn College has more than 75 years of experience in providing outstanding engineering education.

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Cleveland State University has 16,000 students enrolled in its academic programs. It is located in the center of the city of Cleveland, with many outstanding cultural and recreational opportunities nearby.

RESEARCH AREAS

Adsorption Processes
Agile Manufacturing
Artificial Heart Valves
Biomechanics
Bioreactor Design
Bioseparations
Blood Flow
Combustion
Computational Fluid Dynamics
Drug Delivery Systems
Environmental Pollution Control
Materials Synthesis and Processing
Medical Imaging
MEMS Technology
Orthopedic Devices
Process Modeling and Control
Reaction Engineering
Statistical Mechanics
Surface Phenomena and Mass Transfer
Thermodynamics and Fluid Phase Equilibrium
Tissue Engineering
Tribology
Ventricular Assist Devices
Zeolites: Synthesis, Adsorption, and Diffusion

For more information, write to:

Graduate Program Coordinator • Department of Chemical Engineering
Cleveland State University • Cleveland, OH 44115

Telephone: 216-687-2569 • E-mail: ChE@csvax.egr.csuohio.edu
http://www.csuohio.edu/chemical_engineering/

Assistantships and Tuition/Fee Waivers are available on a competitive basis for qualified students.

University of Colorado at Boulder

The Boulder campus has a controlled enrollment of about 22,000 undergraduates and 5,000 graduate students. The beautiful campus has 200 buildings of rough-cut sandstone with red-tile roofs. The excellent educational opportunities and beautiful location attract outstanding students from every part of the United States and 85 countries.

The University of Colorado has its main campus located in Boulder, an attractive community of 90,000 people located at the base of the Rocky Mountains. Boulder has over 300 days of sunshine per year, with relatively mild and dry seasons. The city is an active and innovative town that provides a rich array of recreational and cultural activities.

Department of Chemical Engineering Faculty and Research Interests

Kristi S. Anseth
Polymers, Biomaterials, Tissue Engineering

Christopher N. Bowman
Polymers, Membrane Materials

David E. Clough
Process Control, Applied Statistics

Robert H. Davis
Fluid Mechanics, Biotechnology, Membranes

John L. Falconer
Catalysis, Zeolite Membranes

R. Igor Gamow
Biophysics, High Altitude Physiology, Human Performance, Diving Physiology

Steven M. George
Surface Chemistry, Thin Films, Nanoengineering

Doug Gin
Polymers

Ryan Gill
Biotechnology

Christine M. Hrenya
Fluidization, Granular Systems, Fluid Mechanics

Dhinakar S. Kompala
Biotechnology, Animal Cell Cultures, Metabolic Engineering

J. Will Medlin
Heterogeneous Catalysis, Solid-State Sensors, Computational Chemistry

Richard D. Noble
Membranes, Separations

W. Fred Ramirez
Process Control, Biotechnology

Theodore W. Randolph
Biotechnology, Supercritical Fluids

Robert L. Sani
Transport Phenomena, Applied Mathematics

Daniel K. Schwartz
Interfacial and Colloid Science

Alan W. Weimer
Ceramics, Energy, Reaction Engineering

Graduate students may participate in the interdisciplinary Biotechnology Training Program and the interdisciplinary NSF Industry/University Cooperative Research Center for Membrane Applied Science and Technology and the Center for Fundamentals and Applications of Photopolymerizations.

For information and application
Graduate Admissions Committee • Department of Chemical Engineering
University of Colorado • Boulder, CO 80309-0424
Phone (303) 492-7471 • Fax (303) 492-4341 • E-mail • chemeng@spot.colorado.edu
http://www.Colorado.EDU/che/

Colorado School of Mines

Faculty

- R.M. Baldwin (CSM, 1975)
- A.L. Bunge (Berkeley, 1982)
- A.M. Dean (Harvard, 1971)
- J.R. Dorgan (Berkeley, 1991)
- J.F. Ely (Indiana, 1971)
- D.W.M. Marr (Stanford, 1993)
- C. McCabe (Sheffield, 1998)
- J.T. McKinnon (MIT, 1989)
- R.L. Miller (CSM, 1982)
- E.D. Sloan (Clemson, 1974)
- J.D. Way (Colorado, 1986)
- C.A. Wolden (MIT, 1995)
- D.T. Wu (Berkeley, 1991)

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Evolving from its origins as a school of mining founded in 1873, CSM is a unique, highly-focused University dedicated to scholarship and research in materials, energy, and the environment.

The Chemical Engineering Department at CSM maintains a high quality, active, and well-funded graduate research program. According to the NSF annual survey of research expenditures, our department has placed in the top 25 nationally each of the last 5 years. Research areas within the department include:

Materials Science and Engineering
Organic and inorganic membranes (Way, Baldwin)
Polymeric materials (Dorgan, McCabe, Wu)
Colloids and complex fluids (Marr, Wu)
Electronic materials (Wolden)
Fuel cell membranes (Way)

Theoretical and Applied Thermodynamics
Natural gas hydrates (Sloan)
Molecular simulation and modelling (Ely, McCabe)

Transport Properties and Processes
Dermal absorption (Bunge)
Microfluidics (Marr)

Space and Microgravity Research
Membranes on Mars (Way, Baldwin)
Water mist flame suppression (McKinnon)

Reacting Flows
Flame kinetics (McKinnon, Dean)
Reaction mechanisms (Dean, McKinnon)
High-T fuel cell kinetics (Dean)

Finally, located at the foot of the Rocky Mountains and only 15 miles from downtown Denver, Golden enjoys over 300 days of sunshine per year. These factors combine to provide year-round cultural, recreational, and entertainment opportunities virtually unmatched anywhere in the United States.

Colorado State University

CSU is located in Fort Collins, a pleasant community of 100,000 people with the spirit of the West, the vitality of a growing metropolitan area, and the friendliness of a small town. Fort Collins is located about 65 miles north of Denver and is adjacent to the foothills of the Rocky Mountains. The climate is excellent, with 300 sunny days per year, mild temperatures, and low humidity. Opportunities for hiking, biking, camping, boating, fishing, and skiing abound in the immediate and nearby areas. The campus is within easy walking or biking distance of the town's shopping areas and its Center for the Performing Arts.

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- Environmental Engineering
- Magnetic Resonance Imaging
- Membrane Separations
- Metabolic Engineering
- Polymeric Materials
- Porous Media Phenomena
- Thin Films
- Tissue Engineering

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Colorado State University
Fort Collins, CO 80523-1370

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University of Wisconsin

David S. Dandy, Ph.D.
California Institute of Technology

M. Nazmul Karim, Ph.D.
University of Manchester

James C. Linden, Ph.D.
Iowa State University

Vincent G. Murphy, Ph.D.
University of Massachusetts

Kenneth F. Reardon, Ph.D.
California Institute of Technology

Kristina D. Rinker, Ph.D.
North Carolina State University

A. Ted Watson, Ph.D.
California Institute of Technology

Ranil Wickramasinghe, Ph.D.
University of Minnesota

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Chemical Engineering Department

Graduate Study in Chemical Engineering

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❑ Biochemical Engineering and Biotechnology

James D. Bryers, Ph.D., Rice University (Joint Appointment)
Biochemical Engineering, Biofilm Processes, Biomaterials

Robert W. Coughlin, Ph.D., Cornell University
Biotechnology, Biochemical and Environmental Engineering Catalysis, Kinetics, Separations, Surface Science

Ranjan Srivastava, Ph.D., University of Maryland
Experimental and Computational Biology, Biomolecular Network Analysis, Stochastic Biological Phenomena, Evolutionary Kinetics

Thomas K. Wood, Ph.D., North Carolina State University
Microbiological Engineering, Bioremediation with Genetically-Engineered Bacteria, Enzymatic Green Chemistry, Biochemical Engineering, Biocorrosion

❑ Polymer Science

Patrick T. Mather, Ph.D., University of California, Santa Barbara
Polymers, Microstructure and Rheology, Liquid Crystalinity, Inorganic-Organic Hybrids

Richard Parnas, Ph.D., University of California, Los Angeles
Composites, Biomaterials

Montgomery T. Shaw, Ph.D., Princeton University
Polymer Rheology and Processing, Polymer-Solution Thermodynamics

Robert A. Weiss, Ph.D., University of Massachusetts
Polymer Structure-Property Relationships, Ion-Containing and Liquid Crystal Polymers, Polymer Blends

Lei Zhu, Ph.D., University of Akron
Polymer Phase Transitions, Structures of Morphologies of Block Copolymers, Polymeric Nanocomposites, Biodegrabable Block Copolymers for Drug Delivery

❑ Computer Aided Modeling

Luke E.K. Achenie, Ph.D., Carnegie Mellon University
Modeling and Optimization, Molecular Design, Artificial Intelligence, Flexibility Analysis

Thomas F. Anderson, Ph.D., Univesity of California at Berkeley
Modeling of Separation Processes, Fluid-Phase Equilibria

Douglas J. Cooper, Ph.D., University of Colorado
Process Modeling, Monitoring and Control

Michael B. Cutlip, Ph.D., University of Colorado
Kinetics and Catalysis, Electrochemical Reaction Engineering, Numerical Methods

Suzanne Schadel Fenton, Ph.D., University of Illinois, Urbana-Champaign
Computational Fluid Dynamics, Turbulence, Two-Phase Flow

❑ Environmental and Energy Engineering

Can Erkey, Ph.D., Texas A&M University
Supercritical Fluids, Catalysis, Nanotechnology

James M. Fenton, Ph.D., University of Illinois, Urbana-Champaign
Electrochemical and Environmental Engineering, Mass Transfer Processes, Electronic Materials, Energy Systems, Fuel Cells

Joseph J. Helble, Ph.D., Massachusetts Institute of Technology
Air Pollution, Aerosol Science, Nanoscale Materials Sythesis and Characterization, Combustion

Emeritus Professors
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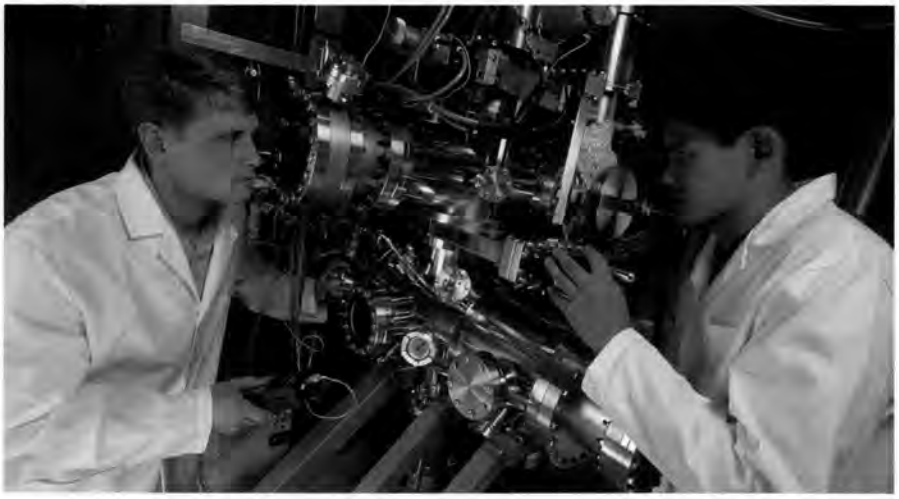
CORNELL
UNIVERSITY

Chemical and Biomolecular Engineering



At Cornell University, graduate students in chemical engineering have the flexibility to design research programs that take full advantage of Cornell's unique interdisciplinary environment and enable them to pursue individualized plans of study.

Cornell graduate programs may draw upon the resources of many excellent departments and research centers such as the Biotechnology Center, the Cornell Center for Materials Research, the Cornell Nanofabrication Facility, the Cornell Supercomputing Facility, and the Nanobiotechnology Center .

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Distinguished Faculty

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Paulette Clancy
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Lance Collins
T. Michael Duncan
James R. Engstrom
Fernando A. Escobedo
Emmanuel P. Giannelis
Peter Harriott
Yong Lak Joo
Donald L. Koch
Kelvin H. Lee
Leonard W. Lion
Christopher K. Ober
William L. Olbricht
David Putnam
Ferdinand Rodriguez
Michael L. Shuler[†],[‡]
Paul H. Steen
Larry Walker
Ulrich Wiesner

[†] *member, National Academy of Engineering*
[‡] *member, American Academy of Arts & Science*

Research Areas

- Advanced Materials Processing
- Biochemical and Biomedical Engineering
- Fluid Dynamics, Stability, and Rheology
- Molecular Thermodynamics and Computer Simulation
- Polymer Science and Engineering
- Reaction Engineering: Surface Science, Kinetics, and Reactor Design

Situated in the scenic Finger Lakes region of New York State, the Cornell campus is one of the most beautiful in the country. Students enjoy sailing, skiing, fishing, hiking, bicycling, boating, wine-tasting, and many other activities.

For further information, write:

Director of Graduate Studies, School of Chemical Engineering, Cornell University, 120 Olin Hall, Ithaca, NY 14853-5201, e-mail: DGS@CHEME.CORNELL.EDU, or "visit" our World Wide Web server at: http://www.cheme.cornell.edu

Graduate Study & Research in Chemical Engineering

at

Dartmouth's Thayer School of Engineering

Dartmouth and its affiliated professional schools offer PhD degrees in the full range of science disciplines as well as MD and MBA degrees. The Thayer School of Engineering at Dartmouth College offers an ABET-accredited BE degree, as well as MS, Masters of Engineering Management, and PhD degrees. The Chemical and Biochemical Engineering Program features courses in foundational topics in chemical engineering as well as courses serving our areas of research specialization:

- **Biotechnology and biocommodity engineering**
- **Environmental science and engineering**
- **Fluid mechanics**
- **Materials science and engineering**
- **Process design and evaluation**

These important research areas are representative of those found in chemical engineering departments around the world. A distinctive feature of the Thayer School is that the professors, students, and visiting scholars active in these areas have backgrounds in a variety of engineering and scientific subdisciplines. This intellectual diversity reflects the reality that boundaries between engineering and scientific subdisciplines are at best fuzzy and overlapping. It also provides opportunities for students interested in chemical and biochemical engineering to draw from several intellectual traditions in coursework and research. Fifteen full-time faculty are active in research involving chemical engineering fundamentals.

Faculty & Research Areas

Ian Baker (Oxford) ▶ Structure/property relationships of materials, electron microscopy

John Collier (Dartmouth) ▶ Orthopaedic prostheses, implant/host interfaces

Alvin Converse (Delaware) ▶ Kinetics & reactor design, enzymatic hydrolysis of cellulose

Benoit Cushman-Roisin (Florida State) ▶ Numerical modeling of environmental fluid dynamics

Harold Frost (Harvard) ▶ Microstructural evolution, deformation, and fracture of materials

Tillman Gerngross (Technical University of Vienna) ▶ Engineering of glycoproteins, fermentation technology

Ursula Gibson (Cornell) ▶ Thin film deposition, optical materials

Francis Kennedy (RPI) ▶ Tribology, surface mechanics

Daniel R. Lynch (Princeton) ▶ Computational methods, oceanography, and water resources

Lee Lynd (Dartmouth) ▶ Biomass processing, pathway engineering, reactor & process design

Victor Petrenko (USSR Academy of Science) ▶ Physical chemistry of ice

Horst Richter (Stuttgart) ▶ Thermodynamics, multiphase flow, energy conversion, process design

Erland Schulson (British Columbia) ▶ Physical metallurgy of metals and alloys

Charles E. Wyman (Princeton) ▶ Biomass pretreatment & hydrolysis, cellulase synthesis & kinetics, process design

For further information, please contact:

Chemical Engineering Graduate Advisor • Thayer School of Engineering • Dartmouth College • Hanover, NH 03755

http://thayer.dartmouth.edu/thayer/research/chem-biochem

University of Delaware

www.che.udel.edu/

The Department of Chemical Engineering

The University of Delaware offers M.Ch.E. and Ph.D. degrees in Chemical Engineering. Both degrees involve research and course work in engineering and related sciences.

The Delaware tradition is one of strong interdisciplinary research on both fundamental and applied problems.

Faculty

Mark A. Barteau - (Robert L. Pigford Professor; Chair) Surface Chemistry, Catalysis, Kinetics, Spectroscopy, Scanning Probe Microscopies, Materials

Antony N. Beris - Fluid Mechanics, Viscoelasticity, Nonequilibrium Thermodynamics, Numerical Methods, Parallel Computing

Douglas J. Buttrey - Oxides, Thermodynamics, Crystal Growth, Structure, Catalysis, Superconductors

Jingguang G. Chen - (Materials Science and Engineering; Director, Center for Catalytic Science and Technology) Nanoscale Microelectronic Devices, Catalytic Materials, Environmental Catalysis

Costel D. Denson - Materials, Polymers, Composites, Transport Separations

Prasad S. Dhurjati - Biotechnology, Bioreactors, Modeling, Bioinformatics, Fault Diagnosis, Expert Systems

Jeremy S. Edwards - Quantitative Analysis of Metabolism and Cellular Fate Processes; Bioinformatics and Genomics; Biotechnology and Metabolic Engineering

Eric M. Furst - Microrheology of Complex Fluids, Cellular Mechanics and Movement, Structure and Dynamics of Colloidal Crystals, Interfacial Phenomena

Eric W. Kaler - (Elizabeth Inez Kelley Professor; Dean, College of Engineering) Colloids, Surfactants, Polymers, Thermodynamics, Biomolecules

Jochen A. Lauterbach - combinatorial catalysis and high-throughput screening, fabrication of conducting polymer nanofilms, non-linear phenomena in heterogeneous catalysis, spectral imaging of diffusion processes in polymers.

Abraham M. Lenhoff - Protein Biophysics, Separations, Colloids, Thermodynamics and Transport

Raul F. Lobo - Adsorption, Catalysis, Zeolites, Microporous Materials, Inorganic Materials Synthesis

Babatunde A. Ogunnaike - Process Control, Modeling and Simulation, Systems Biology, Applied Statistics

Christopher J. Roberts - Kinetics and Statistical Thermodynamics of Liquids, Amorphous Solids (Glasses), Proteins; Kinetics and Thermodynamics of Protein Degradation; Prediction of Physical and Chemical Stability of Proteins

Anne S. Robinson – Biochemical Engineering, Biomolecule Interactions, Bioreactor Control, Molecular Engineering, Cellular Engineering

T.W. Fraser Russell - (Allan P. Colburn Professor of Chemical Engineering; Vice Provost for Research) Photovoltaics, Multiphase Fluid Mechanics

Stanley I. Sandler - (Henry Belin duPont Chair; Director, Center for Molecular and Engineering Thermodynamics) Thermodynamics, Statistical Mechanics, Computational Chemistry, Environment, Separations, Bioseparations

Annette D. Shine - Electrorheology, Polymer Processing, Rheology, Supercritical Fluids

Dionisios G. Vlachos - Surface Chemistry, Combustion, Pollution Abatement, Reactor Design; Nucleation and Growth of Nanophase Materials and Membranes; Numerical Methods, Bifurcation Theory, Patterning of Materials

Norman J. Wagner - Colloid and Polymer Science, Rheology, Statistical Mechanics of Complex Fluids, Thermodynamics, Biopolymers

Brian G. Willis - Chemical-Physical Mechanisms of Copper Metalization and Semiconductor Interconnect Materials, Computational Chemistry Models of CVD Growth Mechanisms, Materials Processing research of Compound Semiconductor Materials for System on a Chip Integration.

Richard P. Wool - Polymers, Composites, Adhesion, Interfaces, Materials from Renewable Resources, Biodegradable Plastics

DREXEL UNIVERSITY

M.S. and Ph.D. Programs in CHEMICAL ENGINEERING

RESEARCH AREAS

Biochemical Engineering
Biomaterials
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Polymer Science and Engineering
Process Control and Dynamics
Rheology and Fluid Mechanics
Safety Engineering
Systems Analysis and Optimization
Tissue Engineering
Transport Phenomena

FACULTY

Charles Weinberger, *Head* *(University of Michigan)*
Cameron Abrams (*University of California*)
Richard Cairncross *(University of Minnesota)*
Donald Coughanowr *(University of Illinois)*
Nily Dan *(University of Minnesota)*
Elihu Grossmann *(University of Pennsylvania)*
Cato Laurencin *(Massachusetts Institute of Technology)*
Young Lee *(Purdue University)*
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George Rowell *(University of Pennsylvania)*
Masoud Soroush *(University of Michigan)*
Margaret Wheatley *(University of Toronto)*
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Or visit us at: **http://www.chemeng.drexel.edu**

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SEYMOUR S. BLOCK, *Professor Emeritus*
biotechnology
JASON BUTLER
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ANUJ CHAUHAN
fluid mechanics, interfacial phenomena, bio materials
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DALE KIRMSE
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Research Interests

- Spacecraft Technology
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- Expert Systems

For more information, contact

Florida Institute of Technology
College of Engineering
Dept. of Chemical Engineering
150 West University Boulevard
Melbourne, Florida 32901-6975
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A. S. Abhiraman: polymer science and engineering; Pradeep K. Agrawal: hetereogenous catalysis, surface chemistry, reaction kinetics; Sue Ann Bidstrup Allen: microelectronics, polymer processing; Andreas Bommarius: biocatalysis, bioprocessing; L. Victor Breedveld: complex fluids, high-throughput materials characterization, microfluids; Charles A. Eckert: molecular thermodynamics, chemical kinetics, separations; Larry J. Forney: mechanics of aerosols, buoyant plumes and jets; Martha E. Gallivan: process control, interfacial science, microelectronics; Dennis W. Hess: microelectronics processing, thin film science and technology, plasma processes; Clifford Henderson: microelectronics processing, patterning, imaging materials, thin films; Jeffery S. Hsieh: pulp and paper; Christopher Jones: catalyst development for polymer synthesis, organometallic chemistry; Paul A. Kohl: photochemical processing, chemical vapor deposition; William J. Koros: structure-permeability relationships for polymers, ceramics, polymer-ceramic hybrid substrates, formation of composite and integrally skinned asymmetric membranes; Jay Lee: process control, integrated sensing and system identification; Charles L. Liotta: synthesis and properties of polymeric materials, computer modeling of chemical processes; Peter J. Ludovice: molecular modeling of synthetic and biological macromolecules; J. Carson Meredith: colloid and polymer science and technology related to thin films and nanotechnology; John D. Muzzy: polymer engineering, energy conservation, economics; Sankar Nair: novel functional materials and nanoscale systems; Robert M. Nerem: biomechanics, mammalian cell structures; Mark R. Prausnitz: bioengineering, drug delivery, tissue permeabilization; Matthew J. Realff: optimal process design and scheduling; Ronald W. Rousseau: separation processes, crystallization; Athanassios Sambanis: biochemical engineering, microbial and animal cell structures; Robert J. Samuels: polymer science and engineering; F. Joseph Schork: reactor engineering, process control, polymerization, reactor dynamics; Arnold F. Stancell: membranes, polymers, process economics; Daniel W. Tedder: process synthesis and simulation, chemical separation, waste management, resource recovery; Amyn S. Teja: thermodynamic and transport properties, phase equilibria, supercritical extraction; Mark G. White: catalysis, kinetics, reactor design; Timothy M. Wick: tissue engineering, bioreactor design, cell-cell interactions, biofluid dynamics; Ajit P. Yoganathan: biofluid dynamics, rheology, transport phenomena

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School of Chemical Engineering

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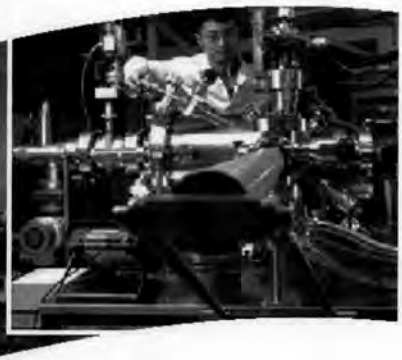
Chemical Engineering Graduate Program



Faculty and Their Research

N. R. AMUNDSON (CULLEN PROFESSOR)
Chemical reactions; Transport; Mathematical modeling

V. BALAKOTAIAH
Chemical reaction engineering; Applied mathematics

A. T. CAPITANO
Tissue Engineering; In Vitro Toxicology

V. M. DONNELLY
Plasma Processing; Electronic Materials

M. J. ECONOMIDES
Petroleum engineering; Energy

D. J. ECONOMOU (JOHN & REBECCA MOORES PROFESSOR)
Electronic materials; Composites and ceramics

M. P. HAROLD (DOW PROFESSOR, CHAIRMAN)
Chemical reaction systems

E. J. HENLEY (EMERITUS)
Reliability engineering; Biomedical engineering

R. KRISHNAMOORTI
Polymeric materials; Biomaterials

D. LUSS (CULLEN PROFESSOR)
Chemical reaction engineering

K. K. MOHANTY
Fluid flow in porous media; Biomaterials

M. NIKOLAOU
Computer-aided process engineering

J. T. RICHARDSON
Catalysis & reaction engineering; Superconductivity; Fuel cells

F. M. TILLER (EMERITUS)
Fluid/particle separation

P. G. VEKILOV
Phase transitions in protein solutions

R. C. WILLSON
Biomolecular recognition; Nucleic acid technology

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For more information

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Graduate Office
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Faculty and Research Interests

Mobolaji E. Aluko, Professor and Chair
PhD, University of California, Santa Barbara
Reactor modeling • crystallization • microelectronic and ceramic materials processing • process control • reaction engineering analysis

Joseph N. Cannon, Professor • PhD, University of Colorado
Transport phenomena in environmental systems • computational fluid mechanics • heat transfer

Ramesh C. Chawla, Professor • PhD, Wayne State University
Mass transfer and kinetics in environmental systems• bioremediation • incineration • air and water pollution control

William E. Collins, Associate Professor • PhD, University of Wisconsin-Madison
Polymer deformation, rheology, and surface science • biomaterials • bioseparations • materials science

M. Gopala Rao, Professor • PhD, University of Washington, Seattle
Adsorption and ion exchange • process energy systems • radioactive waste management • remediation of contaminated soils and groundwater

John P. Tharakan, AssociateProfessor • PhD University of California, San Diego
Bioprocess engineering • protein separations • biological hazardous waste treatment • bio-environmental engineering

Robert J. Lutz, Visiting Professor • PhD, University of Pennsylvania
Biomedical engineering • hemodynamics • drug delivery • pharmacokinetics

Herbert M. Katz, Professor Emeritus • PhD, University of Cincinnati
Environmental engineering

M.S. Program

For further information and applications, write to

Director, Graduate Studies • Chemical Engineering Department
Howard University • Washington, DC 20059
Phone 202-806-6624 Fax 202-806-4635

UIC The University of Illinois at Chicago
Department of Chemical Engineering

• MS and PhD Graduate Program •

FACULTY

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RESEARCH AREAS

Transport Phenomena: Transport properties of fluids, slurry transport, and multiphase fluid flow. Fluid mechanics of polymers and other viscoelastic media.

Thermodynamics: Molecular simulation and statistical mechanics of liquid mixtures. Superficial fluid extraction/retrograde condensation, asphaltene characterization.

Kinetics and Reaction Engineering: Gas-solid reaction kinetics. Energy transfer processes, laser diagnostics, and combustion chemistry. Environmental technology, surface chemistry, and optimization. Catalyst preparation and characterization, supported metals. Chemical kinetics in automotive engine emissions.

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For more information, write to

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Vinay K. Gupta	Interfacial Phenomena: Structure and Dynamics in Thin Films
Jonathan J. L. Higdon	Fluid Mechanics and Computational Algorithms
Paul J. A. Kenis	Microreactors, Microfluidic Tools, and Microfabrication
Sangtae Kim	Bioinformatics, Microfluidics/Nanofluidics
Mark J. Kushner	Plasma Chemistry and Plasma Materials Processing
Deborah E. Leckband	Bioengineering and Biophysics
Jennifer A. Lewis	Colloidal Assembly, Complex Fluids, and Mesoscale Fabrication
Richard I. Masel	Kinetics, Catalysis, Microfuel Cells, and Microchemical Systems
Anthony J. McHugh	Polymer Science and Engineering
Daniel W. Pack	Biomolecular Engineering and Biotechnology
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Kenneth S. Schweizer	Macromolecular, Colloidal, and Complex Fluid Theory
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◆ Among the oldest chemical engineering programs in the nation ◆ Merger of chemical and environmental engineering departments in 1995 created state-of-the-art, interdisciplinary research and education programs ◆ M.S., Professional Master, and Ph.D. degrees in chemical and environmental engineering ◆ New food process engineering program ◆ New double Master's degree program in chemical engineering and computer science ◆ Fellowships and assistantships available

APPLICATIONS

Graduate Admissions Coordinator
Chemical and Environmental Engineering Department
Illinois Institute of Technology
10 W. 33rd Street • Chicago, IL 60616-3793
Phone: 312-567-3533; Fax: 312-567-8874
http://www.chee.iit.edu/ • e-mail: chee@iit.edu

FACULTY AND RESEARCH AREAS

Chairman • Hamid Arastoopour

Associate Chair for Undergraduate Affairs • Fouad Teymour

Associate Chair for Graduate Affairs • Satish Parulekar

Javad Abbasian; *separation processes, gas cleaning, air pollution*

Nader Aderangi; *unit operations, chemical processes*

Paul R. Anderson; *precipitation kinetics, evaluation of oxide adsorbents for water and wastewater treatment*

Hamid Arastoopour; *computational multiphase flow, fluidization, material processing, particle technology, fluid-particle flow*

Barry Bernstein; *computational fluid mechanics, material properties, polymer rheology*

Donald J. Chmielewski; *process control, pollution prevention*

Ali Cinar; *chemical and food process control, nonlinear input-output modeling, statistical process monitoring*

Dimitri Gidaspow; *hydrodynamics of fluidization using kinetic theory, gas-solid transport*

Henry R. Linden; *fossil fuel technologies, energy and resource economics, energy and environmental policy*

Demetrios J. Moschandreas; *ambient and indoor air pollution, statistical analysis, environmental impact assessment*

Allan S. Myerson; *crystallization from solution, nucleation, molecular modeling*

Kenneth E. Noll; *air resources engineering, air pollution meteorology, hazardous waste treatment*

Krishna R. Pagilla; *water and wastewater engineering, environmental microbiology, soil remediation, sludge treatment*

Satish Parulekar; *biochemical engineering, chemical reaction engineering*

Victor H. Pérez-Luna; *biomedical and tissue engineering*

Jai Prakash; *solid state chemistry, materials synthesis and characterization for energy conversion and storage applications*

Jay D. Schieber; *kinetic theory, polymer rheology predictions, transport phenomena, non-Newtonian fluid mechanics*

J. Robert Selman; *applied electrochemistry and electrochemical engineering, battery and fuel cell design*

Eugene S. Smotkin; *FTIR spectroscopy of electrode surfaces, electrochemical mass spectroscopy, fuel cells, combinatorial catalyst screening*

Fouad A. Teymour; *polymer reaction engineering, mathematical modeling, nonlinear dynamics*

David C. Venerus; *polymer rheology and processing, transport phenomena in polymeric systems*

Darsh T. Wasan; *thin liquid films; interfacial rheology; foams, emulsion and dispersion, environmental technologies*

Research Faculty and Lecturers

Said Al-Hallaj ◆ Michael Caracotsios ◆ Ellis Fields ◆ William Franek
Ted Knowlton ◆ Harold Lindahl ◆ Robert Lyczkowski ◆ Zoltan Nagy
Alex Nikolov ◆ Ali Oskouie ◆ Giselle Sandi ◆ Charles Sizer ◆ Hwa-Chi Wang

Graduate program for M.S. and Ph.D. degrees in Chemical and Biochemical Engineering

FACULTY

Gary A. Aurand
North Carolina State U. 1996
Supercritical fluids/ High pressure biochemical reactors

Audrey Butler
U. of Iowa 1989
Chemical precipitation processes

Greg Carmichael
U. of Kentucky 1979
Global change/ Supercomputing/ Air pollution modeling

Vicki H. Grassian
U. of California-Berkeley 1987
Surface chemistry/ Heterogeneous processes

C. Allan Guymon
U. of Colorado 1997
Polymer reaction engineering/UV curable coatings/ Polymer liquid crystal composites

Stephen K. Hunter
U. of Utah 1989
Bioartificial organs/ Microencapsulation technologies

Julie L.P. Jessop
Michigan State U. 1999
Polymers/ Microlithography/ Spectroscopy

Robert Linhardt
Johns Hopkins 1979
Biopolymers and pharmaceutical applications

David Murhammer
U. of Houston 1989
Insect cell culture/ Bioreactor monitoring

Tonya L. Peeples
Johns Hopkins 1994
Bioremediation/ Extremophile physiology and biocatalysis

David Rethwisch
U. of Wisconsin 1985
Membrane science/ Polymer science/ Catalysis

V.G.J. Rodgers
Washington U. 1989
Transport phenomena in bioseparations/ Membrane separations

Alec B. Scranton
Purdue U. 1990
Photopolymerization/ Reversible emulsifiers/ Polymerization kinetics

Ramaswamy Subramanian
Indian Institute of Science 1992
Structural enzymology/Structure function relationship in proteins

John M. Wiencek
Case Western Reserve 1989
Protein crystallization/ Surfactant technology

Iowa

For information and application:

THE UNIVERSITY OF IOWA

Graduate Admissions
Chemical and
Biochemical Engineering
4133 Seamans Center
Iowa City IA 52242-1527

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IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Chemical Engineering Graduate Program

Rodney O. Fox
Kansas State

Kurt R. Hebert
Illinois

Peter J. Reilly
Pennsylvania

Glenn L. Schrader
Wisconsin

Faculty Research Areas of Expertise	Catalysis and Reaction Engineering	Biochemical and Metabolic Engineering and Bioinformatics	Biomaterials and Biomedical Engineering	Biobased Products	Advanced Polymeric and Nanostructured Materials	Process Design and Control	Transport and Thermodynamics
Brown, Robert C.				●			
Doraiswamy, L.K.	●						
Fox, Rodney O.	●						●
Glatz, Charles E.		●		●			
Gonzalez, Ramon		●		●			
Hebert, Kurt R.					●		
Hill, James C.							●
Jolls, Kenneth R.							●
Mallapragada, Surya K.			●	●	●		
Narasimhan, Balaji			●	●	●		
Reilly, Peter J.		●		●			
Rollins, Derrick K.						●	
Schrader, Glenn L.	●			●			
Seagrave, Richard C.		●	●				
Shanks, Brent H.	●			●	●		
Shanks, Jacqueline V.		●		●			
Ulrichson, Dean L.						●	
Vigil, R. Dennis	●						●
Wheelock, Thomas D.	●						
Youngquist, Gordon R.					●		

James C. Hill
Washington

Derrick K. Rollins
Ohio State

Dean L. Ulrichson
Iowa State

Kenneth R. Jolls
Illinois

Richard C. Seagrave
Iowa State

R. Dennis Vigil
Michigan

Robert C. Brown
Michigan State

L. K. Doraiswamy
Wisconsin

Charles E. Glatz
Wisconsin

Surya Mallapragada
Purdue

Jacqueline V. Shanks
Cal Tech

Thomas D. Wheelock
Iowa State

Ramon Gonzalez
Chile

Balaji Narasimhan
Purdue

Brent H. Shanks
Cal Tech

Gordon R. Youngquist
Illinois

FOR MORE INFORMATION

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Ames, Iowa 50011
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www.iastate.edu/~ch_e

Graduate Study and Research in Chemical Engineering at Johns Hopkins

The Johns Hopkins University's Department of Chemical Engineering, established in 1936, features a low student-to-faculty ratio that fosters a highly collaborative research experience. The faculty are internationally known for their contributions in the traditional areas of chemical engineering research, such as thermodynamics, fluid dynamics, and rheology, and at the forefront of emerging technologies, such as membrane-based separation processes, recombinant DNA technology, tissue engineering, and molecular/cellular biomedical engineering.

Insect Cell Culture
Recombinant DNA Technology
Protein Folding and Aggregation
Michael J. Betenbaugh, PhD • University of Delaware

Equations of State • Statistical Thermodynamics
Solvent Replacement
Marc D. Donohue, PhD • University of California, Berkeley

Nanostructured Materials
Colloid/Protein Adsorption
Rheology of Suspensions
Jeffrey J. Gray, PhD • University of Texas at Austin

Biomaterials Synthesis
Controlled/Targeted Drug Delivery
Tissue Engineering
Justin S. Hanes, PhD • Massachusetts Institute of Technology

Biomaterials and Nanocomposite Materials
Macromolecular Transport
Rheology of Soft Materials
James L. Harden, PhD • University of California, Santa Barbara

Nucleation • Crystallization
Flame Generation of Ceramic Powders
Joseph L. Katz, PhD • University of Chicago

Fluid Mechanics in Medical Applications
Vascular and Cellular Biology
Thrombosis, Inflammation, Cancer Metastasis
Konstantinos Konstantopoulos, PhD • Rice University

Molecular Bioengineering
Protein Engineering • Molecular Evolution
Marc Ostermeier, PhD • University of Texas at Austin

Surfactant/Supercritical Fluid Phase Behavior
Computational Molecular Thermodynamics
Polymer/Protein Thermodynamics
Michael E. Paulaitis, PhD • University of Illinois

Interfacial Phenomena
Surfactant Transport Kinetics
Maragoni Effects
Kathleen J. Stebe, PhD • The City University of New York

Phase Transitions and Critical Phenomena
Polymer Systems Far from Equilibrium
Particle-Tracking Microrheology
Denis Wirtz, PhD • Stanford University

For further information contact:

Johns Hopkins University
Whiting School of Engineering
Department of Chemical Engineering
3400 N. Charles Street
Baltimore, MD 21218-2694

410-516-5455 / che@jhu.edu

http://www.jhu.edu/~cheme

JOHNS HOPKINS

Graduate Study in Chemical and Petroleum Engineering at the

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The University of Kansas is the largest and most comprehensive university in Kansas. It has an enrollment of more than 28,000 and almost 2,000 faculty members. KU offers more than 100 bachelors', nearly 90 masters', and more than 50 doctoral programs. The main campus is in Lawrence, Kansas, with other campuses in Kansas City, Wichita, Topeka, and Overland Park, Kansas.

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Faculty

Kenneth A. Bishop *(Ph.D., Oklahoma)*
Kyle V. Camarda *(Ph.D., Illinois)*
John C. Davis *(Ph.D., Wyoming)*
Don W. Green, *(Ph.D., Oklahoma)*
Colin S. Howat *(Ph.D., Kansas)*
Carl E. Locke, Jr., *(Ph.D., Texas)*
Trung V. Nguyen *(Ph.D., Texas A&M)*
Karen J. Nordheden *(Ph.D., Illinois)*
Russell D. Osterman *(Ph.D., Kansas)*
Marylee Z. Southard *(Ph.D., Kansas)*
Susan M. Williams *(Ph.D., Oklahoma)*
Bala Subramaniam, Chair *(Ph.D., Notre Dame)*
Shapour Vossoughi *(Ph.D., Alberta, Canada)*
G. Paul Willhite *(Ph.D., Northwestern)*

Research

Catalytic Kinetics and Reaction Engineering
Catalytic Materials and Membrane Processing
Controlled Drug Delivery
Corrosion, Fuel Cells, Batteries
Electrochemical Reactors and Processes
Electronic Materials Processing
Enhanced Oil Recovery Processes
Fluid Phase Equilibria and Process Design
Molecular Product Design
Process Control and Optimization
Supercomputer Applications
Supercritical Fluid Applications

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Financial aid is available in the form of research and teaching assistantships at $16,000 a year (plus tuition) and fellowships/scholarships such as those noted below.

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Contacts

Website for information and application:
http://www.cpe.engr.ku.edu/

Graduate Program
Chemical and Petroleum Engineering
University of Kansas—Learned Hall
1530 W. 15th Street, Room 4006
Lawrence, KS 66045-7609

phone: 785-864-2900
fax: 785-864-4967
email: **cpeinfo@ku.edu**

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Professor J. H. Edgar
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Kansas State University
Manhattan, KS 66506
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http://www.engg.ksu.edu/CHEDEPT/

Areas of Study and Research

Biopolymers
Biotechnology
Catalytic Hydrocarbon Conversion
Chemical Reaction Engineering
Crystal Growth of Semiconductors
Environmental Pollution Control
Hazardous Waste Treatment
Membrane Separations
Multiphase Flow
Polymeric Materials Properties
Process Systems Engineering and Artificial Intelligence
Separative Reactors

KSU
KANSAS STATE UNIVERSITY

University of Kentucky

Department of Chemical & Materials Engineering

- Catalysis
- Environmental Engineering
- Biopharmaceutical & Biocellular Engineering
- Materials Synthesis
- Advanced Separation & Supercritical Fluids Processing
- Membranes & Polymers
- Aerosols

The Chemical Engineering Faculty

Donn Hancher, Interim Chair • *Purdue University*
K. Anderson • *Carnegie-Mellon University*
D. Bhattacharyya • *Illinois Institute of Technology*
A. Geertsema • *University of Karlsruhe*
E. Grulke • *Ohio State University*
C. Hamrin (Professor Emeritus) • *Northwestern University*
D. Kalika • *University of California, Berkeley*
M. Keane • *National University of Ireland*
R. Kermode • *Northwestern University*
B. Knutson • *Georgia Institute of Technology*
S. Rankin • *University of Minnesota*
A. Ray • *Clarkson University*
J.T. Schrodt • *University of Louisville*
T. Tsang • *University of Texas*

Paducah, KY, Program

P. Dunbar • *University of Tennessee*
R. Lee-Desautels • *Ohio State University*
D. Silverstein • *Vanderbilt University*
J. Smart • *University of Texas*

For more information:

Web: http://www.engr.uky.edu/cme E-mail: cme-admit@engr.uky.edu
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Director of Graduate Studies, Chemical Engineering
177 Anderson Hall • University of Kentucky • Lexington, KY 40506-0046
Phone (859) 257-8028 Fax (859) 323-1929

CHEMICAL ENGINEERING

Graduate Studies
M.Sc. and Ph.D.

Biochemical engineering

Catalysis

Computer aided simulation and design

Environmental engineering

Polymer engineering

Process modelling

Rheology

Polymer processing

Faculté DES SCIENCES ET DE GÉNIE

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Research Areas

Mosto M. Bousmina
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- rheology and modelling
- polymer blends and processing
- polymer physics and engineering

Alain Garnier
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(418) 656-3106
- biochemical engineering
- animal cell culture
- virus and protein production

Suzanne Giasson
(Ph.D. University of Western Ontario and IFP, Paris)
sgiasson@gch.ulaval.ca
(418) 656-3774
- intermolecular and intersurface forces
- complex fluid systems, polymers, biomaterials
- nanorheology, nanotribology

Bernard Grandjean
(Ph.D. École Polytechnique de Montréal)
grandjean@gch.ulaval.ca
(418) 656-2859
- catalytic membrane reactors
- neural network, genetic algorithm
- process modelling

Serge Kaliaguine
(D. Ing. IGC Toulouse)
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(418) 656-2708
- zeolites, mesostructured materials, perovskites
- catalytic membranes and fuel cells
- industrial catalysis

René Lacroix
(Ph.D. Université Laval)
lacroix@gch.ulaval.ca
(418) 656-3564
- finite element method
- numerical simulation of cooling processes
- thermo-electrical simulation

Faïçal Larachi
(Ph.D. INPL Nancy)
flarachi@gch.ulaval.ca
(418) 656-3566
- multiphase reactors
- wet oxidation
- flow instrumentation

Anh LeDuy
(Ph.D. University of Western Ontario)
leduy@gch.ulaval.ca
(418) 656-2634
- biochemical and microbial processes
- biokinetics

Jean-Claude Méthot
(Ph.D. Université Laval)
methot@gch.ulaval.ca
(418) 656-2539

Denis Rodrigue
(Ph.D. Université de Sherbrooke)
denis.rodrigue@gch.ulaval.ca
(418) 656-2903
- transport phenomena
- rheology
- polymeric foams

Christian Roy
(Ph.D. Université de Sherbrooke)
croy@gch.ulaval.ca
(418) 656-7406
- vacuum pyrolysis
- vapor phase membranes
- industrial process engineering

Additional information and Applications may be obtained from :
Head of Graduate Programs
Alain Garnier
Département de Génie chimique
Pavillon Adrien-Pouliot, Université Laval
Québec (QC) Canada G1K 7P4
alain.garnier@gch.ulaval.ca
www.gch.ulaval.ca
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FACULTY AND RESEARCH AREAS

Philip A. Blythe (University of Manchester) ■ fluid mechanics • heat transfer • applied mathematics
Hugo S. Caram (University of Minnesota) ■ gas-solid and gas-liquid systems • optical techniques • reaction engineering
Marvin Charles (Polytechnic Institute of Brooklyn) ■ bioprocess design • cGMP R&D
Manoj K. Chaudhury (SUNY-Buffalo) ■ adhesion • thin films • surface chemistry
John C. Chen (University of Michigan) ■ two-phase vapor-liquid flow • fluidization • radiative heat transfer • environmental technology
Mohamed S. El-Aasser (McGill University) ■ polymer colloids and films • emulsion copolymerization • polymer synthesis and characterization
James T. Hsu (Northwestern University) ■ bioseparations • applied recombinant DNA technology
Andrew Klein (North Carolina State University) ■ emulsion polymerization • colloidal and surface effects in polymerization
Mayuresh V. Kothare (California Institute of Technology) ■ model predictive control • constrained control • microchemical systems
William L. Luyben (University of Delaware) ■ process design and control • distillation
William E. Schiesser (Princeton University) ■ numerical algorithms and software in chemical engineering
Arup K. Sengupta (University of Houston) ■ use of adsorbents, ion exchange, reactive polymers, membranes in environmental pollution
Cesar A. Silebi (Lehigh University) ■ separation of colloidal particles • electrophoresis • mass transfer
Leslie H. Sperling (Duke University) ■ mechanical and morphological properties of polymers • interpenetrating polymer networks
Fred P. Stein, Emeritus (University of Michigan) ■ thermodynamic properties of mixtures
Harvey G. Stenger, Jr. (Massachusetts Institute of Technology) ■ reactor engineering
Israel E. Wachs (Stanford University) ■ materials characterization • surface chemistry • heterogeneous catalysis • environmental catalysis
Leonard A. Wenzel, Emeritus (University of Michigan) ■ thermodynamics • cryogenics and mixed-gas adsorption

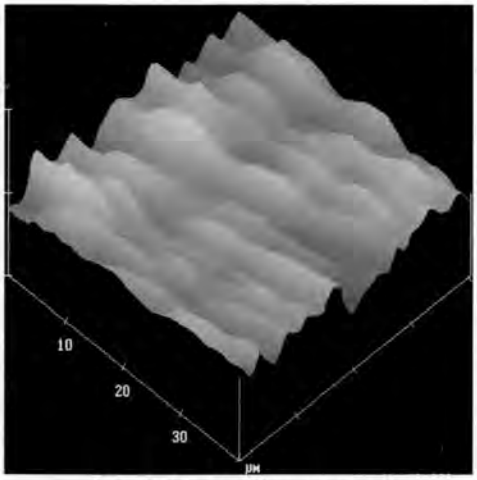
Living in Bethlehem, PA allows easy access to cultural and recreational opportunities in the New York-Philadelphia area.

Additional information and applications may be obtained by writing to:

Dr. James T. Hsu, Chairman • Graduate Committee
Department of Chemical Engineering • Lehigh University • 111 Research Drive • Iacocca Hall • Bethlehem, PA 18015
FAX: (610) 758-5057 • E-MAIL: inchegs@lehigh.edu • WEBSITE: www.lehigh.edu/~inchm/index.html

UNIVERSITY OF LOUISIANA *Lafayette*

MS in Engineering — Chemical Engineering



Atomic Force Microscopy of Deformed High Density Polyetheylene

Faculty

C.S. Fang, PhD, University of Houston, TX (1968)

F.F. Farshad, PhD, University of Oklahoma, OK (1975)

J.D. Garber (Head), PhD, Georgia Institute of Technology, GA (1971)

A.G. Hill, PhD, Louisiana Technical University, LA (1980)

J.N. Linsley, PhD, Rice University, TX (1970)

R.D.K. Misra, PhD, University of Cambridge, UK (1984)

A.B. Ponter, DSc, Birmingham University, UK (1986) PhD, Manchester (1966)

J.R. Reinhardt, PhD, University of Arkansas, AR (1977)

Research Centers

Corrosion Research Center • Dr. J.D. Garber, Director

Center for Metals, Polymers and Composites Research • Dr. R.D.K. Misra, Director

Edith Garland Dupré Library

Research Areas

- **Corrosion**
  - Gas and Oil Well Modeling
  - Pipeline Steels
  - Hydrogen-Induced Cracking
- **Materials: Structure/Processing/Performance**
  - Irradiation of Polymers with UV/Ozone
  - Deformation Behavior of Polymers and Composites
  - Formability and Fracture Toughness of High-Strength Steels
  - Cold Work Embrittlement of Interstitial-Free Steels
  - Casting of Precious Metals and Alloys
- **Fluid Flow and Transport Phenomena**
  - Phase Inversion
  - Drop Coalescence
  - Liquid Spreading
  - Multiphase Flow
  - Surface Roughness
- **Thermodynamics and Process Engineering**
  - Phase Equilibria in Multiphase Systems
  - Chemical Reactor Design, Stability and Dynamics
  - Process Simulation and Design

Department of Chemical Engineering
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PO Box 44130
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For more information:
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LOUISIANA STATE UNIVERSITY

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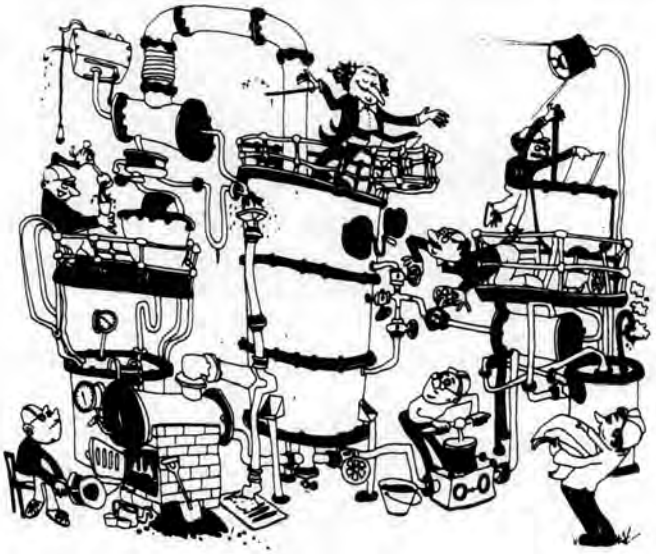

THE CITY

Baton Rouge is the state capitol and home of the major state institution for higher education — LSU. Situated in the Acadian region, Baton Rouge blends the Old South and Cajun Cultures. Baton Rouge is one of the nation's busiest ports and the city's economy rests heavily on the chemical, oil, plastics, and agricultural industries. The great outdoors provide excellent recreational activities year-round, especially fishing, hunting, and water sports. The proximity of New Orleans provides for superb nightlife, especially during Mardi Gras. The city is also only two hours away from the Mississippi Gulf Coast, and four hours from either Gulf Shores or Houston.

THE DEPARTMENT

- M.S. and Ph.D. Programs
- Approximately 60 Graduate Students
- Average research funding more than $2 million per year

DEPARTMENTAL FACILITIES

- Departmental computing—with more than 80 PCs
- Extensive laboratory facilities, especially in reaction and environmental engineering, transport phenomena and separations, polymer, textile and materials procesing, biochemical engineering, thermodynamics

TO APPLY, CONTACT

DIRECTOR OF GRADUATE INSTRUCTION
Gordon A. and Mary Cain Department of Chemical Engineering
Louisiana State University
Baton Rouge, LA 70803
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e-mail: gradcoor@che.lsu.edu

FACULTY

T.J. CLEIJ (Ph.D., Utrecht University)
Polymeric Materials, Science and Engineering

A.B. CORRIPIO (Ph.D., Louisiana State University)
Control, Simulation, Computer-Aided Design

K.M. DOOLEY (Ph.D., University of Delaware)
Heterogeneous Catalysis, High-Pressure Separations

G.L. GRIFFIN (Ph.D., Princeton University)
Electronic Materials, Surface Chemistry, CVD

D.P. HARRISON (Ph.D., University of Texas)
Fluid-Solid Reactions, Hazardous Waste Treatment

M.A. HJORTSØ (Ph.D., University of Houston)
Biochemical Reaction Engineering, Applied Math

F.C. KNOPF (Ph.D., Purdue University)
Supercritical Fluid Extraction, Ultrafast Kinetics

B.J. McCOY (Ph.D., University of Minnesota)
Separation, Transport, Reaction Engineering

R.W. PIKE (Ph.D., Georgia Institute of Technology)
Fluid Dynamics, Reaction Engineering, Optimization

E.J. PODLAHA (Ph.D., Columbia University)
Electrical Phenomena, Alloy and Composite Materials

D.D. REIBLE (Ph.D., California Institute of Technology)
Environmental Transport, Transport Modeling

A.M. STERLING (Ph.D., University of Washington)
Transport Phenomena, Combustion

J.J. SPIVEY (Ph.D., Louisiana State University)
Catalysis

L.J. THIBODEAUX (Ph.D., Louisiana State University)
Chemodynamics, Hazardous Waste Transport

K.E. THOMPSON (Ph.D., University of Michigan)
Transport and Reaction in Porous Media

K.T. VALSARAJ (Ph.D., Vanderbilt University)
Environmental Transport, Separations

D.M. WETZEL (Ph.D., University of Delaware)
Hazardous Waste Treatment, Drying

M.J. WORNAT (Ph.D., Massachusetts Institute of Technology)
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Graduate Program Director
Chemical Engineering Department
Manhattan College
Riverdale, NY 10471

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http://www.engineering.manhattan.edu/graduate/application/create_account.aspx

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CHEMICAL ENGINEERING

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Faculty and Research Areas

Raymond A. Adomaitis (IIT) • *Systems modeling and simulation methodologies; semiconductor manufacturing*
Mikhail A. Anisimov (Moscow) • *Critical phenomena and phase transitions in fluids and fluid mixtures*
Timothy A. Barbari (Texas-Austin) • *Membrane science, polymer science, biomaterials*
William E. Bentley (Colorado) • *Biochemical/metabolic engineering, applications of molecular biology*
Richard V. Calabrese (Massachusetts) • *Multiphase flow, turbulence and mixing*
Kyu Yong Choi (Wisconsin) • *Polymer reaction engineering*
Panagiotis Dimitrakopoulos (Illinois-Urbana) • *Biofluid mechanics, biophysics and microrheology*
Sheryl H. Ehrman (UCLA) • *Aerosol and nanoparticle technology*
John P. Fisher (Rice) • *Tissue engineering, biomaterials*
James W. Gentry (Texas-Austin) • *Aerosol science and engineering*
Sandra C. Greer (Chicago) • *Physical chemistry, polymer science, biomacromolecules, phase equilibria*
Maria I. Klapa (MIT) • *Metabolic engineering, bioinformatics, modeling of biological networks*
Peter Kofinas (MIT) • *Polymer science and engineering*
Thomas J. McAvoy (Princeton) • *Process control, fault detection*
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T. GOOD, Ph.D. *University of Wisconsin-Madison*
Cellular Engineering; Protein Aggregation: In Vitro Models of Disease

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Delmar Timm • *Iowa State University*
Polymer Composites; Step-Wise Polymerization Kinetics; Kinetic Analysis Using GPC

Hendrik Viljoen • *University of Pretoria*
Plasma-Enhanced CVD; Detonation & Combustion; Ceramics

For further information, write

Dr. Michael Meagher
Director of Graduate Studies
Department of Chemical Engineering
University of Nebraska
Lincoln, NE 68588-0126

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The Program

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- Hazardous waste treatment
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R. Barat; *Massachusetts Institute of Technology*
E. Bart; *New York University*
C. Gogos; *Princeton University*
T. Greenstein; *New York University*
D. Hahn; *Agri. Univ. of Wageningen (Netherlands)*
D. Hanesian; *Cornell University*
M. Huang; *University of Massachusetts*
K. Hyun; *University of Missouri-Columbia*
H. Kimmel; *City University of New York*
D. Knox; *Rensselaer Polytechnic Institute*
G. Lewandowski; *Columbia University*
N. Loney; *New Jersey Institute of Technology*
A. Perna; *University of Connecticut*
R. Pfeffer; *New York University*
L. Simon; *Colorado State University*
K. Sirkar; *University of Illinois-Urbana*
S. Sofer; *University of Texas*
R. Tomkins; *University of London (UK)*
J. Wu; *University of Delaware*
M. Xanthos; *University of Toronto (Canada)*

For further information contact:

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New Jersey Institute of Technology
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The department enjoys extensive interactions and collaborations with New Mexico's federal laboratories: Los Alamos National Laboratory, Sandia National Laboratories, and the Air Force Research Laboratory, as well as high technology industries both locally and nationally.

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Faculty	Research Areas
Plamen Atanasov	• Electroanalytical Chemistry, Biomedical Engineering
Harold M. Anderson	• Plasma Processing, Plasma Diagnostics
C. Jeffrey Brinker	• Ceramics, Sol-Gel Processing, Self-Assembled Nanostructures
Joseph L. Cecchi	• Semiconductor Manufacturing Technology, Plasma Etching and Deposition
John G. Curro	• Polymer Theory, Computational Modeling
Abhaya K. Datye	• Catalysis, Interfaces, Advanced Materials
Julia E. Fulghum	• Surface Characterization, 3-D Materials Characterization
Sang M. Han	• Semiconductor Manufacturing Technology, Plasma Etching and Deposition
David Kauffman	• Plant Design, Environmental Engineering
Ronald E. Loehman	• Glass-Metal and Ceramic-Metal Bonding and Interfacial Reactions
Gabriel P. López	• Chemical Sensors, Hybrid Materials, Biotechnology, Interfacial Phenomena
Richard W. Mead	• Unit Operations, Resource Extraction
H. Eric Nuttall	• Environmental Science, Waste Transport Management, Colloid Science
Jonathan Phillips	• Materials Science, Catalysis, Plasma Physics and Chemistry
Timothy L. Ward	• Aerosol Materials Synthesis, Inorganic Membranes
Ebtisam S. Wilkins	• Biomedical Sensors and Waste Treatment

For more information, contact:

Jeffrey Brinker, Graduate Advisor
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PhD & MS Programs in Chemical Engineering

Faculty and Research Areas

- **Paul K. Andersen,** Associate Professor, *University of California, Berkeley*
  Transport Phenomena, Electrochemistry, Environmental Engineering
- **Ron K. Bhada,** Professor Emeritus, *University of Michigan*
- **Joe L. Creed,** Assistant Dean, *New Mexico State University*
  Engineering Design
- **Francisco R. Del Valle,** College Professor, *Massachusetts Institute of Technology*
  Food Engineering
- **Charles L. Johnson,** Professor and Head, *Washington University-St. Louis*
- **Richard L. Long,** Professor and Associate Head *Rice University*
  Transport Phenomena, Biomedical Engineering, Separations
- **Martha C. Mitchell,** Associate Professor, *University of Minnesota*
  Advanced Materials, Statistical Mechanics, Molecular Modeling
- **Stuart H. Munson-McGee,** Professor, *University of Delaware*
  Advanced Materials, Separations
- **John T. Patton,** Professor Emeritus, *Oklahoma State University*
- **David A. Rockstraw,** Associate Professor, *University of Oklahoma*
  Separations, Environmental Engineering, Kinetics
- **Rudi V. Roubicek,** Professor Emeritus, *Technical University of Prague*
- **Edward F. Thode,** Professor Emeritus, *Massachusetts Institute of Technology*
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Department of Chemical Engineering

Areas of Research

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-Electronic Materials
-Kinetics & Reaction Engineering
-Interfacial Science
-Polymer Science
-Nanotechnology
-Bio Catalysis
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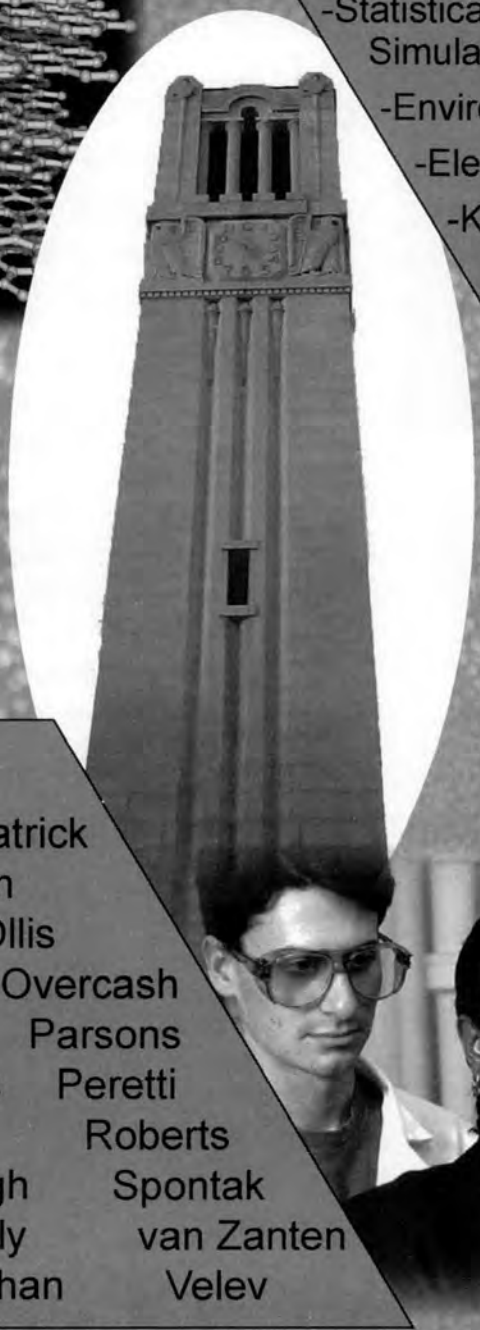

Faculty

Carbonell Kilpatrick
DeSimone Lim
Fedkiw Ollis
Genzer Overcash
Grant Parsons
Gubbins Peretti
Hall Roberts
Haugh Spontak
Kelly van Zanten
Khan Velev

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Nurcan Bac
Gilda Barabino
Carolyn Lee-Parsons
Albert Sacco Jr.
Ronald J. Willey
Katherine S. Ziemer

Research Areas:
Biochemical Engineering
Biomedical Engineering
Catalysis
Microgravity – Advanced materials
Nanocomposite Membranes
Semiconductor Materials

Selected Research Topics:
Pharmaceutical compounds from plant cell cultures
Carbon Nanotubes
Mixed-Matrix Membrane Separation
Sickle Cell Adhesion
Surface Acidity of Ti-silicas
Tissue Engineering
Thin Film Heterostructures
Biosensors

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Dept of Chemical Eng. 342 SN
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Boston, MA 02115
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Chemical Engineering at

Northwestern University

Luis A.N. Amaral, Ph.D., Boston University, 1996
Complex systems, computational physics, biological networks

Annelise E. Barron, Ph.D., Berkeley, 1995
Bioseparations, biopolymer engineering

Linda J. Broadbelt, PhD., Delaware, 1994
Reaction engineering, kinetics modeling, polymer resource recovery

Wesley R. Burghardt, Ph.D., Stanford, 1990
Polymer science, rheology

Buckley Crist, Jr., Ph.D., Duke, 1966
Polymer science, thermodynamics, mechanics

Joshua S. Dranoff, Ph.D., Princeton, 1960
Chemical reaction engineering, chromatographic separations

Kimberly A. Gray, Ph.D., Johns Hopkins, 1988
Catalysis, treatment technologies, environmental chemistry

Bartosz A. Grzybowski, Ph.D., Harvard, 2000
Complex chemical systems

Vassily Hatzimanikatis, Ph.D., Caltech, 1996
Computational biotechnology, functional genomics, bioinformatics

Harold H. Kung, Ph.D., Northwestern, 1974
Kinetics, heterogeneous catalysis

William M. Miller, Ph.D., Berkeley, 1987
Cell culture for biotechnology and medicine

Lyle F. Mockros, Ph.D., Berkeley, 1962
Biomedical engineering, fluid mechanics in biological systems

Monica Olvera de la Cruz, Ph.D., Cambridge, 1984
Statistical mechanics in polymer systems

Julio M. Ottino, Ph.D., Minnesota, 1979
Fluid mechanics, granular materials, chaos, mixing in materials processing

E. Terry Papoutsakis, Ph.D., Purdue, 1980
Biotechnology of animal and microbial cells, metabolic engineering, genomics

Bruce E. Rittmann, Ph.D., Stanford, 1979
In situ bioremediation, biofilms

Gregory Ryskin, Ph.D., Caltech, 1983
Fluid mechanics, computational methods, polymeric liquids

Lonnie D. Shea, Ph.D., Michigan, 1997
Tissue engineering, gene therapy

Randall Q. Snurr, Ph.D., Berkeley, 1994
Adsorption and diffusion in porous media, molecular modeling

Melody A. Swartz, Ph.D., M.I.T., 1998
Biomedical transport phenomena

John M. Torkelson, Ph.D., Minnestota, 1983
Polymer science, membranes

For information and application to the graduate program, write

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Department of Chemical Engineering
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Edward J. Maginn
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Combustion Synthesis
Drug Delivery
Electrochemical Processes
Environmentally Conscious Design
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Inorganic Membranes
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The Department

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- **Bhavik Bakshi,** *MIT*
  Industrial Ecology, Process Engineering, Analysis of Complex Systems
- **Robert S. Brodkey,** *Wisconsin*
  Experimental Measurements for Validation of Computational Fluid Mechanics and Applications to Mixing Process Applications
- **Jeffrey J. Chalmers**
  Immunumagnetic Cell Separation, Effect of Hydrodynamic Forces on Cells, Interfacial Phenomena and Cells, Bioengineering, Biotechnology, Cancer Detection
- **L.S. Fan,** *West Virginia*
  Fluidization, Particle Technology, Particulates Reaction Engineering
- **Martin Feinberg,** *Princeton*
  Mathematics of Complex Chemical Systems
- **Winston Ho,** *Illinois-Urbana*
  Membrane Separations with Chemical Reaction and Fuel-Cell Fuel Processing
- **Kurt W. Koelling,** *Princeton*
  Rheology, Polymer Processing, Microfluidics
- **Isamu Kusaka,** *CalTech*
  Nucleation
- **L. James Lee,** *Minnesota*
  Polymer and Composite Processing, Micro/-Nano-Fabrication, BioMEMS
- **Umit S. Ozkan,** *Iowa State*
  Heterogeneous Catalysis, Kinetics, Catalytic Materials
- **James F. Rathman,** *Oklahoma*
  Colloids, Interfaces, Surfactants, Molecular Self-Assembly, Bioinformatics
- **David L. Tomasko,** *Illinois-Urbana*
  Separations, Molecular Thermodynamics and Materials Procesing in Supercritical Fluids
- **Shang-Tian Yang,** *Purdue*
  Biochemical Engineering, Biotechnology, and Tissue Engineering
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Chemical Engineering

Graduate Programs

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Research Areas

Multiphase Flow and Associated Corrosion
Coal Conversion Technology and Desulfurization
Aerosol Science and Technology
Process Control
Separations
Energy and Environmental Engineering
Thin Film Materials
Chemical Reaction Engineering
Bioreactor Analysis
Downstream Processing of Proteins
Biomedical Engineering

Financial Aid

Financial support includes teaching and grant-related associateships and fellowships ranging from $14,000 to $18,000 per twelve months. In addition, students are granted a full tuition scholarship for both the regular and summer academic terms. Stocker Fellowships are available to especially well-qualified students.

The Faculty

Gerardine G. Botte *(Ph.D., South Carolina, 2000)*
W. J. Russell Chen *(Ph.D., Syracuse, 1974)*
Nicholas Dinos, Emeritus *(Ph.D., Lehigh, 1967)*
Douglas J. Goetz *(Ph.D., Cornell, 1995)*
Tingyue Gu *(Ph.D., Purdue, 1990)*
Daniel A. Gulino *(Ph.D., Illinois, 1983)*
Srdjan Nesic *(Ph.D., Saskatchewan, 1991)*
Michael E. Prudich, Chair *(Ph.D., West Virginia, 1979)*
Darin Ridgway, P.E. *(Ph.D., Florida State, 1990)*
Kendree J. Sampson *(Ph.D., Purdue, 1981)*
Valerie L. Young *(Ph.D., Virginia Tech., 1992)*

For More Information Contact:

Director of Graduate Studies
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Faculty & Research Interests

■ **Miguel J. Bagajewicz,** Professor • *process plant simulation & data reconciliation • design of heat/mass exchange networks for waste minimization applications • mathematical background, algorithm development & process design applications of optimization theory • high temperature fuel-gas cleaning reactors • modeling of fluid-solid diffusion-reaction problems*

■ **Brian P. Grady,** Associate Professor • *multiphase & block copolymers • ion-containing polymers • polymer-matrix composites • biodegradable and bioabsorbable polymers • nanotechnology at interfaces*

■ **Roger G. Harrison, Jr.,** Associate Professor • *production of proteins & peptides using recombinant DNA technology • separation & purification of biochemicals • protein engineering for biomedical and environmental application • protein engineering*

■ **Jeffrey H. Harwell,** Conoco/DuPont Professor, Executive Associate Dean for the College of Engineering • *tertiary oil recovery • unconventional low energy separation processes • mass transfer • dynamics of multicomponent mass transfer processes • surface phenomena • adsorption kinetics • subsurface remediation*

■ **Lloyd L. Lee,** C.M. Sliepcevich Professor • *thermodynamics • molecular liquid theory • statistical mechanics • interactions in nanostructures • Monte Carlo & molecular dynamics studies • conformal solution theory • natural gas properties • polar fluids, ionic solutions & molten salts • surface adsorption*

■ **Lance L. Lobban,** Winn Chair & Director • *catalytic reaction rate mechanisms & modeling • partial oxidation of hydrocarbons • photocatalysis*

■ **Richard G. Mallinson,** Professor • *chemical reaction engineering • energy project valuation • synthetic and alternative fuels • natural gas utilization • methane conversion*

■ **Peter S. McFetridge,** Research Assistant Professor, Director of Cell & Tissue Culture Facility • *vascular tissue engineering • biomedical design, development and application • vascular perfusion reactor engineering*

■ **Matthias U. Nollert,** Associate Professor • *biomedical engineering • cellular metabolism and transport • platelet and leukocyte adhesion • fluid mechanics*

■ **Edgar A. O'Rear, III,** Winn Professor • *drug delivery• surface chemistry & physics • kinetics • blood trauma associated with medical devices • biorheology • organic chemistry*

■ **Dimitrios Papavassiliou,** Assistant Professor • *integrated process simulations • transport phenomena in biological systems • small scale transport at the interface between statistical mechanics and classical mechanics*

■ **Daniel E. Resasco,** S.A. Wilson Professor • *heterogeneous catalysis, reaction engineering & kinetics • design of catalysts for pollutant abatement • carbon nanotubes • physical chemistry of surfaces*

■ **Melissa M. Rieger,** Assistant Professor • *electrochemical phenomena and electrochemical engineering • carbon nanotube electro-chemistry • material systems and electrochemical processes in microelectronic processing • electrochemical behavior of polymeric materials*

■ **John F. Scamehorn,** Asahi Glass Chair • *surface & colloid science • tertiary oil recovery • detergency • membrane separations • adsorption • pollution control • polymers • paper & plastics deinking*

■ **David W. Schmidtke,** Assistant Professor • *design & development of new analytical devices & technologies for medical therapy • biosensors • cell adhesion • high speed/high resolution video microscopy of fluid mechanics in the blood stream*

■ **Robert L. Shambaugh,** Professor • *polymerization chemistry • polymer • processing technology • fiber spinning, texturing & extrusion • wastewater • engineering • physicochemical treatment • ozonation • gas-liquid reactions*

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K.A.M. Gasem (Ph.D., Oklahoma State University)
Karen A. High (Ph.D., Pennsylvania State University)
Martin S. High (Ph.D., Pennsylvania State University)
A.J. Johannes (Ph.D., University of Kentucky)
Randy Lewis (Ph.D., Massachusetts Institute of Technology)
Sundarajan V. Madihally (Ph.D., Wayne State University)
R. Russell Rhinehart (Ph.D., North Carolina State University)
James E. Smay (Ph.D., University of Illinois)
D. Alan Tree (Ph.D., University of Illinois)
Jan Wagner (Ph.D., University of Kansas)
James R. Whiteley (Ph.D., Ohio State University)

Research Areas

Adsorption
Artificial Intelligence
Biochemical Processes
Biomaterials
Colloids/Ceramics
Environmental Engineering
Fluid Flow/CFD
Gas Processing
Hazardous Wastes
Ion Exchange
Molecular Design
Nanomaterials
Phase Equilibria
Polymers
Process Control
Process Simulation
Solid Freeform Fabrication
Tissue Engineering

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- **G. N. Jovanovic**
  Fine Particle Processing, Transport Phenomena
- **S. Kimura**
  Reaction Engineering, High-Temperature Materials, Bioceramics, Electroceramics, and Surface Modification
- **M. D. Koretsky**
  Electronic Materials Processing
- **K. L. Levien**
  Process Optimization and Control, Reaction Engineering
- **C. McConica**
  Gas Solid Kinetics, Semiconductor Processing
- **J. McGuire**
  Biointerfacial Phenomena, Biomaterials
- **R.A. Peattie**
  Biomechanics, Physiology, Fluid and Biofluid Dynamics
- **W. E. Rochefort**
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- **G. L. Rorrer**
  Biochemical Reaction Engineering

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Chemical Engineering Department
Oregon State University
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University of Pennsylvania
Department of Chemical and Biomolecular Engineering

Eric T. Boder *Biomolecular engineering*
Stuart W. Churchill *Combustion, incineration, crystal growth, rate processes*
Russell J. Composto *Polymeric materials science, surface and interface studies*
John C. Crocker *Microrheology of biopolymers, recA searching, 3-D microscopy, device biophysics*
Scott L. Diamond *Endothelial cell mechanobiology, drug and gene delivery, biotransport phenomena*
Dennis E. Discher *Cell and molecular mechanics, biomembrane and biopolymer mesostructures and functions*
William C. Forsman *Polymer science and engineering*
Eduardo D. Glandt *Classical and statistical thermodynamics, random media*
Raymond J. Gorte *Heterogeneous catalysis, supported metals, anodes for solid-oxide fuel cells, zeolites*
David J. Graves *Biochemical and biomedical engineering, biotechnology*
Daniel A. Hammer *Cellular bioengineering, biointerfacial phenomena, adhesion*
Alan L. Myers *Adsorption of gases and liquids, molecular simulation*
Daniel D. Perlmutter *Chemical reactor design, gas-solid reactions, gel kinetics*
John A. Quinn *Membrane transport, biochemical/biomedical engineering*
Warren D. Seider *Process analysis, simulation, design, and control*
Wen K. Shieh *Bioenvironmental engineering, environmental systems modeling*
Talid R. Sinno *Transport and reaction, statistical mechanical modeling*
Lyle H. Ungar *Artificial intelligence in process control, neural networks*
John M. Vohs *Surface science, catalysis, electronic materials processing*
Karen I. Winey *Polymer morphology, processing, and property interrelationships*

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Chemical Engineering

Antonios Armaou *(Univ of CA at Los Angeles)*—Process Control, System Dynamics

Aziz Ben-Jebria *(Univ. of Paris)*—Respiratory Fluid Flow and Uptake, Inhalation Toxicology

Ali Borhan *(Stanford)*—Fluid Dynamics, Transport Phenomena

Alfred Carlson *(Wisconsin)*—Biotechnology, Bioseparations

Lance Collins *(Penn)*—Turbulent Flow, Combustion

Wayne R. Curtis *(Purdue)*—Plant Biotechnology

Ronald P. Danner *(Lehigh)*—Polymers, Phase Equilibria, Diffusion

J. Larry Duda *(Delaware)*—Polymers, Diffusion Thermodynamics, Tribology, Fluid Mechanics, Rheology

Kristen Fichthorn *(Michigan)*—Statistical Mechanics, Fluid-Solid Interfaces, Molecular Simulation

Henry C. Foley *(Penn State)*—Nanoporous Materials, Heterogeneous Catalysis, Adsorption and Permeation

Seong Han Kim *(Northwestern)*—Nano-tribology and nano-materials

Costas D. Maranas *(Princeton)*—Computational Chemistry, Bioinformatics, Supply Chain Optimization

Janna Maranas *(Princeton)*—Molecular Simulation, Polymers, Thermodynamics, Network Glasses

Themis Matsoukas *(Michigan)*—Aerosol Processes, Colloidal Particles, Ceramic Powders

R. Nagarajan *(SUNY at Buffalo)*—Colloid and Polymer Science

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Michael Pishko *(Texas)*—Bio-materials, Bio-sensing, and Tissue Engineering

Jonathan Phillips *(Wisconsin)*—Heterogeneous Catalysis, Surface Science

John M. Tarbell *(Delaware)*—Cardiovascular Fluid Mechanics and Mass Transfer, Artificial Heart

James S. Ultman *(Delaware)*—Physiological Transport Processes, Respiratory Mass Transfer

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James S. Vrentas *(Delaware)*—Transport Phenomena, Applied Mathematics, Diffusion in Polymers, Rheology

Chemical Engineering
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• Artificial Organs	Mohammad M. Ataai	Eric J. Beckman
• Biocatalysis	William Federspiel	Robert S. Parker
• Biomaterials	John F. Patzer, II	Alan J. Russell
• Metabolic Engineering	Jerome S. Schultz	William R. Wagner
• Modeling & Control		
Catalysis		
• Surface Chemistry	Julie L. d'Itri	Dan Farcasiu
• Catalyst Deactivation	Vladimir Kovalchuk	John W. Tierney
• Chemical Promotion	Götz Veser	Irving Wender
• Novel Materials		
• Organometallic Chemistry		
Energy and Environment		
• Bioremediation	Shiao-Hung Chiang	James T. Cobb, Jr.
• Clean Fuels From Coal	Robert M. Enick	Gerald D. Holder
• Contaminated Soil Cleanup	Badie I. Morsi	
• Stack Gas Cleanup		
Materials Engineering		
• Biocompatible Polymers	Anna C. Balazs	Eric J. Beckman
• CO_2 as a Solvent	Robert M. Enick	George E. Klinzing
• Interfacial Behavior	J. Thomas Lindt	Joseph J. McCarthy
• Polymer/Composite Modeling	Sachin Velankar	
• Polymer Processing		
Multi-Scale Modeling		
• Molecular Modeling	Anna C. Balazs	J. Karl Johnson
• Polymer-Fluid Interactions	Joseph J. McCarthy	Robert S. Parker
• Process Modeling & Control		
• Particulate Systems Transport		

Degree Programs: PhD and MS in Chemical Engineering
MS in Petroleum Engineering

Information on Fellowships and Applications:

Graduate Coordinator
Chemical and Petroleum Engineering
1249 Benedum Hall
University of Pittsburgh
Pittsburgh, PA 15261

412-624-9630

che.pitt.edu

The University of Pittsburgh is an affirmative action, equal opportunity institution.

Princeton University

Ph.D. and M.Eng. Programs in Chemical Engineering

Faculty

Ilhan A. Aksay
Jay B. Benziger
Jeffrey D. Carbeck
Pablo G. Debenedetti (Chair)
Christodoulos A. Floudas
Yannis G. Kevrekidis
Morton D. Kostin
Athanassios Z. Panagiotopoulos
Robert K. Prud'homme
Richard A. Register
William B. Russel
Lynn M. Russell
Dudley A. Saville
George W. Scherer
Stanislav Y. Shvartsman
Sankaran Sundaresan
Salvatore Torquato
Sandra M. Troian
T. Kyle Vanderlick
James Wei
David W. Wood

- Applied and Computational Mathematics
  - *Computational Chemistry, Biology, and Materials*
  - *Systems Modeling and Optimization*
- Biotechnology
  - *Biomaterials*
  - *Metabolic Engineering*
  - *Protein and Enzyme Engineering*
  - *Mathematical Biology*
- Environmental Science and Engineering
  - *Aerosol Physics and Chemistry*
  - *Atmospheric Chemistry*
  - *Art and Infrastructure Conservation*
- Materials: Synthesis/Processing/Structure/Properties
  - *Adhesion and Interfacial Phenomena*
  - *Ceramics*
  - *Colloidal Dispersions*
  - *Complex Fluids*
  - *Nanoscience and Nanotechnology*
  - *Polymers*
- Process Engineering and Science
  - *Chemical Reactor Design, Stability, and Dynamics*
  - *Heterogeneous Catalysis*
  - *Process Control and Operations*
  - *Process Synthesis and Design*
- Thermodynamics and Statistical Mechanics
  - *Glasses*
  - *Kinetic and Nucleation Theory*
  - *Liquid State Theory*
  - *Molecular Simulation*
- Fluid Mechanics and Transport Phenomena
  - *Electrohydrodynamics*
  - *Granular and Multiphase Flow*
  - *Microfluidics and Biological Flows*
  - *Rheology*

Write to: Director of Graduate Studies
Chemical Engineering
Princeton University
Princeton, NJ 08544-5263

or call: 1-800-238-6169

or email: chegrad@princeton.edu

Please visit our website: http://www.princeton.edu/~chemical

CHEMICAL ENGINEERING

PURDUE UNIVERSITY

FACULTY

Ronald P Andres
Osman A. Basaran
Gary E. Blau
James M. Caruthers
David S. Corti
W. Nicholas Delgass
Roger E. Eckert
Elias I. Franses
Robert E. Hannemann
Michael T. Harris
Hugh W. Hillhouse
R. Neal Houze
Gil U. Lee
John A. Morgan
Joseph F. Pekny
Nicholas A. Peppas
Doraiswami Ramkrishna
Gintaras V. Reklaitis
Jennifer L. Sinclair
Kendall Thomson
George T. Tsao
Venkat Venkatasubramanian
Nien-Hua L. Wang
Phillip C. Wankat

RESEARCH AREAS

Biomedical Engineering
Engineering
Catalysis and Reaction Engineering
Fluid Mechanics and Transport Phenomena
Interfacial Engineering and Colloid Science
Molecular Modeling and Statistical Mechanics
Nanofabrication and Nanomaterials
Particle Technology
Polymer Materials
Process Systems Engineering
Separation Processes
Surface Science

Financial Assistance

Fellowships
Research Assistantships
Teaching Assistantships

Degrees Offered

Master of Science
Doctor of Philosophy

For More Information

Graduate Studies
Purdue University
1283 Chemical Engineering Bldg.
West Lafayette, Indiana 47907-1283

Phone: (765) 494-4057
www.che.purdue.edu

Chemical Engineering at

Rensselaer Polytechnic Institute

The Chemical Engineering Department at Rensselaer has long been recognized for its excellence in teaching and research. Its graduate programs lead to research-based M.S. and Ph.D. degrees and to a course-based M.E. degree. Programs are also offered in cooperation with the School of Management and Technology which lead to an M.E. in Chemical Engineering and to an MBA or the M.S. in Management. Owing to funding, consulting, and previous faculty experience, the department maintains close ties with industry. Department web site:
http://www.eng.rpi.edu/dept/chem-eng/

Located in Troy, New York, Rensselaer is a private school with an enrollment of some 6000 students. Situated on the Hudson River, just north of New York's capital city of Albany, it is a three-hour drive from New York City, Boston, and Montreal. The Adirondack Mountains of New York, the Green Mountains of Vermont, and the Berkshires of Massachusetts are readily accessible. Saratoga, with its battlefield, racetrack, and Performing Arts Center (New York City Ballet, Philadelphia Orchestra, and jazz festival) is nearby.

Application materials and information from:

Graduate Services
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
Telephone: 518-276-6789
e-mail: grad-admissions@rpi.edu
http://www.rpi.edu/dept/grad-services/

Faculty and Research Interests

Michael M. Abbott, abbotm2@rpi.edu
Thermodynamics; equations of state; phase equilibria

Elmar R. Altwicker, altwie@rpi.edu
Professor Emeritus
Spouted-bed combustion; incineration; trace-pollutant kinetics

Georges Belfort, belfog@rpi.edu
Membrane separations; adsorption; biocatalysis; MRI, interfacial phenomena

B. Wayne Bequette, bequeb@rpi.edu
Associate Department Chair
Process modeling, control, design, and optimization

Henry R. Bungay III, bungah@rpi.edu
Professor Emeritus
Wastewater treatment; biochemical engineering

Timothy S. Cale, calet@rpi.edu
Semiconductor materials processing; transport and reaction analyses

Steven M. Cramer, crames@rpi.edu
Displacement, membrane, and preparative chromatography; environmental research

Jonathan S. Dordick, dordick@rpi.edu
Department Chair
Biochemical engineering; biocatalysis, polymer science, bioseparations

Arthur Fontijn, fontia@rpi.edu
Combustion; high-temperature kinetics; gas-phase reactions

Shekhar Garde, gardes@rpi.edu
Macromolecular self-assembly, computer simulations, statistical thermodynamics of liquids, hydration phenomena

William N. Gill, gillw@rpi.edu
Microelectronics; reverse osmosis; crystal growth; ceramic composites

Ravi S. Kane, kaner@rpi.edu
Polymers; biosurfaces; biomaterials; nanomaterials

Sanat K. Kumar, kumar@rpi.edu
Polymer nanostructures, nanocomposites, dynamics of glasses and gels, thermodynamics of complex fluids

Howard Littman, littmh@rpi.edu
Professor Emeritus
Fluid/particle systems; fluidization, spouting, pneumatic transport

E. Bruce Nauman, nauman@rpi.edu
Polymer blends; nonlinear diffusion; devolatilization; polymer structure and properties; plastics recycling

Joel L. Plawsky, plawsky@rpi.edu
Electronic and photonic materials; interfacial phenomena; transport phenomena

Susan Sharfstein, sharfs@rpi.edu
Biochemical engineerig, mammalian cell culture, recombinant protein production

Hendrick C. Van Ness, vanneh@rpi.edu
Institute Professor Emeritus

Peter C. Wayner, Jr., wayner@rpi.edu
Heat transfer; interfacial phenomena; porous materials

RICE

Chemical Engineering at Rice University

FACULTY

- **William W. Akers**† *(Michigan, 1950)*
- **Constantine D. Armeniades** *(Case Western Reserve, 1969)*
- **Walter G. Chapman** *(Cornell, 1988)*
- **Sam H. Davis, Jr.**† *(MIT, 1957)*
- **Jacqueline L. Goveas** *(Princeton, 1996)*
- **J. David Hellums**† *(Michigan, 1961)*
- **Joe W. Hightower**† *(Johns Hopkins, 1963)*
- **George J. Hirasaki** *(Rice, 1967)*
- **Riki Kobayashi**† *(Michigan, 1951)*
- **Paul E. Laibinis** *(Harvard University, 1991)*
- **Nikolaos V. Mantzaris** *(Minnesota, 2000)*
- **Clarence A. Miller** *(Minnesota, 1966)*
- **Matteo Pasquali** *(Minnesota, 2000)*
- **Mark A. Robert** *(Swiss Fed. Inst. Tech., 1980)*
- **Michael S. Wong** *(MIT, 2000)*
- **Kyriacos Zygourakis** *(Minnesota, 1981)*

Joint with Bioengineering

- **Lary V. McIntire** *(Princeton, 1970)*
- **Antonios G. Mikos** *(Purdue, 1988)*
- **Ka-Yiu San** *(Caltech, 1984)*
- **Jennifer L. West** *(Texas, 1996)*

† *Emeritus Faculty*

THE UNIVERSITY

- Rice is a leading research university—small, private, and highly selective—distinguished by a collaborative, highly interdisciplinary culture
- Located only a few miles from downtown Houston, it occupies an architecturally distinctive, 300-acre campus shaded by nearly 4,000 trees.
- State-of-the-art facilities and laboratories, internationally renowned centers and institutes, and one of the country's largest endowments support an ideal learning and living environment.

THE DEPARTMENT

- Offers Ph.D., M.S., and M.Ch.E degrees.
- Currently has 50 graduate students (predominantly Ph.D.).
- Provides stipends and tuition waivers to full-time Ph.D. students.
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- Emphasizes interdisciplinary studies in collaboration with researchers from other Rice departments, NASA, the Texas Medical Center, and R&D centers of petrochemical companies.

FACULTY RESEARCH AREAS

- Biochemical Engineering
- Biomedical Engineering
- Complex Fluids
- Computational Engineering
- Control and Optimization
- Environmental Remediation
- Equilibrium Thermodynamic Properties
- Fluid Mechanics
- Interfacial Phenomena
- Kinetics and Catalysis
- Nanotechnology
- NMR Properties of Fluids
- Petroleum Engineering
- Polymer Science
- Reaction Engineering
- Rheology
- Statistical Mechanics
- Tissue Engineering
- Transport Phenomena

For more information and graduate program applications, write to:

Chair, Graduate Admissions Committee
Chemical Engineering Department, MS-362
Rice University
P.O,. Box 1892
Houston, TX 77251-1892

Or visit our website at:

http://www.rice.edu/ceng

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The Chemical Engineering Department at Rowan University is housed in Henry M. Rowan Hall, a new $28 million, 95,000 sq. ft. multidisciplinary teaching and research space. An emphasis on project management, process research and development, and industrially relevant research prepares students for successful careers in high-tech fields. A recent award of $6 million as seed money for the South Jersey Technology Center will provide further opportunities for student training in emerging technologies.

Located in southern New Jersey, the nearby orchards and farms are a daily reminder that this is the Garden State. Cultural and recreational opportunities are plentiful in the area. Philadelphia and the scenic Jersey Shore are only a short drive away, and major metropolitan areas are within easy reach.

Faculty

C. Stewart Slater, Chair • *Rutgers University*

Kevin Dahm • *Massachusetts Institute of Technology*

Stephanie Farrell • *New Jersey Institute of Technology*

Zenaida Gephardt • *University of Delaware*

Robert P. Hesketh • *University of Delaware*

Kathryn Hollar • *Cornell University*

James Newell • *Clemson University*

Mariano J. Savelski • *University of Oklahoma*

Research Areas

Membrane Separations • Reaction Engineering • Mammalian & Insect Cell Culture • Pharmaceutical and Food Processing Technology • Biochemical Engineering • Green Engineering • Controlled Release • Novel Separation Processes • High-Performance Polymer Processing • Process Design and Optimization • Particle Technology • Supercritical Fluids • Environmental Engineering

For Additional information

Dr. Mariano J. Savelski . Graduate Student Advisor . Department of Chemical Engineering
Rowan University . 201 Mullica Hill Road . Glassboro, NJ 08028
Phone: (856) 256-5310 * Fax: (856) 256-5242 * E-mail: savelski@rowan.edu * Web: http://engineering.eng.rowan.edu

THE STATE UNIVERSITY OF NEW JERSEY

RUTGERS

Graduate Program in

Chemical & Biochemical Engineering

Research Areas

Biotechnology • Reaction Engineering • Process Systems Engineering • Pharmaceutical Engineering • Polymers

Faculty

- **Helen M. Buettner,** Associate Professor, Ph.D., University of Pennsylvania, 1987 • *Applied neurobiology, cell motility, cell-substrate interactions, crystallization of pharmaceuticals*
- **Yee C. Chiew,** Professor; Ph.D., University of Pennsylvania, 1984 • *Statistical thermodynamics, microscopic structures of fluids and particle systems, interfacial phenomena*
- **Alkis Constantinides,** Professor; D.E.Sc., Columbia University, 1970 • *Biochemical engineering, optimization and control of fermentation processes, applied numerical analysis, artificial intelligence*
- **Peter Couchman,** Professor; Ph.D., University of Virginia, 1976 • *Thermodynamics, transition, and equation of state behavior of single and multicomponent systems, particularly polymers; surface phenomena*
- **Burton Z. Davidson,** Professor; Ph.D., P.E., Northwestern University, 1963 • *Systems simulation and optimization, environmental engineering, health and safety engineering management*
- **Panos G. Georgopoulos,** Associate Professor; Ph.D., California Institute of Technology, 1986 • *Atmospheric/environmental chemical engineering, turbulent transport, biochemodynamic modeling*
- **Benjamin J. Glasser,** Assistant Professor; Ph.D., Princeton, 1995 • *Multiphase flows and reactors; granular materials and particulate suspensions; nonlinear dynamics of transport processes*
- **Masanori Hara,** Professor; Ph.D., Kyoto University, 1981 • *Polymer physics; polymer chemistry, polymer blends and composites, ionic polymers*
- **Marianthi G. Ierapetritou,** Assistant Professor; Ph.D., Imperial College, 1995 • *Process systems engineering; process design, planning, and scheduling; uncertainty and environmental considerations; nonlinear and mixed integer optimization*
- **Johannes G. Khinast,** Assistant Professor; Ph.D., Graz, 1995 • *Reaction and environmental engineering, reactive flows, numerical analysis of large dynamical systems*
- **Michael T. Klein,** Dean and Board of Governors Professor of Engineering; Sc.D., MIT, 1981 • *Kinetics, catalysis and reaction engineering; automated kinetic modeling; hydrocarbon conversion; reactions in supercritical fluids*
- **Prabhas V. Moghe,** Associate Professor; Ph.D., University of Minnesota, 1993 • *Cell and tissue engineering; cell-biomaterial interactions; biomimetic materials*
- **Fernando Muzzio,** Professor; Ph.D., University of Massachusetts, 1991 • *Transport phenomena, mixing, chaotic flows, powder technology*
- **Henrik Pedersen,** Professor; Ph.D., Yale University, 1978 • *Biochemical engineering, immobilized enzymes, plant cell biotechnology, fiber-optic sensors*
- **Charles M. Roth,** Assistant Professor; Ph.D., University of Delaware, 1994 • *Nucleic acid biotechnology, molecular biophysics and bioengineering, bioseparations*
- **Jerry I. Scheinbeim,** Professor; Ph.D., University of Pittsburgh, 1975 • *Polymer electroprocessing, structure-electroactive properties relationships in polymeric materials, ferroelectric, piezoelectric, pyroelectric, dielectric and electrostrictive properties of polymers*
- **M. Silvina Tomassone,** Assistant Professor; Ph.D., Northeastern University, 1998 • *Molecular dynamics, interfacial analysis, phase transitions*
- **Shaw S. Wang**, Professor; Ph.D., Rutgers University, 1970 • *Kinetics and thermodynamics of food process engineering, and studies of biochemical and biological processes.*
- **Martin L. Yarmush,** Professor; Ph.D., Rockefeller University, 1979; M.D., Yale University, 1984 • *Applied immunology, artificial organs, bioseparations, protein engineering, biotechnology*

FELLOWSHIPS, TRAINEESHIPS, AND ASSISTANTSHIPS AVAILABLE

For further information contact:

Graduate Program in Chemical and Biochemical Engineering • Rutgers, The State University of New Jersey
School of Engineering • 98 Brett Road • Piscataway, NJ 08854-8058 • Phone (732) 445-4950 • Fax (732) 445-2421
Email: cbemail@sol.rutgers.edu • http://sol.rutgers.edu

Graduate Studies

in Chemical & Environmental Engineering at National University of Singapore

NUS National University of Singapore

www.chee.nus.edu.sg

PROCESS & SYSTEMS ENGINEERING
- AI Applications
- Process Dynamics & Control
- Process Design & Development
- Process Modeling & Simulation
- Process Operations & Safety
- Process Optimization

CHEMICAL ENGINEERING FUNDAMENTALS
- Biochemical & Biomedical Engineering
- Interfacial Phenomena
- Reaction Engineering
- Separation & Purification
- Thermodynamics
- Transport Processes

MATERIALS & DEVICES
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- Polymeric, Electronic & Bio Materials
- Sensors & Electrochemical Devices
- Surface Science & Engineering

ENVIRONMENTAL SCIENCE & TECHNOLOGY
- Air & Water Pollution Control
- Atmospheric & Aquatic Chemistry
- Bioremediation
- Environmental Assessment & Modeling
- Hazardous Waste Treatment

National University of Singapore is internationally acknowledged as one of the best universities in the Asia Pacific region, with a global outlook and focus on quality teaching, research and entrepreneurship. With more than 45 faculty members from diverse ethnic backgrounds and with excellent academic credentials from leading institutions around the world, the Department of Chemical and Environmental Engineering offers graduate programs that provide a stimulating and challenging learning experience. The Department has comprehensive top-notch research facilities for carrying out cutting edge research. Close ties with the industry and overseas institutions provide infusion of new ideas and maintain a creative and dynamic atmosphere in the Department.

GRADUATE PROGRAMS

Coursework-based
- Master of Science (Chemical Engineering) (with specialization option in biopharmaceutical engineering)
- Master of Science (Environmental Engineering)
- Master of Science (Safety, Health & Environmental Technology)
- NUS-UIUC Joint Master of Science (Chemical Engineering)

Research-based
- Master of Engineering
- Doctor of Philosophy
- NUS-UIUC Joint PhD Program

Contact Us At:

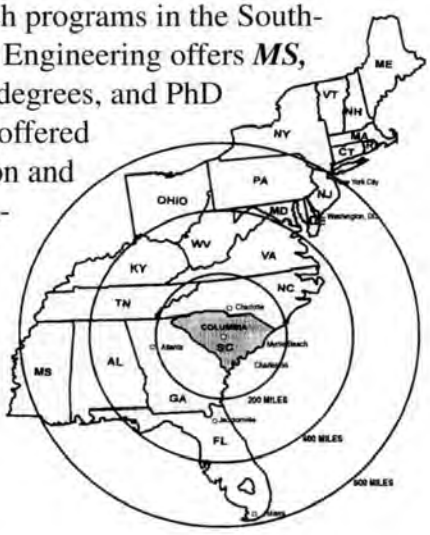
Department of Chemical & Environmental Engineering
National University of Singapore
10 Kent Ridge Crescent Singapore 117576
Tel: (65) 6874-8076 • Fax: (65) 6779-1936
E-mail: chegohsp@nus.edu.sg • http://www.chee.nus.edu.sg

Financial assistance is available for qualified applicants in the form of research scholarships.

Department of Chemical Engineering

UNIVERSITY OF SOUTH CAROLINA

The ***Department of Chemical Engineering*** at USC is booming! Research funding is at an all-time high—exceeding $4 million per year. This progressive department, with its dynamic young faculty, is already recognized as one of the top teaching and research programs in the Southeast. Chemical Engineering offers ***MS***, ***ME***, and ***PhD*** degrees, and PhD candidates are offered tuition reduction and highly competitive, twelve-month stipends, ranging from ***$20,100*** to ***$22,500*** per year.



For further information:

The Graduate Director, Department of Chemical Engineering,
Swearingen Engineering Center,
University of South Carolina, Columbia, SC 29208
Phone: 1-800-763-0527 • Fax: 1-803-777-8265
Web page: www.che.sc.edu

The University of South Carolina is located in Columbia, the state capital. Columbia is conveniently located in the center of the state and combines the benefits of a big city with the charm and hospitality of a small town. The area's sunny and mild climate, combined with its lakes and wooded parks, provide plenty of opportunities for year-round outdoor recreation. In addition, Columbia is only hours away from the Blue Ridge Mountains and the Atlantic Coast. Charlotte and Atlanta—cities that serve as Columbia's international gateways—are nearby.

Faculty

M.D. Amiridis, *Wisconsin*
J.W. Bender, *Delaware*
P.B. Balbuena, *Texas*
F.A. Gadala-Maria, *Stanford*
E.P. Gatzke, *Delaware*
J.H. Gibbons, *Pittsburgh*
M.A. Matthews, *Texas A&M*
T. Papathanasiou, *McGill*
H.J. Ploehn, *Princeton*
B.N. Popov, *Illinois*
J.A. Ritter, *SUNY Buffalo*
T.G. Stanford, *Michigan*
V. Van Brunt, *Tennessee*
J. W. Van Zee, *Texas A&M*
J.W. Weidner, *NC State*
R.E. White, *Cal-Berkeley*
C.T. Williams, *Purdue*

Research Programs

Adsorption Technology	***Pollution Prevention***
Batteries and Fuel Cells	***Process Control***
Colloids and Interfaces	***Rheology***
Composite Materials	***Separations***
Corrosion Engineering	***Sol-Gel Processing***
Crossflow Filtration	***Solvent Extraction***
Electrochemistry	***Surface Science***
Heterogeneous Catalysis	***Supercritical Fluids***
Molecular Simulations	***Thermodynamics***
Nanotechnology	***Waste Management***
Numerical Methods	***Waste Processing***

University at Buffalo
The State University of New York

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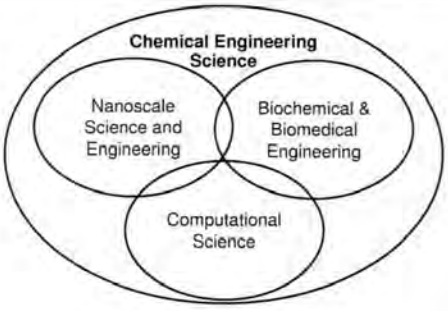

Faculty

Paschalis Alexandridis (MIT) • *amphiphilic polymers, self-assembly, complex fluids, nanomaterials, interfacial phenomena*
Stelios T. Andreadis (Michigan) • *bioengineering, gene therapy, tissue engineering of genetically modified skin*
Jeffrey R. Errington (Cornell) • *molecular simulation, statistical thermodynamics, biopreservation*
Vladimir Hlavacek (ICT -Prague) • *reaction engineering, nanopowders, explosives and detonations, analysis of chemical plants*
Mattheos Koffas (MIT) • *metabolic engineering, bioinformatics*
David A. Kofke (Pennsylvania) • *molecular modeling and simulation, solid phase equilibria*
Carl R. F. Lund (Wisconsin) • *heterogeneous catalysis, chemical kinetics, reaction engineering*
T. J. (Lakis) Mountziaris (Princeton) • *electronic and photonic materials, nanoparticles, biosensors, multiphase flows*
Sriram Neelamegham (Rice) • *biomedical engineering, cell biomechanics, vascular engineering*
Johannes M. Nitsche (MIT) • *fluid mechanics, transport phenomena, bioactive surfaces, biological pores, transdermal transport*
Eli Ruckenstein (Bucharest) • *catalysis, surface phenomena, colloids and emulsions, biocompatible surfaces and materials*
Michael E. Ryan (McGill) • *polymer and ceramics processing, rheology, non-Newtonian fluid mechanics*
Mark T. Swihart (Minnesota) • *chemical kinetics, modeling of reactive flows, computational chemistry, nanoparticle formation*
E. (Manolis) S. Tzanakakis (Minnesota) • *cell and tissue engineering, biochemical engineering*

Adjunct Faculty

V. James Hernandez (Microbiology) • *regulation of cellular responses*
William M. Mihalko (School of Medicine) • *orthopaedics*
Bruce Nicholson (Biological Sciences) • *gap junctions and connexins*
Athos Petrou (Physics) • *spectroscopy, semiconductor nanostructures*
Carel Jan van Oss (Microbiology) • *colloid and interface science*
Yaoqi Zhou (Biophysics) • *protein folding, simulation of biomolecules*

Emeritus Faculty in Residence

Robert J. Good (Michigan) • *adhesion and interface science, philosophy of science*
Thomas W. Weber (Cornell) • *process control*
Sol W. Weller (Chicago) • *catalysis, coal liquefaction, history of chemical engineering*

Chemical engineering faculty participate in many interdisciplinary centers and initiatives, including The Center for Advanced Molecular Biology and Immunology, The Center for Computational Research, The Center for Advanced Photonic and Electronic Materials, The Institute for Lasers, Photonics, and Biophotonics, The Institute for Bioinformatics, and The Center for Advanced Technology for Biomedical Devices

For more information and an application, write to: Director of Graduate Studies, Department of Chemical Engineering, University at Buffalo (SUNY), Buffalo, New York, 14260-4200, or go to **http://www.cheme.buffalo.edu**

All Ph.D. students are supported as research or teaching assistants. Additional fellowships sponsored by Praxair, Inc., The National Science Foundation IGERT program, and the State University of New York are available to exceptionally well-qualified applicants.

STEVENS
INSTITUTE OF TECHNOLOGY

- *Multidisciplinary environment, consisting of chemical and polymer engineering, chemistry, and biology*
- *Site of a major engineering research center; Highly Filled Materials Institute*
- *Scenic campus overlooking the Hudson River and metropolitan New York City*
- *Close to the world's center of science and culture*
- *At the hub of major highways, air, rail, and bus lines*
- *At the center of the country's largest concentration of research laboratories and chemical, petroleum, pharmaceutical, and biotechnology companies*

GRADUATE PROGRAMS IN CHEMICAL ENGINEERING

Full and part-time
Day and evening programs

- **MASTER'S**
- **CHEMICAL ENGINEER**
- **PH.D.**

Faculty

R. Besser (PhD, Stanford University)
R. Blanks (PhD, University of California at Berkeley)
G.B. DeLancey (PhD, University of Pittsburgh)
H. Du (PhD, Penn State University)
T.E. Fischer (ScD, Federal Inst. of Technology, Zurich)
B. Gallois (PhD, Carnegie-Mellon University)
D.M. Kalyon (PhD, McGill University)
S. Kovenklioglu (PhD, Stevens Institute of Technology)
A. Lawal (PhD, McGill University)
W.Y. Lee (PhD, Georgia Institute of Technology)
M. Libera (ScD, Massachusetts Inst. of Technology)
G. Rothberg (PhD, Columbia University)
K. Sheppard (PhD, University of Birmingham)

Research in

Micro-Chemical Systems
Polymer Rheology and Processing
Processing of Electronic and Photonic Materials
Processing of Highly Filled Materials
Chemical Reaction Engineering
Chemical Vapor Deposition
Biomaterials and Thin Films
Polymer Characterization and Morphology
High Temperature Gas-Solid and Solid-Solid Interactions
Environmental and Thermal Barrier Coatings
Tribochemistry and Tribology

For application, contact:
Office of Graduate Studies
Stevens Institute of Technology
Hoboken, NJ 07030
201-216-5234

For additional information, contact:
Chemical, Biochemical, and Materials Engineering Department
Stevens Institute of Technology
Hoboken, NJ 07030
201-216-5546

Financial Aid is Available to qualified students.

Stevens Institute of Technology does not discriminate against any person because of race, creed, color, national origin, sex, age, marital status, handicap, liability for service in the armed forces or status as a disabled or Vietnam era veteran.

Graduate Studies in Chemical Engineering
The University of Tennessee, Knoxville

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The Research

Graduate students and faculty working together to reach common goals – that partnership is at the heart of the University of Tennessee-Knoxville's Department of Chemical Engineering. It's a partnership that works, creating exciting and productive research in six major areas: (1) bio-process engineering, (2) molecular science and engineering, (3) separations and transport phenomena, (4) computer-aided process simulation and design, (5) polymer and composite processing, and (6) process control. These research programs reach out to other engineering and science departments, to the nearby Oak Ridge National Laboratory, and to industry, forming larger partnerships and creating an unsurpassed research environment.

The University

Founded in 1794 as Blount College, the first non-sectarian college west of the Appalachians, The University of Tennessee today is the state's largest university and Land-Grant institution with about 20,000 undergraduates, 5,700 graduate and professional students, and a faculty of 1,200. The University of Tennessee is located in Knoxville near the headwaters of the Tennessee River. Within an hour's drive are six Tennessee Valley Authority lakes and the Great Smoky Mountains National Park. The Knoxville metropolitan area has a population of 600,000 but enjoys a pleasant, generally uncrowded atmosphere and consistently ranks among the nation's top ten metropolitan areas in surveys on quality of life. East Tennessee has a four-season climate, ranging from warm summer temperatures to winter temperatures cold enough for snow skiing in nearby mountain resorts.

The Faculty

Paul R. Bienkowski (Ph.D., Purdue, 1975)
Bioprocessing, Thermodynamics

Duane D. Bruns (Ph.D., Houston, 1974)
Process Control, Modeling

John R. Collier (Ph.D., Case Institute, 1966)
Polymer Processing and Properties

Robert M. Counce (Ph.D., Tennessee, 1980)
Separations and Transport, Environmental

Peter T. Cummings (Ph.D., Melbourne, 1980)
Molecular Thermodynamics, Design, Environmental

Brian J. Edwards (Ph.D., Delaware, 1991)
Non-Newtonian Fluid Dynamics

Paul D. Frymier (Ph.D., Virginia, 1995)
Biochemical Engineering, Biosensors

David J. Keffer (Ph.D., Minnesota, 1996)
Molecular Modeling of Adsorption, Diffusion and Reaction in Zeolites

Charles F. Moore (Ph.D., Louisiana State, 1969)
Process Control

John W. Prados (Ph.D., Tennessee, 1957)
Safety and Risk Assessment

Tsewei Wang (Ph.D., M.I.T., 1977)
Process Control, Bioprocessing

Frederick E. Weber (Ph.D., Minnesota, 1982)
Computer-Aided Design, Radiation Chemistry

The Next Step

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Adjunct and Part-Time Faculty from Oak Ridge National Laboratory

Hank D. Cochran (Ph.D., M.I.T.): *Thermodynamics, Statistical Mechanics*
Brian H. Davison (Ph.D., Caltech): *Biochemical Engineering*
Jack S. Watson (Ph.D., Tennessee): *Separations and Transport, Nuclear Fusion*

The University of Texas at Austin

★

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Faculty and their research

David T. Allen, Ph.D., Caltech, 1983 • environmental modeling, reaction engineering
Angela M. Belcher, Ph.D., U. of C. Santa Barbara, 1997 • organic/inorganic, biomolecular & biological-electronic hybrid materials
Roger T. Bonnecaze, Ph.D., Caltech, 1991 • suspension rheology, transport phenomena, electrical impedance tomography
Thomas F. Edgar, Ph.D., Princeton U., 1971 • process modeling, control, optimization
John G. Ekerdt, Ph.D., U. of C. Berkeley • electronic materials chemistry, surface science
R. Bruce Eldridge, Ph.D., U. of Texas, 1986 • separations research
Benny Freeman, Ph.D., U. of C. Berkeley, 1988 • polymer structures, processing and properties
Venkat Ganesan, Ph.D., MIT, 1999 • statistical mechanics, simulations of self-assembly in complex fluids
George Georgiou, Ph.D., Cornell U., 1987 • microbial, protein biotechnology
Peter F. Green, Ph.D., Cornell U., 1985 • materials science, polymer melts
Adam Heller, Ph.D., Hebrew U., 1961 • electrochemical biosensing, environmental photoelectrochemistry
Gyeong S. Hwang, Ph.D., Caltech, 1999 • multiscale modeling & simulation, semiconductors, nanotechnology
Keith P. Johnston, Ph.D., U. of Illinois, 1981 • polymer and surface thermodynamics, supercritical fluids
Miguel José-Yacaman, Ph.D., National University of Mexico, 1973 • materials science, electron microscopy, nanoparticles
Brian A. Korgel, Ph.D., U. of C. Los Angeles, 1997 • complex fluids, nanostructured materials
Douglas R. Lloyd, Ph.D., U. of Waterloo, 1977 • polymeric membrane formation, liquid separations
Yueh-Lin Loo, Ph.D., Princeton U., 2001 • polymer physics & chemistry, micro- & nanostructured materials
C. Buddie Mullins, Ph.D., Caltech, 1990 • surface science, molecular beams, semiconductor thin-film growth
S. Joseph Qin, Ph.D., U. of Maryland, 1992 • process modeling and control
Gary T. Rochelle, Ph.D., U. of C. Berkeley, 1977 • air pollution control, reactive mass transfer
Peter J. Rossky, Ph.D., Harvard U., 1978 • theoretical chemistry, liquids, condensed phase quantum dynamics
Isaac C. Sanchez, Ph.D., U. of Delaware, 1969 • statistical thermodynamics of polymer liquids and solutions
Christine E. Schmidt, Ph.D., University of Illinois, 1995 • cell and tissue engineering
Makul M. Sharma, Ph.D., U. of Southern California, 1985 • surface and colloid chemistry
Thomas M. Truskett, Ph.D., Princeton U., 2001 • statistical mechanics, molecular modeling
J. Michael White, Ph.D., U. of Illinois, 1966 • chemical reactions on surfaces
C. Grant Willson, Ph.D., U. of C. Berkeley, 1973 • polymer synthesis, photochemical processing

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Faculty

R.G. Anthony, Head • Ph.D., University of Texas, 1966
C.D. Holland Professor
Catalysis, reaction engineering ion exchange

A. Akgerman • Ph.D., U. of Virginia, 1971
Chevron II Professor
Reaction engineering, waste treatment

J.T. Baldwin, Ph.D. • Texas A&M University, 1968
Process design

M.A. Bevan, Ph.D. • Carnegie Mellon University, 1999
Colloidal Science

D.B. Bukur, Associate Head • Ph.D., U. of Minnesota, 1974
Reaction engineering, math methods

J.A. Bullin, Ph.D. • U. of Houston, 1972, Professor Emeritus
Gas sweetening, asphalt characterizations

R. Darby, Ph.D. • Rice University, 1972, Professor Emeritus
Rheology, polymers

R.R. Davison, Ph.D. • Texas A&M U., 1962, Professor Emeritus
Asphalt characterization

L.D. Durbin, Ph.D. • Rice University, 1961, Professor Emeritus
Process control

M. El-Halwagi, Ph.D. • University of California, 1990
McFerrin Professor
Process integration

P.T. Eubank, Ph.D. • Northwestern University, 1961
Joe M. Nesbitt Professor
Thermodynamics

D.M. Ford, Ph.D. • University of Pennsylvania, 1996
Molecular modeling/transport

G. Froment, Ph.D. • University of Gent, Belgium, 1957
Reaction engineering

C.J. Glover, Ph.D. • Rice University, 1974
Director, Center for Asphalt & Materials Chemistry
Polymer solutions, asphalt characterization

K.R. Hall, Ph.D. • University of Oklahoma, 1967
Jack E. and Frances Brown Chair
Thermodynamics

D.T. Hanson, Ph.D. • University of Minnesota, 1968
Biochemical engineering

C.D. Holland, Ph.D. • Texas A&M Univ., 1953, Professor Emeritus
Separation processes, distillation, unsteady-state processes

J.C. Holste, Ph.D. • Iowa State University, 1973
Thermodynamics

M.T. Holtzapple, Ph.D. • University of Pennsylvania, 1981
Biochemical engineering

Y. Kuo, Ph.D., Dow Professor • Columbia University, 1979
Microelectronics

S. Mannan, Ph.D. • University of Oklahoma, 1986
Director, Mary Kay O'Connor Process Safety Center

E. Sevick-Muraca, Ph.D. • Carnegie Mellon University, 1989
Biomedical/Biochemical

D.F. Shantz, Ph.D. • University of Delaware, 2000
Structure-property relationships of porous materials, synthesis of new porous solids

V. Ugaz, Ph.D. • Northwestern University, 1999
Microfabricated Bioseparation Systems

THE UNIVERSITY OF TOLEDO

Chemical & Environmental Engineering

Faculty

Martin A. Abraham, Professor
Ph.D., University of Delaware
Green Chemistry and Engineering, Supercritical Fluids

Maria R. Coleman, Associate Professor
Ph.D., University of Texas at Austin
Membrane Separations, Bioseparations

Kenneth J. DeWitt, Distinguished Professor
Ph.D., Northwestern University
Transport Phenomena, Mathematical Modeling & Numerical Methods

John P. Dismukes, Professor
Ph.D., University of Illinois
Materials Processing, Management of Technological Innovation

Isabel C. Escobar, Assistant Professor
Ph.D., University of Central Florida
Membrane Fouling and Membrane Modifications

Saleh Jabarin, Professor
Ph.D., University of Massachusetts
Physical Properties of Polymers, Polymer Orientation & Crystallization

Dong-Shik Kim, Assistant Professor
Ph.D., University of Michigan
Biomaterials, Metabolic Pathway Control

Steven E. LeBlanc, Professor and Chair
Ph.D., University of Michigan
Chemical Process Control, Chemical Engineering Education

G. Glenn Lipscomb, Professor
Ph.D., University of California at Berkeley
Membrane Separations, Bioseparations, Education

Arunan Nadarajah, Professor
Ph.D., University of Florida
Transport in Biological Systems, Nanotechnology

Bruce E. Poling, Professor
Ph.D., University of Illinois
Thermodynamics and Physical Properties

Constance A. Schall, Associate Professor
Ph.D., Rutgers University
Enzyme Kinetics, Crystallization, Paraffin Deposition

Sasidhar Varanasi, Professor
Ph.D., State University of New York at Buffalo
Colloidal & Interfacial Phenomena, Hydrogels

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FULL-TIME PROFESSORS

Assoc. Prof. Eliana DeBernardez Clark, Ph.D. (U.N.L. Argentina) (on leave)
Biochemical engineering, protein folding, protein aggregation

Prof. Gregory D. Botsaris, Ph.D. (M.I.T.)
Crystallization, nucleation, applied surface science

Prof. Maria Flytzani-Stephanopoulos, Ph.D. (Univ. of Minnesota)
Environmental catalysis, pollution prevention, clean energy, and transportation technologies

Prof. David L. Kaplan, Ph.D. (Syracuse University)
Bioengineered polymers related to self-assembly, biomaterials and tissue engineering

Asst. Prof. Kyongbum Lee, Ph.D. (M.I.T.)
Biotechnology, metabolic engineering, bioinformatics

Assoc. Prof. Jerry H. Meldon, Ph.D. (M.I.T.)
Membrane science and technology, mass transfer with chemical reaction including mathematical modeling

Assoc. Prof. Daniel F. Ryder, Ph.D. (Worcester Polytechnic Institute)
Advanced process control applications

Prof. Nak-Ho Sung, Ph.D. (M.I.T.)
Polymers and composites, interface science, polymer diffusion, surface modification

Prof. Kenneth A. Van Wormer, Sc.D. (M.I.T.)
Optimization, nucleation, reaction kinetics, VLSI fabrication

RESEARCH PROFESSORS

Asst. Prof. Aurelie Edwards, Ph.D. (M.I.T.)
Transport across biological membranes, role of microcirculation in the renal medulla

Asst. Prof. Regina Valuzzi, Ph.D. (Univ. of Massachusetts, Amherst)
Ordering of highly structured patterned polymers into complex nanostructured materials

Assoc. Prof. Vladimir Volloch, Ph.D. (Moscow University)
Cellular and molecular biology

ADJUNCT PROFESSORS

Asst. Prof. Dale Gyure, Ph.D. (University of Colorado)

Prof. Walter Juda, Ph.D. (University of Lyons)
Electrochemistry and chemical reaction engineering

Asst. Prof. Brian Kelley, Ph.D. (M.I.T.)
Novel methods for protein purification, large-scale purifications, high-density bacterial fermentation

Prof. Gordana Vunjak-Novakovic, Ph.D. (University of Belgrade)
Transport phenomena, tissue engineering, bioreactors

Asst. Prof. Stefan Winkler, Ph.D. (Tufts University)
Protein assembly

Tulane University

Department of Chemical Engineering

Faculty and Research Areas

Daniel C.R. DeKee • *Rheology of Natural and Synthetic Polymers • Constitutive Equations • Transport Phenomena and Applied Mathematics*

Richard D. Gonzalez • *Synthesis and Characterization of Supported Metal Catalysts • Fundamental Studies in Reactor Design • In-situ Spectroscopic Methods • Reactions in Organized Media*

Vijay T. John • *Biomimetic and Nanostructured Materials • Interfacial Phenomena • Polymer-Ceramic Composites • Surfactant Science*

Daniel J. Lacks • *Molecular Simulation • Thermodynamics of Condensed Phases • Dynamical Processes in Solids • Physical Properties of Polymer Materials • Density Functional Theory*

Victor J. Law • *Modeling Environmental Systems • Nonlinear Optimization and Regression • Transport Phenomena • Numerical Methods*

Yunfeng Lu • *Nanostructured and Microelectronic Materials, Sol-Gel Processes and Organic/Inorganic Hybrid Materials, Membrane Separations and Catalysts, Chemical Sensors and Biosensors*

Brian S. Mitchell • *Fiber Technology • Materials Processing • Composites*

Kim C. O'Connor • *Animal-Cell Technology • Organ/Tissue Regeneration • Recombinant Protein Expression*

Kyriakos D. Papadopoulos • *Colloid Stability • Coagulation • Transport of Multi-Phase Systems Through Porous Media • Colloidal Interactions*

For Additional Information, Please Contact

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Tulane is located in a quiet, residential area of New Orleans, approximately six miles from the world-famous French Quarter. The chemical engineering department currently enrolls approximately 40 full-time graduate students. Graduate fellowships include a tuition waiver plus stipend.

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Chemical Engineering at TU

TU enjoys a solid international reputation for expertise in the petroleum industry, and offers environmental and biochemical programs. The department places particular emphasis on experimental research, and is proud of its strong contact with industry.

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- Master of Science degree (thesis program)
- Master of Engineering degree (a professional degree that can be completed in 18 months without a thesis)
- Special Master's degree for nonchemical engineering undergraduates

Financial aid is available, including fellowships and research assistantships.

The Faculty

L.P. Ford • Kinetics of dry etching of metals, surface science
K.D. Luks • Thermodynamics, phase equilibria
F.S. Manning • Industrial pollution control, surface processing of petroleum
C.L. Patton • Thermodynamics, applied mathematics
G.L. Price • Zeolites, heterogeneous catalysis
C.M. Sheppard • Refining reaction processes, process design, process hazard reduction
K.L. Sublette • Bioremediation, biological waste treatment, ecological risk assessment
K.D. Wisecarver • Multiphase reactors, multiphase flows

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For more information:

Director of Graduate Studies
Department of Chemical Engineering
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Nashville, TN 37235-1604

R. Robert Balcarcel *(Ph.D., Massachusetts Institute of Technology)*
Biotechnology and bioengineering; mammalian cell cultures; cell life cycles; pharmaceutical production.

Robert J. Bayuzick *(Ph.D., Vanderbilt University)*
Solidification, nucleation; evolution of microstructure; microgravity science; physical metallurgy; containerless processing; oxide superconductor processing.

Frank M. Bowman *(Ph.D., California Institute of Technology)*
Air pollution; atmospheric chemistry mechanisms; gas-aerosol transport; modeling complex chemical reaction systems.

Peter T. Cummings *(Ph.D., University of Melbourne)*
Computational nanoscience and nanoengineering; molecular modeling of fluid and amorphous systems; parallel computing; computer-aided process design and optimization; bacterial migration in *in situ* bioremediation.

Kenneth A. Debelak *(Ph.D., University of Kentucky)*
Development of plant-wide control algorithms; intelligent process control; activity modeling; effect of changing particle structures in gas-solid reactions; environmentally benign chemical processes; mixing in bioreactors.

Tomlinson Fort *(Emeritus, Ph.D., University of Tennessee)*
Capillarity; insoluble monolayers/L-B films; adsorption; contact angles and wetting; polymer interfaces; spreading on liquid surfaces; fine particles; flow in porous media.

G. Kane Jennings *(Ph.D., Massachusetts Institute of Technology)*
Surface modification; experimental molecular engineering; corrosion inhibition; microelectronics processing.

M. Douglas LeVan *(Ph.D., University of California, Berkeley)*
Fixed-bed adsorption; adsorption equilibria; adsorption processes (pressure-swing adsorption, temperature-swing adsorption, adsorptive refrigeration): process design.

Bridget R. Rogers *(Ph.D., Arizona State University)*
Nucleation and microstructure evolution of thin films; fundamentals of thin film processing for microelectronic applications (mass transport, kinetics, and effects of substrate topography on CVD, sputter deposition and etch processes).

John A. Roth *(Ph.D., University of Louisville)*
Chemical reactor design; industrial waste water treatment; sorption processes; chemical oxidation for waste treatment; hazardous waste management; electrochemistry.

Karl B. Schnelle, Jr. *(Ph.D., Carnegie Mellon University)*
Turbulent transport in the environment, control of toxic emissions and SO_2 and NO_x from coal fired boilers, solution thermodynamics, applications of process simulation to microcomputers, supercritical extraction applied to soil remediation.

Robert D. Tanner *(Ph.D., Case Western Reserve University)*
In situ bubble fractionation of excreted proteins from growing baker's yeast; selective protein recovery from a semi-solid air fluidized bed fermentation process; bubble and foam fractionation of proteins.

University of Virginia

Graduate Studies in Chemical Engineering

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The educational philosophy of the department reflects a commitment to continuing the Jeffersonian ideal of students and faculty as equal partners in the pursuit of knowledge.

Giorgio Carta, *PhD, University of Delaware*
Adsorption, ion exchange, biocatalysis, environmentally benign processing

Robert J. Davis, *PhD, Stanford University*
Heterogeneous catalysis, characterization of metal clusters, reaction kinetics

Erik J. Fernandez, *PhD, University of California, Berkeley*
Purification of biological molecules, protein structure, magnetic resonance imaging and spectroscopy

Roseanne M. Ford, *PhD, University of Pennsylvania*
Environmental remediation, microbial transport in porous media

John L. Gainer, *PhD, University of Delaware*
Biochemical engineering, biomedical applications, environmentally benign solvents

Andrew C. Hillier, *PhD, University of Minnesota*
Interfacial engineering, electrochemistry, scanning probe microscopy

John L. Hudson, *PhD, Northwestern University*
Reaction system dynamics, chaos and pattern formation, electrochemistry

Donald J. Kirwan, *PhD, University of Delaware*
Mass transfer and separations, crystallization, biochemical engineering

Matthew Neurock, *PhD, University of Delaware*
Molecular modeling, computational heterogeneous catalysis, kinetics of complex reaction systems

James P. Oberhauser, *PhD, Univ. of California, Santa Barbara*
Polymer solution flow and microstructure

John P. O'Connell, *PhD, University of California, Berkeley*
Molecular theory and simulation with applications to physical and biological systems

Chemical Engineering at **Virginia Tech**

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Center for Composite Materials and Structures
Center for Adhesives and Sealant Science
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Center for Self-Assembled Nanostructures and Devices
Biotechnology and Tissue Engineering
Surface Chemistry and Catalysis
Colloid and Surface Science
Computer-aided Design
Nanotechnology and Biomedical Devices
Supercritical Fluids and High Pressure Processing

Faculty . . .

Donald G. Baird (Wisconsin)
Polymer processing, non-Newtonian fluid mechanics

David F. Cox (Florida)
Catalysis, ultrahigh vacuum surface science

Richey M. Davis (Princeton)
Colloids and polymer chemistry, nanostructured materials

Kimberly E. Forsten-Williams (Illinois)
Computational bioengineering and cell and tissue engineering

Aaron S. Goldstein (Carnegie Mellon)
Tissue engineering, interfacial phenomena in bioengineering

Erdogan Kiran [*Department Head*] (Princeton)
Supercritical fluids, polymer science, high pressure techniques

Y. A. Liu (Princeton)
Pollution prevention and computer-aided design

Eva Marand (Massachusetts)
Transport through polymer membranes, advanced materials for separations

S. Ted Oyama (Stanford)
Heterogeneous catalysis and new materials

Len Peters [*Vice Provost for Research*] (Pittsburgh)
Atmospheric transport

Peter R. Rony (U.C. Berkeley)
Chemical microengineering

Ravi Saraf (Massachusetts)
Nanotechnology and biomedical devices, polymers

Joseph T. Sullivan (Minnesota)
Marketing and chemical distribution

Kevin E. Van Cott (Virginia Tech)
Biotechnology, nanotechnology

William H. Velander (Penn State)
Transgenic livestock bioreactors, biosensors

Garth L. Wilkes (Massachusetts)
Structure-property processing behavior of polymeric materials

Virginia Tech

For further information write or call the director of graduate studies or visit our web page

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E-mail: grad.admissions@cheme.washington.edu
Web Page: http://depts.washington.edu/chemeng/

Chemical Engineering Faculty • Research Areas

Materials and Interfacial Phenomena

Stuart Adler, Ph.D., California (Berkeley) • Electrochemical Engineering; Solid-State Electrochemistry
G. Graham Allan (Joint), Ph.D., D.Sc., Glasgow • Fiber and Polymer Science
John C. Berg, Ph.D., California (Berkeley) • Interfacial Phenomena; Surface and Colloid Science
Samson A. Jenekhe, Ph.D., Minnesota • Polymer Science & Engineering; Optoelectronic/Photonic Materials
Shaoyi Jiang, Ph.D., Cornell • Interfacial Phenomena and Nanotechnology
René M. Overney, Ph.D., Basel, Switzerland • Nanoscale Surface Science and Polymer Physics
Daniel T. Schwartz, Ph.D., California (Davis) • Electrochemical Engineering; Electrolytic Thin-Film Science
James C. Seferis, Ph.D., Delaware • Polymeric Composites; Manufacturing and Teaming
Eric M. Stuve, Ph.D., Stanford • Electrochemical Surface Science; Fuel Cell Electrocatalysis

Biochemical Engineering and Bioengineering

François Baneyx, Ph.D., Texas (Austin) • Biotechnology; Protein Technology; Biochemical Engineering
David G. Castner, Ph.D., California (Berkeley) • Biomaterial and Biomolecule Surface Analysis, Self-Assembled Monolayers
Thomas A. Horbett (Joint), Ph.D., Washington • Biomaterials; Peptide Drug Delivery
Mary E. Lidstrom, Ph.D., Wisconsin • Environmental Biotechnology; Molecular Bioengineering
Buddy D. Ratner (Joint), Ph.D., Brooklyn Polytechnic • Biomaterials; Polymers; Surface Characterization

Information and Process Technology

Bruce A. Finlayson, Ph.D., Minnesota • Mathematical Modeling
Bradley R. Holt, Ph.D., Wisconsin • Process Design and Control
N. Lawrence Ricker, Ph.D., California (Berkeley) • Process Control and Optimization

Environmental Technology

E. James Davis, Ph.D., Washington • Colloid Science; Aerosol Chemistry and Physics; Electrokinetics
Barbara Krieger-Brockett, Ph.D., Wayne State • Reaction Engineering

Graduate Programs in Chemical Engineering

Washington State University

Master's and doctoral programs in WSU's Department of Chemical Engineering are closely aligned with industry and government interests that often lead to professional opportunities. Our emphases in bioengineering, environmental restoration, and hydrocarbon processing involve you in such projects as biotreatment of hazardous contamination, diagnostic medical devices, and converting natural gas to useful products. Our Center for Multiphase Environmental Research provides interdisciplinary opportunities to solve complex problems at the interface of air, water, and earth.

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Faculty

Cornelius Ivory, Ph.D. Princeton, bioprocessing, separations, modeling

James Lee, Ph.D. Kentucky, bioprocessing, mixing

KNona Liddell, Ph.D. Iowa State, hazardous wastes, materials, electrochemistry, kinetics, chemical equilibria

Reid Miller, Ph.D. University of California, Berkeley, thermodynamics

R. Mahalingam, Ph.D. Newcastle-Upon-Tyne, England, hazardous wastes, materials, transport phenomena

James Petersen, Ph.D. Iowa State, bioremediation, bioprocessing, subsurface reactive flow and transport, optimization

Brent Peyton, Ph.D. Montana State, bioavailability, extremophilic bioprocessing, heavy metal flux in biofilms and porous materials

William Thomson, Ph.D. Idaho, materials, kinetics, catalysis

Bernie Van Wie, Ph.D. Oklahoma, bioprocessing, biomedical engineering

Richard Zollars, Ph.D. Colorado, colloidal and interfacial phenomena, separations

Facilities

Facilities include the new Engineering Teaching and Research Laboratory in Pullman, a state-of-the-art building that houses the O.H. Reaugh Advanced Processing Lab. Other venues are the Spokane Intercollegiate Research and Technology Institute, and WSU Tri-Cities access to Hanford resources, such as the Environmental Molecular Science Lab and the Hanford Library.

Financial Assistance

All full-time ChemE graduate students at WSU receive financial support to help cover costs of education, living, and insurance.

Student Life

Pullman's residential campus offers single and family housing for graduate students. Families with children have access to highly rated K-12 schools.

Outdoor and recreational activities abound in the nearby mountains, rivers, and forests. Students may belong to the Graduate and Professional Student Association and numerous other student societies.

About WSU

Washington State University is a land-grant research university founded in Pullman in 1890. It enrolls more than 20,000 students at four campuses, and numerous Learning Centers throughout the state. As many as 100 advanced degrees are offered from 70 graduate programs within its eight colleges.

Contacts

Department of Chemical Engineering

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Bernie Van Wie, Graduate Studies Coordinator, 509-335-4103

Department email address: chedept@che.wsu.edu

Departmental Website: www.che.wsu.edu

WSU Graduate School

Phone: 509-335-1446

Email: gradsch@wsu.edu

Website: www.gradsch@wsu.edu

Prof. Reid Miller and students hold a seminar typical of the small teacher-student ratio in WSU's ChemE Department.

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Graduate Admissions Committee
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Department of Chemical Engineering
Campus Box 1198
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Sandro R.P. da Rocha, Ph.D., UT Austin, 2000
Nanostructured materials from self-assembled amphiphiles in conventional and compressible media ◆ Drug delivery and sensing devices ◆ Molecular modeling and computer simulations

Esin Gulari, Ph.D., Caltech, 1973
Thermodynamics and transport properties of polymer solutions and melts ◆ Processing of polymers with supercritical fluids ◆ Light scattering based particle and drop sizing techniques

Yinlun Huang, Ph.D., Kansas State, 1992
Pollution prevention and waste minimization ◆ Process design and synthesis

Rangaramanujam Kannan, Ph.D., Caltech, 1994 — Dynamics of polymeric systems and interfaces ◆ Rheo-optical spectroscopy and scattering techniques

Ralph Kummler, Ph.D., John Hopkins, 1966 — Modeling of combined sewer overflows and sediments ◆ Chemical kinetics ◆ Computer simulation

Joseph F. Louvar, Ph.D., Wayne State, 1983 — Process design and safety ◆ Risk analysis

Charles Manke, Ph.D., California, Berkeley, 1983 — Polymer processing and rheology ◆ Molecular dynamics and kinetic theory of polymeric liquids

Guang-Zhao Mao, Ph.D., Minnesota, 1994 — Optoelectronic properties of thin films and crystals ◆ Self-assembly of polymers and surfactants ◆ Colloidal stability of waterborne paints ◆ Real time imaging of surface phenomena at the molecular level

Howard Matthew, Ph.D., Wayne State, 1992 — Tissue engineering and biomaterials ◆ Artificial organ substitutes

Simon Ng, Ph.D., Michigan, 1985 — Heterogeneous catalysis ◆ Spectroscopic and thermal analysis of material surfaces

Jeffrey Potoff, Ph.D., Cornell, 1999 — Molecular simulation ◆ Phase behavior ◆ Complex systems

Susil Putatunda, Ph.D., IIT Bombay, 1983 — Effects of microstructure on fatigue ◆ Fracture toughness ◆ Creep in metals and alloys

Erhard Rothe, Ph.D., Michigan, 1959 — Applications of high-powered UV lasers ◆ Machining of electronic chips ◆ Diagnostics of internal combustion

Steven Salley, Ph.D., Detroit, 1976 — Biochemical/medical engineering ◆ Design of artificial organs ◆ Immobilized enzyme reactors

Gina Shreve, Ph.D., Michigan, 1991 — Environmental and biochemical applications ◆ Microbially mediated biotransformations

Paul VanTassel, Ph.D., Minnesota, 1993 — Shape selective catalysis ◆ Protein adsorption and bioseparations

Contact:

Prof. Huang, Graduate Advisor, Chemical Engineering • yhuang@che.eng.wayne.edu
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Thomas H. Fletcher *(BYU)* • pyrolysis and combustion
Hugh B. Hales *(MIT)* • reservoir simulation
John H. Harb *(Illinois)* • coal combustion, electrochemical engineering
William C. Hecker *(UC Berkeley)* • kinetics and catalysis
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William G. Pitt *(Wisconsin)* • materials science
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For Further Information and Application write:
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University of Oklahoma
Oklahoma State University
Oregon State University
University of Ottawa
University of Pennsylvania
Pennsylvania State University
Polytechnic Institute of New York
Prairie View A&M University
Princeton University
Purdue University
Queen's University
Rensselaer Polytechnic Institute
University of Rhode Island
Rice University
University of Rochester
Rose-Hulman Institute of Technology
Rowan University
Rutgers, The State University
Ryerson Polytechnic University
San Jose State University
University of Saskatchewan
University of Sherbrooke
University of South Alabama
University of South Carolina
South Dakota School of Mines
University of Southern California
State University of New York, Buffalo
Stevens Institute of Technology
University of Sydney
Syracuse University
University of Tennessee
Tennessee Technological University
University of Texas
Texas A & M University, College Station
University of Toledo
Tufts University
Tulane University
University of Tulsa
Tuskegee University
University of Utah
Vanderbilt University
Villanova University
University of Virginia
Virginia Polytechnic Institute
University of Wales, Swansea
University of Washington
Washington State University
Washington University
University of Waterloo
Wayne State University
West Virginia Institute of Technology
West Virginia University
Widener University
University of Wisconsin
Worcester Polytechnic Institute
University of Wyoming
Yale University
Youngstown State University