INDEX ■ Graduate Education Advertisements

Graduate Education in Chemical Engineering

Teaching and research assistantships as well as industrially sponsored fellowships available

◆

In addition to stipends, tuition and fees are waived.

◆

PhD students may get some incentive scholarships.

◆

The deadline for assistantship applications is April 15th.

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Biochemical Engineering, Environmental Bioengineering

H. M. CHEUNG
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S. T. LOPINA
BioMaterial Engineering and Polymer Engineering

S. S. C. CHUANG
Catalysis, Reaction Engineering, Environmentally Benign Synthesis, Fuel Cell

B.Z. NEWBY
Surface Modification, Polymer Thin film

J. R. ELLIOTT
Molecular Simulation, Phase Behavior, Physical Properties, Process Modeling

H. C. QAMMAR
Nonlinear Control, Chaotic Processes Product Development

E. A. EVANS
Materials Processing and CVD Modeling Plasma Enhanced Deposition and Crystal Growth Modeling

P. WANG
Biocatalysis and Biomaterials

For Additional Information, Write

Chairman, Graduate Committee
Department of Chemical Engineering • The University of Akron • Akron, OH 44325-3906
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Faculty:

G. C. April, Ph.D. (Louisiana State)
D. W. Arnold, Ph.D. (Purdue)
C. S. Brazel, Ph.D. (Purdue)
E. S. Carlson, Ph.D. (Wyoming)
P. E. Clark, Ph.D. (Oklahoma State)
W. C. Clements, Jr., Ph.D. (Vanderbilt)
A. Gupta, Ph.D. (Stanford)
D. T. Johnson, Ph.D. (Florida)
T. M. Klein, Ph.D. (NC State)
A. M. Lane, Ph.D. (Massachusetts)
M. D. McKinley, Ph.D. (Florida)
S. M. C. Ritchie, Ph.D. (Kentucky)
C. H. Turner, Ph.D. (NC State)
J. M. Wiest, Ph.D. (Wisconsin)
M. L. Weaver, Ph.D. (Florida)

For Information Contact:

Director of Graduate Studies
Department of Chemical Engineering
The University of Alabama
Box 870203
Tuscaloosa, AL 35487-0203
Phone: (205) 348-6450

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Graduate Program

The Department of Chemical and Materials Engineering at the University of Alabama in Huntsville offers you the opportunity for a solid and rewarding graduate career that will lead to further success at the forefront of academia and industry.

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We are also dedicated to innovation in teaching. Our classes incorporate advances in computational methods and multi-media presentations.

FACULTY & RESEARCH AREAS

Michael R. Banish- Ph.D. (University of Utah)
Thermo physical property measurements
(256) 824-6969, banish@emil.uah.edu

Ramón L. Cero - Ph.D. (UC-Davis)
Professor and Chair
Capillary hydrodynamics, multiphase flows, enhanced heat transfer surfaces.
(256) 824-7313, rlc@che.uah.edu

Chien P. Chen - Ph.D. (Michigan State)
Professor
Multiphase flows, spray combustion, turbulence modeling, numerical methods in fluids and heat transfer.
(256) 824-6194, cchen@che.uah.edu

Krishnan K. Chittur - Ph.D. (Rice)
Professor
Protein adsorption to biomaterials, FTR/ATR at solid-liquid interfaces, biosensing.
(256) 824-6850, kchittur@che.uah.edu

James E. Smith Jr. - Ph.D. (South Carolina)
Professor
Kinetics and catalysis, powdered materials processing, combustion diagnostics and fluids visualization using optical methods.
(256) 824-6439, jesmith@che.uah.edu

Katherine Taconi - Ph.D. (Mississippi State)
Assistant Professor
Methanogenic generation of biogas from synthesis gas fermentation on waste waters
(256) 824-6874, taconik@email.uah.edu

Jeffrey J. Weimer - Ph.D. (MIT)
Associate Professor, *Joint Appointment in Chemistry*
Adhesion, biomaterials surface properties, thin film growth, surface spectroscopies, scanning prode microscopies.
(256) 824-6954, jjweimer@matsci.uah.edu

Department of Chemical Engineering

The University of Alabama in Huntsville
130 Engineering Building
Huntsville, AL 35899

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For further information, contact

Graduate Program Officer
Department of Chemical and Materials Engineering
University of Alberta
Edmonton, Alberta, Canada T6G 2G6

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e-mail: chemical.engineering@ualberta.ca
web: www.engineering.ualberta.ca/cme

M. BHUSHAN, Ph.D. (I.I.T. Bombay)
Sensor Location • Fault Diagnosis • Process Safety

R. E. BURRELL, Ph.D. (University of Waterloo)
Nanostructured Biomaterials • Drug Delivery • Biofilms • Tissue Integration with Materials

P. CHOI, Ph.D. (University of Waterloo)
Molecular Modeling of Polymers • Thermodynamics of Polymer Solutions and Blends

K. T. CHUANG, Ph.D. (University of Alberta)
Fuel Cell • Catalysis • Separation Processes • Pollution Control

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Thermodynamics • Statistical Thermodynamics • Interfacial Phenomena

D. G. FISHER, Ph.D. (University of Michigan) EMERITUS
Process Dynamics and Control • Real-Time Computer Applications

J. F. FORBES, Ph.D. (McMaster University) CHAIR
Optimization • High Performance Control

M. R. GRAY, Ph.D. (California Inst. of Tech.)
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R. E. HAYES, Ph.D. (University of Bath)
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S. M. KRESTA, Ph.D. (McMaster University)
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S. M. KUZNICKI, Ph.D. (University of Utah)
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S. LIU, Ph.D. (University of Alberta)
Fluid-Particle Dynamics • Transport Phenomena • Kinetics • Pulp and Paper

D. T. LYNCH, Ph.D. (University of Alberta) DEAN OF ENGINEERING
Catalysis • Kinetic Modeling • Numerical Methods • Polymerization

J. H. MASLIYAH, Ph.D. (University of British Columbia)
Transport Phenomena • Colloids • Particle-Fluid Dynamics • Oil Sands

A. E. MATHER, Ph.D. (University of Michigan) EMERITUS
Phase Equilibria • Fluid Properties at High Pressures • Thermodynamics

E. S. MEADOWS, Ph.D. (University of Texas)
Process Control • Fuel Cell Modeling and Control • Optimization

W. C. MCCAFFREY, Ph.D. (McGill University)
Reaction Kinetics • Heavy Oil Upgrading • Polymer Recycling • Biotechnology

K. NANDAKUMAR, Ph.D. (Princeton University)
Transport Phenomena • Distillation • Computational Fluid Dynamics

A. E. NELSON, Ph.D. (Michigan Technological University)
Heterogeneous Catalysis • Surface Science • Computational Chemistry

M. RAO, Ph.D. (Rutgers University)
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S. L. SHAH, Ph.D. (University of Alberta)
Computer Process Control • System Identification • Process and Performance Monitoring

J. M. SHAW, Ph.D. (University of British Columbia)
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Polymer Processing • Polymer Blends • Interfacial Phenomena

H. ULUDAG, Ph.D. (University of Toronto)
Biomaterials • Tissue Engineering • Drug Delivery

S. E. WANKE, Ph.D. (University of California, Davis)
Heterogeneous Catalysis • Kinetics • Polymerization

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Rheology • Polymer Characterization • Polymer Processing

Z. XU, Ph.D. (Virginia Polytechnic Institute and State University)
Surface Science & Engineering • Mineral Processing • Waste Management • Coal Cleaning and Combustion

T. YEUNG, Ph.D. (University of British Columbia)
Emulsions • Interfacial Phenomena • Micromechanics

FACULTY / RESEARCH INTERESTS

ROBERT G. ARNOLD, Professor (CalTech)
Microbiological Hazardous Waste Treatment, Metals Speciation and Toxicity

PAUL BLOWERS, Assistant Professor (Illinois, Urbana-Champaign)
Chemical Kinetics, Catalysis, Surface Phenomena

JAMES C. BAYGENTS, Associate Professor (Princeton)
Fluid Mechanics, Transport and Colloidal Phenomena, Bioseparations

WENDELL ELA, Associate Professor (Stanford)
Particle-Particle Interactions, Environmental Chemistry

JAMES FARRELL, Associate Professor (Stanford)
Sorption/desorption of Organics in Soils

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

ROBERTO GUZMAN, Associate Professor (North Carolina State)
Affinity Protein Separations, Polymeric Surface Science

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

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

THOMAS W. PETERSON, Professor and Dean (CalTech)
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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

Jeffrey Heyes, Ph.D., Colorado, Boulder. Modeling of biofluid-tisue interaction, tissue and biofilm mechanics, parallel multigrid solvers

Jerry Y.S. Lin, Ph.D., Worcester Polytechnic Institute. Advanced materials (inorganic membranes, adsorbents and catalysts) for applications in novel chemical separation and reaction processes

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)

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

Joe Wang, Ph.D., Israel Institute of Technology. Nanomaterial-based bioelectronics, biosensors and biochips, electrochemistry

Materials Science and Engineering

James Adams, Ph.D., Wisconsin. 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

Cody Friesen, Ph.D., MIT. Surface/Interface physics, nanomechanics, nanostructured materials, thin film growth, novel approaches to catalysis and sensing, electrochemical processes

Ghassan E. Jabbour, Ph.D., Arizona. Development of materials for optical and electronic applications

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

Nathan 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

Karl Sieradzki, Ph.D. Syracuse. Fracture of solids, thin-film deposition and growth, corrosion

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), or visit us at http://www.fulton.asu.edu/~cme.

Graduate Program in the Department of Chemical Engineering

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The Department of Chemical Engineering at the University of Arkansas offers graduate programs leading to M.S. and Ph.D. Degrees.

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- Biochemical engineering
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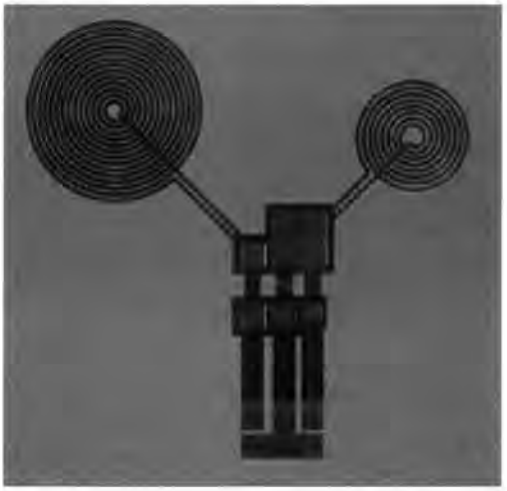
- Biomaterials
- Chemical process safety
- Consequence analysis of hazardous chemical releases
- Electronic materials processing
- Fate of pollutants in the environment
- Fluid phase equilibria and process design
- Integrated passive electronic components
- Membrane separations
- Mixing in chemical processes

Faculty

M.D. Ackerson
R.E. Babcock
R.R. Beitle
E.C. Clausen
R.A. Cross
J.A. Havens
W.A. Myers
W.R. Penney
T.O. Spicer
G.J. Thoma
J.L. Turpin
R.K. Ulrich



For more information contact

Dr. Richard Ulrich <rulrich@uark.edu> or 479-575-5645
Chemical Engineering Graduate Program Information: http://www.cheg.uark.edu/graduate.asp

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Chemical Engineering

GINN COLLEGE OF ENGINEERING

Faculty

William R. Ashurst, Jr. — *University of California, Berkeley*
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Harry T. Cullinan — *Carnegie Mellon University*
Christine W. Curtis — *Florida State University*
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Mark R. Eden — *Technical University of Denmark*
Said S.E.H. Elnashaie — *University of Edinburgh*
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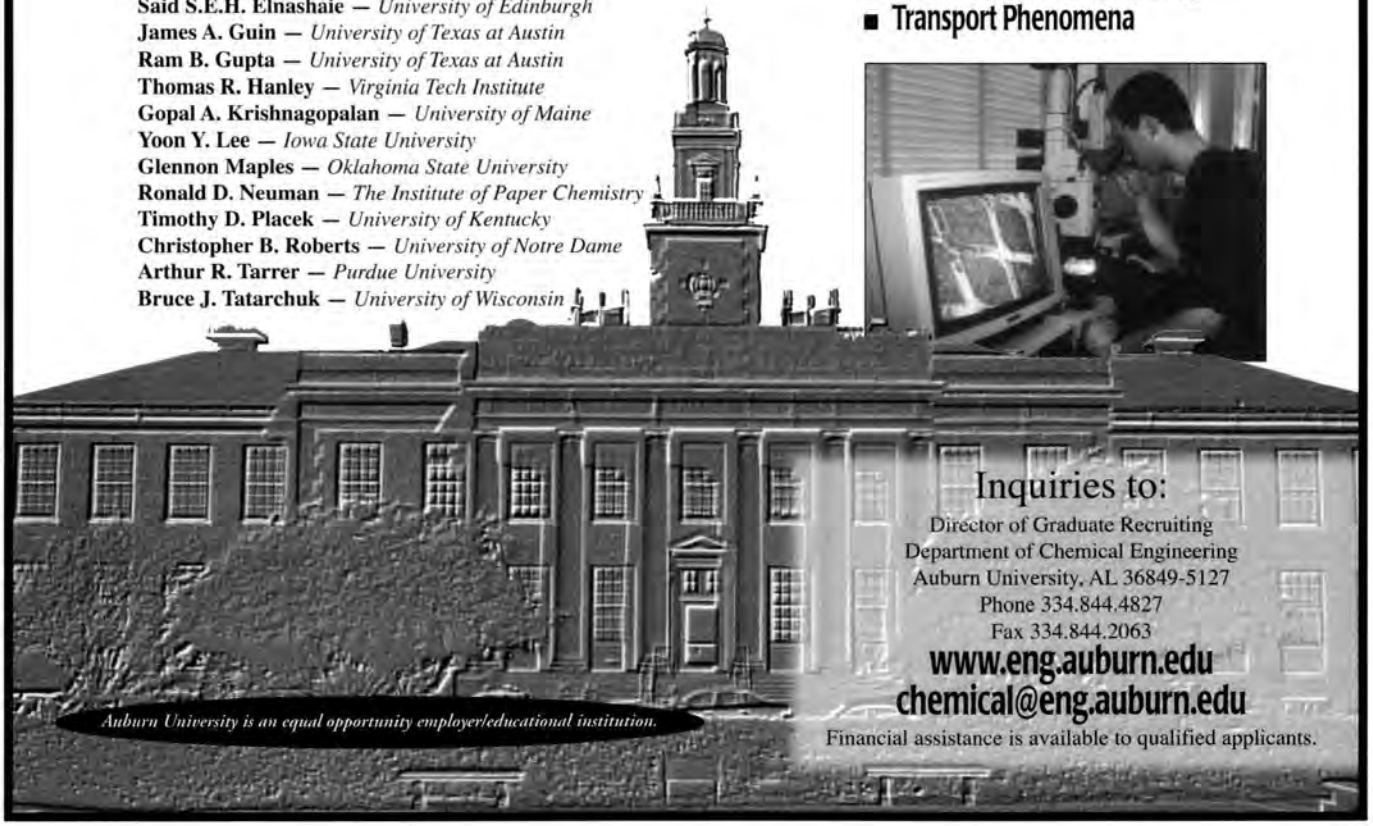
Yoon Y. Lee — *Iowa State University*
Glennon Maples — *Oklahoma State University*
Ronald D. Neuman — *The Institute of Paper Chemistry*
Timothy D. Placek — *University of Kentucky*
Christopher B. Roberts — *University of Notre Dame*
Arthur R. Tarrer — *Purdue University*
Bruce J. Tatarchuk — *University of Wisconsin*

Research Areas

- Fuel Cells • Hydrogen
- Biochemical Engineering • Drug Delivery
- Pulp and Paper • Microfibrous Materials
- Process Systems Engineering
- Integrated Process Design
- Environmental Chemical Engineering
- Catalysis and Reaction Engineering
- Materials • Polymers • Nanotechnology
- Surface and Interfacial Science
- Thermodynamics • Supercritical Fluids
- Electrochemical Engineering
- Transport Phenomena



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Director of Graduate Recruiting
Department of Chemical Engineering
Auburn University, AL 36849-5127
Phone 334.844.4827
Fax 334.844.2063
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chemical@eng.auburn.edu
Financial assistance is available to qualified applicants.

University of California, Berkeley

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Harvey W. Blanch	Elton J. Cairns
Arup K. Chakraborty	Douglas S. Clark
Jean M.J. Frechet	Enrique Iglesia
David B. Graves	Jay D. Keasling
Alexander Katz	Roya Maboudlan
Susan J. Muller	John S. Newman
John M. Prausnitz	Clayton J. Radke
Jeffrey A. Reimer	David V. Schaffer
	Rachel A. Segalman

Chairman: Arup K. Chakraborty

BIOENGINEERING
Blanch, Clark, Keasling, Schaffer, Chakraborty, Muller, Prausnitz & Radke

CATALYSIS & REACTION ENG.
Bell, Chakraborty, Iglesia, Katz & Reimer

KINETICS

THERMODYNAMICS

TRANSPORT PHENOMENA

QUANTUM & STATISTICAL MECHANICS

SPECTROSCOPY

ELECTROCHEMICAL ENGINEERING
Cairns, Newman & Reimer

ENVIRONMENTAL ENGINEERING
Bell, Graves, Iglesia, Keasling

POLYMERS & SOFT MATERIALS
Balsara, Chakraborty, Muller, Prausnitz, Radke, Reimer, Segalman, Frechet

MICROELECTRONICS PROCESSING & MEMS
Graves, Maboudian, Reimer & Segalman

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http://cheme.berkeley.edu/index.shtml

David E. Block, Associate Professor • Ph.D., University of Minnesota, 1992 • *Industrial fermentation, bioprocess optimization and artificial intelligence methods*

Roger B. Boulton, Professor and Endowed Chair • Ph.D., University of Melbourne, 1976 • *Wine technology, fermentation kinetics, biochemical*

Nigel D. Browning, Professor • Ph.D., University of Cambridge, U.K., 1992 • *Materials structure-property relationships at atomic-scale, atomic resolution and sensitivity imaging, electron microscopy*

Stephanie R. Dungan, Professor • Ph.D., Massachusetts Institute of Technology, 1992 • *Thermodynamics and transport in micellar and microemulsions systems, surfactant interactions with biological and food macromolecules*

Nael El-Farra, Assistant Professor • Ph.D., University of California, Los Angeles 2004 • *Process systems engineering, with emphasis on process control, dynamics and design, computational modeling, simulation*

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

Bruce C. Gates, Distinguished Professor • Ph.D., University of Washington, Seattle, 1966 • *Catalysis, surface chemistry, catalytic materials, nanomaterials, kinetics, chemical reaction engineering*

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, processing of nanostructured materials, and microstructure characterization*

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 • *Biochemical engineering, bioreactor design and kinetics, plant cell cultures, environmental engineering, modeling transport in the environment, environmental sorption process, bioremediation*

Sangtae Kim, Assistant Professor • Ph.D., University of Texas, Houston, 1999 • *Transport kinetics in advanced oxides, solid oxide fuel cell, gas separation, membrane reactors*

Tonya L. Kuhl, Associate 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*

Marjorie L. Longo, Associate 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 • *Biochemical engineering, plant cell cultures, cyanobacterial cultures*

Amiya K. Mukherjee, Distinguished Professor • D.Phil., University of Oxford, 1962 • *Mechanical behavior, creep, superplasticity, nanocrystalline metals and ceramics*

Zuhair A. Munir, Distinguished Professor • Ph.D., University of California, Berkeley, 1963 • *Synthesis and processing of materials, field effects in mass transport, nanostructures, composites and FGMS, simulation of field-activated synthesis*

Alexandra Navrotsky, Distinguished Professor and Endowed Chair • Ph.D., University of Chicago, 1967 • *Thermodynamics of solid materials, nanomaterials, phase equilibria and metastability, high-temperature calorimetry*

Ahmet N. Palazoglu, Professor • Ph.D., Rensselaer Polytechnic Institute, 1984 • *Process control, process design, automatic control, control systems*

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 and Chair • Ph.D., Johns Hopkins University, 1978 • *Rheology, suspension mechanics, magnetic resonance imaging of suspensions*

Subhash H. Risbud, Professor • 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 • *Biochemical engineering, biomolecular process engineering and biotechnology*

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, self-assembly, colloid and surface science, nanotechnology, surface modification, biotechnology*

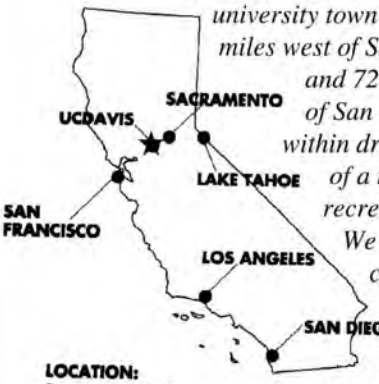
Stephen Whitaker, Professor Emeritus • Ph.D., University of Delaware, 1959 • *Multiphase transport phenomena*

Department of Chemical Engineering & Materials Science

UCDAVIS

The multifaceted graduate study experience in the Department of Chemical Engineering and Materials Science allows students to choose research projects and thesis advisers from any of our faculty with expertise in chemical engineering, biochemical engineering, and/or materials science and engineering.

Our goal is to provide the financial and academic support for students to complete a substantive research project within 2 years for the M.S. and 4 years for the Ph.D.



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Vasan Venugopalan *(Massachusetts Institute of Technology)*
Szu-Wen Wang *(Stanford University)*
Albert F. Yee *(University of California, Berkeley)*

Joint Appointments:

G. Wesley Hatfield *(Purdue University)*
Noo Li Jeon *(University of Illinois)*
Guan Pyng Li *(University of California, Los Angeles)*
Roger H. Rangel *(University of California, Berkeley)*
William A. Sirignano *(Princeton University)*

Adjunct Professors

Andrew Shapiro *(University of Califoria, Irvine)*
Victoria Tellkamp *(University of Califoria, Irvine)*

- Biomedical Engineering
- Biomolecular Engineering
- Bioreactor Engineering
- Bioremediation
- Ceramics
- Chemical and Biological Nanosensor
- Combustion
- Composite Materials
- Control and Optimization
- Environmental Engineering
- Fuel Cell Systems
- Interfacial Engineering
- Materials Processing
- Mechanical Properties
- Metabolic Engineering
- Microelectronics Processing and Modeling
- Microstructure of Materials
- Multifunctional Materials
- Nanocrystalline Materials
- Nanoscale Electronic Devices
- Nucleation, Chrystallization and Glass Transition Process
- Polymers
- Power and Propulsion Materials
- Protein Engineering
- Recombinant Cell Technology
- Separation Processes
- Sol-Gel Processing
- Two-Phase Flow
- Water Pollution Control

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 http://www.eng.uci.edu/dept/chems/
or contact

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

CHEMICAL ENGINEERING AT

UCLA

FOCUS AREAS

- Molecular and Cellular Bioengineering
- Process Systems Engineering (Design, Optimization, Dynamics, and Control)
- Semiconductor Manufacturing

GENERAL THEMES

- Energy and the Environment
- Nanoengineering

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.

FACULTY

J. P. Chang
(William F. Seyer Chair in Materials Electrochemistry)

P. D. Christofides

Y. Cohen

J. Davis
(Vice Chancellor for Information Technology)

S. K. Friedlander
(Parsons Professor of Chemical Engineering)

R. F. Hicks

L. Ignarro
(Nobel Laureate)

E. L. Knuth
(Professor Emeritus)

J. C. Liao

V. Manousiouthakis

H. G. Monbouquette

K. Nobe
(Professor Emeritus)

G. Orkoulas

L. B. Robinson
(Professor Emeritus)

T. Segura

S. M. Senkan

Y. Tang

W. D. Van Vorst
(Professor Emeritus)

V. L. Vilker
(Professor Emeritus)

A.R. Wazzan
(Dean Emeritus)

CONTACT

Admissions Office • Chemical Engineering Department
5531 Boelter Hall • UCLA • Los Angeles, CA 90095-1592
Telephone at (310) 825-9062 or visit us at www.chemeng.ucla.edu

University of California, Riverside

Department of Chemical and Environmental Engineering

Offering degrees at the M.S. and Ph.D. levels in frontier areas of Chemical, Biochemical and Biomedical, Advanced Materials, and Environmental Engineering. We welcome your interest and would be delighted to discuss with you the details of our graduate program and your admission into our graduate program. We have outstanding laboratory research facilities and well supported infrastructure, and offer competitive fellowship packages to qualified applicants.

RESEARCH AREAS

- Bio- and Chemical Sensors
- MEMS/NEMS, Bio-MEMS
- Structural Bioinformatics
- Biomolecular Engineering
- Environmental Biotechnology
- Catalysis and Biocatalysis
- Nanostructured Materials
- Carbon Nanotubes
- Complex Fluids & Colloids
- Electrochemistry
- Zeolites & Fuel Cells
- Membrane Processes
- Aerosol Physics
- Atmospheric Chemistry
- Renewable Fuels
- Advanced Vehicle Technology
- Water/Wastewater Treatment
- Advanced Water Reclamation
- Site Remediation Processes

FACULTY

- Wilfred Chen, *Caltech*
- David R. Cocker, *Caltech*
- Marc A. Deshusses, *ETH Zurich*
- Robert C. Haddon, *Penn State*
- Eric M.V. Hoek, *Yale*
- Kenneth J. Kauffman, *Delaware*
- Mark R. Matsumoto, *UC Davis*
- Dimitrios Morikis, *Northeastern*
- Ashok Mulchandani, *McGill*
- Nosang V. Myung, *UCLA*
- Joseph M. Norbeck, *Nebraska*
- Mihri Ozkan, *UC San Diego*
- Jerome S. Schultz, *Wisconsin*
- Sharon L. Walker, *Yale*
- Jianzhong Wu, *UC Berkeley*
- Yushan Yan, *Caltech*

The University of California, Riverside (UCR) is the fastest growing and most ethnically diverse of the 10 campuses of the University of California. UCR is located on over 1,100 acres at the foot of the Box Springs Mountains, about 50 miles east of Los Angeles. Our picturesque campus provides convenient access to the vibrant and growing Inland Empire, and is 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. This is an ideal setting for students, faculty and staff seeking to study, work, and live in a community steeped in rich heritage, offering a dynamic mix of arts and entertainment and an opportunity for affordable living.

For application materials and information contact
the ***Graduate Student Secretary*** at
gradcee@engr.ucr.edu
or you can write to the ***Graduate Advisor***
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Engineering, University of California
Riverside, CA 92521
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412.268.2230
Graduate Degree Programs
• Doctorate
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• Thesis Option Master's
Research Thrust Areas
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• Envirochemical Engineering
• Process Systems Engineering
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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
Daniel Lacks
Uziel Landau
Chung-Chiun Liu
J. Adin Mann
Heidi Martin
Peter Pintauro
Syed Qutubuddin
Robert Savinell
Thomas Zawodzinski

Research Opportunities

Advanced Energy Systems
- Fuel Cells and Batteries
- Micro Fuel Cells
- Batteries
- Hydrogen Infrastructure
- Energy Storage
- Membrane Transport
- Membrane Fabrication

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

Advanced Materials and Devices
- Diamond and Nitride Synthesis
- Coatings, Thin Films, and Surfaces
- In-Situ Diagnostics and Sensors
- Fine Particle Science and Processing
- Polymer Nanocomposites
- Electrochemical Microfabrication
- Self Assembly Chemistry

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

Case Western Reserve University
10900 Euclid Avenue
Cleveland, Ohio 44106-7217

Opportunities for Graduate Study in Chemical Engineering at the

UNIVERSITY OF CINCINNATI

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

Faculty

Carlos Co
Joel Fried
Rakesh Govind
Vadim Guliants
Daniel Hershey
Chia-chi Ho
Sun-Tak Hwang
Yuen-Koh Kao
Soon-Jai Khang
William Krantz
Jerry Y. S. Lin
Paul Phillips
Neville Pinto
Peter Smirniotis

Financial Aid Available

The University of Cincinnati is committed to a policy of non-discrimination in awarding financial aid.

For Admission Information
Director, Graduate Studies
Department Chemical and Materials Engineering
PO Box 210171
University of Cincinnati
Cincinnati, Ohio 45221-0171

E-mail:
deena.good@uc.edu
or
paul.phillips@uc.edu

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Membrane synthesis and characterization, membrane gas separation, membrane filtration processes, pervaporation, biomedical, food and environmental applications of membranes, high-temperature membrane technology, natural gas processing by membranes

☐ **Polymers**

Thermodynamics, polymer blends and composites, high-temperature polymers, hydrogels, polymer rheology, computational polymer science, molecular engineering and synthesis of surfactants, surfactants and interfacial phenomena

☐ **Separation Technologies**

Membrane separation, adsorption, chromatography, separation system synthesis, chemical reaction-based separation processes, polymer crystallization and property

Chemical Engineering at The City College of New York - CUNY

(The City University of New York)

A 154-year-old urban University, the oldest public University in America, on a 35-acre Gothic and modern campus in the greatest city in the world

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:

°**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

CSU Faculty

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)
N. Holland (Case Western Reserve 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

P. Cavanagh (University of London, U.K.)
S. D'Andrea (Ohio State University)
B. Davis (Pennsylvania State University)
K. Derwin (University of Michigan)
T. Doehring (The University of Pittsburgh)
A. Fleischman (Case Western Reserve University)
B. Gopakumaram (Ohio State University)
S. Halliburton (Vanderbilt University)
E. Maytin (University of Rochester)
R. McClain, M.D. (University of California, Davis)
C. McDevitt (University of London, U.K.)
C. McMillin (Case Western Reserve University)
M. Penn (Case Western Reserve University)
S. Roy (Case Western Reserve University)
R. Setser (Washington University)
R. Shekhar (Ohio State University)
W. Smith (Cleveland State University)
A. van den Bogert (University of Utrecht, The Netherlands)
P. Stephen Williams (University of Wales, U.K.)
G. Yue (University of Iowa)

Engineering Degrees

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

Fenn College has more than 80 years of experience in providing outstanding engineering education.

Graduate Studies in Chemical and Applied Biomedical Engineering at Cleveland State University's (CSU's) Fenn College of Engineering offers a wealth of opportunity in a stimulating environment.

Research opportunities are available in collaboration with the Biomedical Engineering Department of the renowned Cleveland Clinic Foundation (CCF), Cleveland's Advanced Manufacturing Center, local and national industry, and Federal agencies, to name a few. Assistantships and Tuition Fee Waivers are available on a competitive basis for qualified students.

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
Biomaterials
Bioseparations
Blood Flow
Combustion
Computational Fluid Dynamics
Environmental Pollution Control
Fuel Cell Technology
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 Director
Department of Chemical and Biomedical Engineering
Cleveland State University • Cleveland, OH 44115
Telephone: 216-687-2569 • E-mail: che@csuohio.edu
http://www.csuohio.edu/chemical_engineering/

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

Chemical and Biological Engineering at the

University of Colorado Boulder

- **Kristi S. Anseth**
  Polymers, Biomaterials, Tissue Engineering
- **Christopher N. Bowman**
  Polymers, Biomaterials, Photopolymerization
- **Stephanie J. Bryant**
  Functional Tissue Engineering, Mechanotransduction, Photopolymerization
- **David E. Clough**
  Process Control, Applied Statistics
- **Robert H. Davis**
  Fluid Mechanics, Biotechnology, Membranes
- **John L. Falconer**
  Catalysis, Zeolite Membranes
- **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
- **Melissa J. Mahoney**
  Neural Tissue Engineering, Pancreatic Regeneration, Drug Delivery, Biopolymers
- **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

The Department of Chemical and Biological Engineering at the University of Colorado is a world-class department with outstanding faculty, graduate students, facilities, and research and educational opportunities. Within the past few years department faculty have received two AIChE Allan P. Colburn Awards, two ASEE Curtis W. McGraw Awards, and one ASEE Dow Lectureship Award. Each of these awards is given nationally to a single person in the field each year.

Our graduate program emphasizes the PhD degree and attracts outstanding national and international students. The research emphasis is diverse, with funded Department of Education and National Institutes of Health graduate training programs in functional materials, biological engineering, micro- and nano-particles, and pharmaceutical biotechnology. Graduate student training is also facilitated through research centers in membrane science, biotechnology, and photopolymerizations. Interdisciplinary opportunities exist through collaborations with biology, chemistry, physics, pharmacy, math, dentistry, and several other engineering departments.

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.

For information and application

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

Colorado School of Mines

Faculty

- 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)
- 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)

Visit
http://www.mines.edu

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. Funding sources include federal agencies such as the NSF, DOE, DARPA, ONR, NREL, NIST, NIH as well as multiple industries. Research areas within the department include:

Materials Science and Engineering
Organic and inorganic membranes (Way)
Polymeric materials (Dorgan, 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)

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

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

Reacting Flows
Flame kinetics (McKinnon, Dean)
Reaction mechanisms (McKinnon, Dean)
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®

Knowledge to Go Places

Graduate students in Chemical Engineering at Colorado State University work closely with scientists and engineers who have an international reputation for academic and research excellence. As a member of this community, you will have the oportunity to explore research interests, share ideas, and discuss new scientific directions with leaders in their fields—not only in chemical engineering but also in microbiology, chemistry, engineering, and other sciences. The interdisciplinary nature of the research carried out by the chemical engineering faculty at CSU and the culture of cooperative research facilitate this access to experts across departments and colleges. Chemical engineering faculty members and students work jointly with research groups in electrical, mechanical, and civil engineering, microbiology, environmental health sciences, chemistry, and veterinary medicine.

M.S. and Ph.D. programs in chemical engineering

RESEARCH IN . . .

- Biochemical Engineering
- Biomedical Engineering
- Chemical Vapor Deposition
- Environmental Biotechnology
- Environmental Engineering
- Genomics/Proteomics/Metabolomics
- Magnetic Resonance Imaging
- Membrane Separations
- Metabolic Engineering
- Molecular Simulation
- Polymeric Materials
- Permeable Media
- Systems Biology
- Thin Films
- Tissue Engineering

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Teaching and research assistantships paying a monthly stipend plus tuition reimbursement.

For applications and further information, see http://www.engr.colostate.edu/cheme/programs/grad/index/shtml

or write:

Graduate Advisor, Department of Chemical Engineering
Colorado State University • Fort Collins, CO 80523-1370

Laurence A. Belfiore, Ph.D.
University of Wisconsin

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

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

David Wang, Ph.D.
University of Wisconsin

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

Ranil Wickramasinghe, Ph.D.
University of Minnesota

University of Connecticut

CHEMICAL ENGINEERING DEPARTMENT

Graduate Study in Chemical Engineering

BIOCHEMICAL ENGINEERING AND BIOTECHNOLOGY

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

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

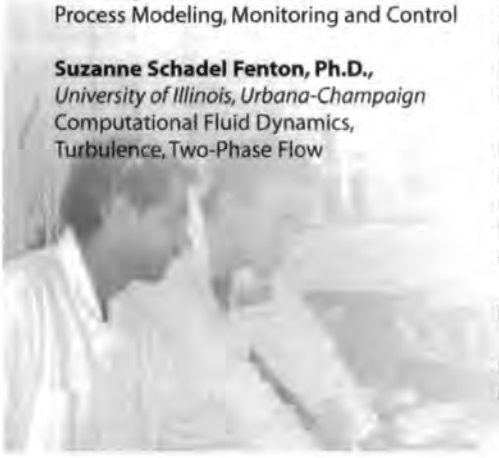
COMPUTER APPLICATIONS

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

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

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

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



ENVIRONMENTAL AND ENERGY ENGINEERING

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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 Synthesis and Characterization, Combustion

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 Block Copolymers, Polymeric Nanocomposites, Biodegradable Block Copolymers for Drug Delivery

Emeritus Professors

C.O. Bennett, J.P.Bell, A.T. DiBenedetto, G.M. Howard, R.W. Coughlin, M.B. Cutlip

University of Connecticut
School of Engineering

University of Connecticut
191 Auditorium Road, Unit 3222
Storrs, Connecticut 06269-3222
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Fax: (860) 486-2959
www.engr.uconn.edu/cheg
cheginfo@engr.uconn.edu

CORNELL
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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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Paulette Clancy
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Matthew P. DeLisa
T. Michael Duncan
James R. Engstrom
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Donald L. Koch
Kelvin H. Lee
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William L. Olbricht
David Putnam
Michael L. Shuler[†],[‡]
Paul H. Steen
Abraham D. Stoock
Larry Walker
Ulrich Wiesner

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

Research Areas

- Biomolecular Engineering
- Complex Fluids and Polymers
- Electronic Materials and Microchemical Systems
- Energy and Sustainable Environment

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

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For further information, please contact:

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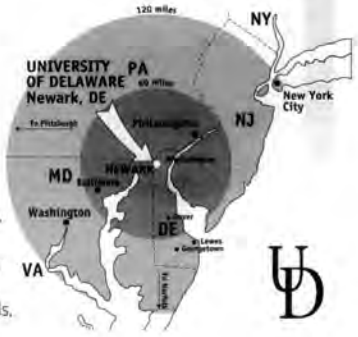

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Chemical Reaction Engineering; Applied mathematics

A. T. Capitano (Assistant Professor)
Tissue Engineering: In Vitro Toxicology

V. M. Donnelly (Professor)
Plasma Processing: Electronic Materials

M. J. Economides (Professor)
Petroleum Engineering; Energy

D. J. Economou (John & Rebecca Moores Professor)
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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*

David Gidalevtiz; *crystal growth, biophysics and molecular engineering, biological membranes, biosensors, protein chips*

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

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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

Chris Coretsopoulos
U of Illinois at Urbana-Champaign 1989
Photopolymerization/ Microfabrication/ Spectroscopy

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

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

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U. of Utah 1989
Bioartificial organs/ Microencapsulation technologies

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

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Insect cell culture/ Bioreactor monitoring

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Johns Hopkins 1994
Bioremediation/ Extremophile physiology and biocatalysis

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Membrane science/ Polymer science/ Catalysis

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Washington U. 1989
Transport phenomena in bioseparations/ Membrane separations

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Purdue U. 1990
Photopolymerization/ Reversible emulsifiers/ Polymerization kinetics

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Air pollution chemistry, measurement, and modeling/Aerosols

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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
Liquid/Liquid Systems
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Financial Aid

Financial aid is available in the form of research and teaching assistantships and fellowships/scholarships. A special program is described below.

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For additional information and application:
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Contacts

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University of Kansas—Learned Hall
1530 W. 15th Street, Room 4006
Lawrence, KS 66045-7609

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Areas of Study and Research

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Membrane Separations
Multiphase Flow
Polymeric Materials Properties
Process Systems Engineering and Artificial Intelligence
Separative Reactors

KSU
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University of Kentucky

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- Advanced Separation & Supercritical Fluids Processing
- Membranes & Polymers
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For more information:

Web: http://www.engr.uky.edu/cme E-mail: cme-admit@engr.uky.edu
Address: Department of Chemical & Materials Engineering
Director of Graduate Studies, Chemical Engineering
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bioseparations • applied recombinant DNA technology

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biomimetics • mechanics • adhesion • biomolecule-materials interactions

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model predictive control • constrained control • microchemical systems

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chemical kinetics in small systems • biochemical informatics • aggregation phenomena

William L. Luyben, *University of Delaware*
process design and control • distillation

Anthony J. McHugh, *University of Delaware*
polymer rheology and rheo-optics • polymer processing and modeling • membrane formation • drug delivery

Padma Rajagopalan, *Brown University*
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use of adsorbents • ion exchange • reactive polymers • membranes in environmental pollution

Cesar A. Silebi, *Lehigh University*
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heat transfer • two-phase flows • fluidization

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Additional information and application 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: www3.lehigh.edu/engineering/cheme/

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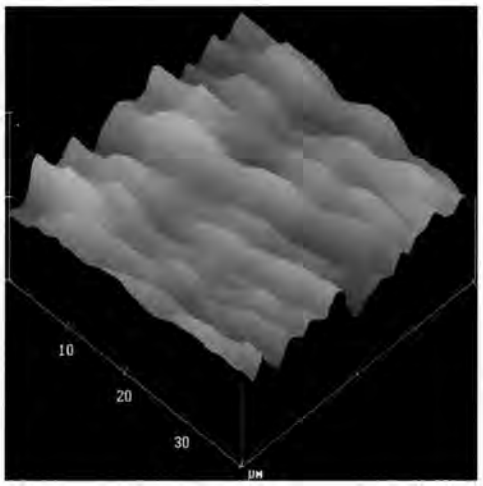

Atomic Force Microscopy of Deformed High Density Polyetheylene

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)

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

B.L. Newman, PhD, University of Virginia, VA (1988)

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

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Department of Chemical Engineering
University of Louisiana at Lafayette
PO Box 44130
Lafayette, LA 70504-4130

For more information:
http://chemical.louisiana.edu *or* e-mail: dmisra@louisiana.edu (Graduate Coordinator)

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Gordon A. and Mary Cain Department of Chemical Engineering

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TO APPLY, CONTACT

GRADUATE COORDINATOR
Gordon A. and Mary Cain Department of Chemical Engineering
Louisiana State University
Baton Rouge, LA 70803
Telephone: 1-800/256-2084 FAX: 225/578-1476
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Fluid-Solid Reactions, Hazardous Waste Treatment

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Supercritical Fluid Extraction, Ultrafast Kinetics

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East Professor; Ph.D., Vanderbilt University
Environmental Transport, Separations

D.M. WETZEL
Haydel Professor; Ph.D., University of Delaware
Hazardous Waste Treatment, Drying

M.J. WORNAT
Harvey Professor; Ph.D., Massachusetts Institute of Technology
Combustion, Heterogeneous Reactions

University of Maine

Department of Chemical and Biological Engineering

The University - The campus is situated near the Penobscot and Stillwater Rivers in the town of Orono Maine. The campus is large enough to offer various activities and events and is yet small enough to allow for one-on-one learning with faculty. The University of Maine is known for its hockey team, but also has a number of other sports activities. Not far from campus is the Maine Coast and Acadia National Park. North and west are alpine and cross-country ski resorts, Baxter State Park, and the Allagash Water Wilderness area.

DOUGLAS BOUSFIELD PhD (UC Berkeley)
Fluid mechanics, printing, coating processes, micro-scale modeling

ALBERT CO PhD (Wisconsin)
Polymeric fluid dynamics, rheology, transport phenomena, numerical methods

WILLIAM DESISTO PhD (Brown)
Advance materials, thin film sythesis, porous thin film filters for chem./bio sensors

DARRELL DONAHUE PhD (North Carolina State)
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JOSEPH GENCO PhD (Ohio State)
Oxygen delignification, refining, pulping, pulp bleaching

JOHN HWALEK PhD (Illinois)
Process information systems, heat transfer

MICHAEL MASON PhD (UC Santa Barbara)
Laser scanning confocal microscopy, time-resolved imaging of molecular nanoprobes for biological systems

PAUL MILLARD PhD (Maryland)
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DAVID NEIVANDT PhD (Melbourne)
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Protein dynamics on cell surfaces, membrane transport, image analysis

HEMANT PENDSE PhD (Syracuse) *Chair*
Sensor development, colloid systems, particulate and multiphase processes

DOUGLAS RUTHVEN PhD ScD (Cambridge)
Fundamentals of adsorption and processes

ADRIAAN VAN HEININGEN PhD (McGill)
Pulp and paper manufacture and production of biomaterials and biofuels

M. CLAYTON WHEELER PhD (Texas-Austin)
Chemical sensors, fundamental catalysis, surface science

The department has a long history of interactions with industry. Research projects often come from actual industrial situations. Various research programs, such as the Paper Surface Science Program, have industrial advisory boards that give students key contacts with industry. We have formed an alliance with the Institute of Molecular Biophysics (IMB) that brings to us partnerships with The Jackson Laboratory (TJL) and Maine Medical Center Research Institute (MMCRI). New research directions in the area of forest biorefinery, biosensors and molecular biophysics give students opportunities to do research at the interface between engineering and the biological sciences.

For information about the graduate program write to the . . .
Graduate Coordinator, Department of Chemical and Biological Engineering
University of Maine, Orono, ME 04469
call 207 581-2277 • email gradinfo@umche.maine.edu *or* bousfld@maine.edu • visit www.umche.maine.edu.

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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*
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Sandra C. Greer (Chicago) • *Physical chemistry, polymer science, biomacromolecules, phase equilibria*
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Peter Kofinas (MIT) • *Polymer science and engineering*
Thomas J. McAvoy (Princeton) • *Process control, fault detection*
Tracey R. Pulliam Holoman (Maryland) • *Biochemical engineering and bioremediation*
Jan V. Sengers (U. Amsterdam) • *Critical phenomena, thermophysical properties of fluids and fluid mixtures*
Srinivasa R. Raghavan (N.C. State) • *Polymers, colloids, complex fluids, self-assembly*
Nam Sun Wang (Caltech) • *Biochemical engineering*
William A. Weigand (IIT) • *Biochemical engineering, bioprocess control and optimization*
Evanghelos Zafiriou (Caltech) • *Process control, identification and optimization*

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http://www.ench.umd.edu

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EMPHASIS

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FOR FURTHER INFORMATION CONTACT:

Graduate Program Coordinator
Department of Chemical and Biochemical Engineering
University of Maryland Baltimore County
1000 Hilltop Circle
Baltimore, Maryland 21250
Phone: (410) 455-3400
FAX: (410) 455-1049

FACULTY

T. BAYLE, Ph.D. *Pittsburgh*
Engineering education; k-12 Outreach

M. CASTELLANOS, Ph.D. *Cornell*
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D. D. FREY, Ph.D. *California-Berkeley*
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T. GOOD, Ph.D. *University of Wisconsin-Madison*
Cellular Engineering; Protein Aggregation; In Vitro Models of Disease

M. R. MARTEN, Ph.D. *Purdue*
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A. R. MOREIRA, Ph.D. *Pennsylvania*
rDNA fermentation; Regulatory issues; Scale-up; Downstream processing

G. F. PAYNE, Ph.D.* *Michigan*
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C. OWENS, Ph.D. *Delaware*
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G. RAO, Ph.D. *Drexel*
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- Fluid mechanics and polymer rheology
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- Supercritical fluid processing

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Graduate Program Director
Department of Chemical Engineering
159 Goessmann Laboratory, 686 N. Pleasant St.
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Colloid Science and Separations
Energy Engineering • Environmental Engineering
Materials • Microchemical Systems, Microfluidics • Nanotechnology
Polymers • Process Systems Engineering
Thermodynamics, Statistical Mechanics, and Molecular Simulation
Transport Processes

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P.I. Barton	**K.K. Gleason**	**K.A. Smith**
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R.E. Cohen	**R.S. Langer**	**P.S. Virk**
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For more information, contact

Chemical Engineering Graduate Office, 66-366
Massachusetts Institute of Technology, 77 Massachusetts Avenue
Cambridge, MA 02139-4307

Phone • (617) 253-4579; FAX • (617) 253-9695; E-Mail • chemegrad@mit.edu
URL • http://web.mit.edu/cheme/index.html

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FOR ON-LINE APPLICATION FORMS AND INFORMATION PLEASE CONTACT

Graduate Secretary
Department of Chemical Engineering
McMaster University
Hamilton, ON L8S 4L7
CANADA

Phone: 905-525-9140 X 24292
Fax: 905-521-1350
Email: chemeng@mcmaster.ca
Http://www.chemeng.mcmaster.ca

Chemical Engineering at the University of Michigan

Faculty

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For more information contact:
Dr. Robert Ziff, Graduate Chairman, or
Melissa Bower, Recruiting Coordinator
Department of Chemical Engineering
The University of Michigan
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Mass transfer, novel separation processes

John S. Dahler (Emeritus)
Nonequilibrium statistical mechanics

Prodromos Daoutidis
Nonlinear process control, process analysis and design

H. Ted Davis
Colloid and interface science, statistical mechanics

Jeffrey J. Derby
High performance computing, materials processing

Lorraine Falter Francis
Biomaterials, ceramic and composite processing, coatings

Arnold G. Fredrickson (Emeritus)
Biochemical engineering, microbial populations

C. Daniel Frisbie
Molecular materials and interfaces, organic semiconductors, molecular electronics, atomic force microscopy

William W. Gerberich
Fracture micromechanics and interfacial defects

Wei-Shou Hu
Biochemical engineering

Yianis Kaznessis
Computer modeling of biological systems, structural bioinformatics, molecular recognition phenomena

Efrosini Kokkoli
Targeted drug delivery

Satish Kumar
Transport and interfacial phenomena, complex materials, nanofluidics and microfluidics

Chris Leighton
Magnetic and electronic properties of thin film magnetic materials and heterostructures

Timothy P. Lodge
Polymer structure and dynamics, polymer characterization

Christopher W. Macosko
Polymer processing, rheology, polymer blends, interfaces and networks

Jennifer Maynard
Biotechnology, protein engineering, infectious diseases

Richard B. McClurg
Thermodynamics and kinetics of phase changes

Alon V. McCormick
Reaction engineering of materials synthesis, spectroscopy, molecular simulation

David C. Morse
Statistical mechanicsand dynamics of polymer fluids

David J. Norris
Photonic crystals, nanomaterials

Richard A. Oriani (Emeritus)
Corrosion, thermodynamics of solids, low-energy nuclear reactions

Christopher Palmstrøm
Epitaxial growth processes and heterostructure formation, properties of thin film

Lanny D. Schmidt
Reaction engineering, surface chemistry, heterogeneous catalysis

L. E. Scriven
Fluid mechanics and rheology, colloid and interface science, transport reaction and stress phenomena, materials processing: coatings

David A. Shores
High temperature corrosion, fuel cells

John M. Sivertsen (Emeritus)
Magnetic, microelectronic, and tribological materials

William H. Smyrl
Electrochemical engineering, modeling electrochemical systems, microvisualization of reactive surfaces

Friedrich Srienc
Biochemical engineering, cell cycle kinetics

Robert T. Tranquillo
Cardiovascular and neural tissue engineering

Michael Tsapatsis
Materials, separations, catalysis

Michael D. Ward
Molecular materials, crystal growth, electrochemistry

Renata M. Wentzcovitch
Theory of materials at high pressure and temperature

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Mississippi State University
ENGINEERING

Graduate Studies in Chemical Engineering

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Environmental Remediation, Electrokinetics, Chemical Extraction, Stabilization/ Solidification, Waste Treatment, Heavy Metal Soils

W. Todd French, Assistant Research Professor
Applied Microbiology, Bioremediation, Industrial Microbiology, Microbial Enhanced Oil Recovery

Clifford E. George, Professor
Industrial Biotechnology, Industrial Applications of Microwave Power/Heating and Electrochemistry, Process Control, Chemical Plant/Oil Refinery Operations and Safety

Rafael Hernandez, Assistant Professor
Integrated Remediation Technologies, Chemical/Physical Treatment Processes, Environmental Catalysis, Biofuels and Co-products

Priscilla J. Hill, Assistant Professor
Crystallization, Process Design, Solids Processing

Irvin A. Jefcoat, Professor and Henry Chair
Pollution Prevention/Waste Minimization

Adrienne R. Minerick, Assistant Professor
Electrokinetic Separations of Biofluids, Medical Diagnostic Microdevice Development

Rudy E. Rogers, Professor
Natural Gas Storage and Transport, Formation Rates in Ocean Sediments, CO_2 Sequestering, Natural Gas Production from Seabed Hydrates

Kirk H. Schulz, Director and Deavenport Chair
Surface Science, Catalysis, Electronic Materials

Hossein Toghiani, Associate Professor
Composite Materials, Catalysis, Fuel Cells, Thermodynamics of Liquid Mixtures

Rebecca K. Toghiani, Associate Professor
Thermodynamics, Separations

Mark E. Zappi, Texas Olefins Professor
Waste Treatment, Industrial Biotechnology, Chemical Oxidation, Biotreatment, Hyphenated Remediation Techniques

The Dave C. Swalm School of Chemical Engineering is poised for unprecedented growth in the next decade. A new $18 million facility recently was completed specifically for Chemical Engineering. The school offers both the M.S. and Ph.D. degrees in Chemical Engineering and an M.S. in Industrial Hazardous Waste Management.

For more information, contact

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Mississippi State, Mississippi 39762
Phone: (662) 325-2480
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www.che.msstate.edu

For a graduate application, contact

The Office of Graduate Studies
Phone (662) 325-7404
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Rakesh K. Bajpai *Ph.D. (IIT, Kanpur)*
Biochemical Engineering • Hazardous Waste

Paul C. H. Chan *Ph.D. (CalTech)*
Reactor Analysis • Fluid Mechanics

Patricia A. Darcy *Ph.D. (Iowa)*
Protein Crystallization • Biotechnology

Eric Doskocil *Ph.D. (Virginia)*
Catalysis • Reaction Engineering

William A. Jacoby *Ph.D. (Colorado)*
Photocatalysis • Transport

Sunggyu Lee *Ph.D. (Case Western)*
Supercritical Fluids • Polymers • Fuels

Stephen J. Lombardo *Ph.D. (California-Berkeley)*
Ceramic Composites • Transport • Kinetics

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Aerosol Mechanics • Kinetic Theory

Richard H. Luecke *Ph.D. (Oklahoma)*
Process Control • Modeling

Thomas R. Marrero *Ph.D. (Maryland)*
Coal Log Transport • Conducting Polymers

David G. Retzloff *Ph.D. (Pittsburgh)*
Reactor Analysis • Materials

Truman S. Storvick *Ph.D. (Purdue)*
Nuclear Waste Reprocessing • Thermodynamics

Galen J. Suppes *Ph.D. (Johns Hopkins)*
Biofuel Processing • Renewable Energy • Thermodynamics

Dabir S. Viswanath *Ph.D. (Rochester)*
Applied Thermodynamics • Chemical Kinetics

Hirotsugu K. Yasuda *Ph.D. (SUNY, Syracuse)*
Polymers • Surface Science

Qingsong Yu *Ph.D. (University of Missouri-Columbia)*
Surface Science • Plasma Technology

The University is one of the most comprehensive institutions in the nation and is situated on a beautiful land grant campus halfway between St. Louis and Kansas City, at the foothills of the Ozark Mountains and the recreational Lake of the Ozarks. The Chemical Engineering Department offers M.S. and Ph.D. programs in a wide variety of research areas including surface science, nuclear waste, wastewater treatment, biodegradation, indoor air pollution, supercritical processes, plasma polymerization, polymer processing, coal transportation (hydraulic), fuels, chemical kinetics, protein crystallization, photocatalysis, ceramic composites, and polymer composites.

For details contact:

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Department of Chemical Engineering
University of Missouri • Columbia, MO 65211

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E-mail: preckshotr@missouri.edu • Website: www.missouri.edu/~chewww

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For additional information:

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Department of Chemical and Biological Engineering
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Rolla, MO 65409-1230

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Online Application: *http://www.umr.edu/~cisapps/gradappd.html*

Craig D. Adams
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Effects and Control of Antibiotics and Other Organic Compounds in Water; Oxidative and Adsorption Technology for Water Treatment; Kinetic Modeling of Chemical Reactions in Aqueous Systems

Neil L. Book
Associate Professor, Ph.D. Colorado
Computer-Aided Process Design, Chemical Process Safety, Engineering Data Management

Daniel Forciniti
Professor, Ph.D. North Carolina State
Bioseparations; Thermodynamics; Statistical Mechanics

David B. Henthorn
Assistant Professor, Ph.D. Purdue
Biomimetics; Drug Delivery; Biomaterials

Kimberly S. Henthorn
Assistant Professor , Ph.D. Purdue
Entrainment and Conveying of Fine Particles; Multiphase Computational Fluid Dynamics (CFD); Characterization of Interparticle Forces; Particles for Pulmonary Drug Delivery Applications

A.I. Liapis
Professor, Ph.D. ETH-Zurich
Transport Phenomena, Adsorption/Desorption, Fundamentals and Processes, Bioseparations, Chromatographic Separations, Capillary Electrochromatography, Chemical Reaction Engineering, Lyophilization

Douglas K. Ludlow
Professor, Ph.D. Arizona State
Surface Characterization of Adsorbents and Catalysts, Applications of Fractal Geometry to Surface Morphology

Parthasakha Neogi
Professor, Ph.D. Carnegie-Mellon
Interfacial Phenomena, Drug Delivery

Judy A. Raper
Professor and Chair, Ph.D. University of New South Wales
Particle Technology; Characterization of Fractal Aggregates; Measurement of Surface Roughness and Fractal Dimension of Dry Powder Pharmaceutical Aerosols; Fly Ash Characterization and Utilization; Waste Minimization

X B Reed, Jr.
Professor Emeritus, Ph.D. Minnesota
Fluid Mechanics, Transport Phenomena and Chemical Reaction Engineering, including those of Particles, Drops, and Bubbles, Large-Scale Structure of Shear Turbulence, and Impact of Fine-Scale Structure on Chemical Reactions

Y.T. Shah
Professor and Provost, Ph.D. MIT
Chemical Reaction and Reactor Engineering

Oliver C. Sitton
Associate Professor, Ph.D. Missouri-Rolla
Bioengineering

Jee-Ching Wang
Assistant Professor, Ph.D. Penn State
Molecular Simulations of Transport in Confined Systems, Molecular Simulations of Surfactant Systems, Molecular Properties of Materials

Yangchuan Xing
Assistant Professor, Ph.D. Yale
Synthesis, Processing, and Characterization of Nanomaterials

The Program

The department offers graduate programs leading to both the Master of Science and Doctor of Philosophy degrees. Exciting opportunities exist for interdisciplinary research. Faculty conduct research in a number of areas including:

- Polymer science/ engineering
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- Particle technology
- Pharmaceutical engineering
- Nanotechnology

Chemical Engineering

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The Faculty:

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B. Baltzis; *University of Minnesota*
R. Barat; *Massachusetts Institute of Technology*
C. Gogos; *Princeton University*
T. Greenstein; *New York University*
D. Hahn; *Agri. Univ. of Wageningen (Netherlands)*
D. Hanesian; *Cornell University*
M. Howley; *Rutgers 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*
R. Tomkins; *University of London (UK)*
J. Wu: *University of Delaware*
M. Xanthos; *University of Toronto (Canada)*

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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.

Albuquerque is a unique combination of the very old and the highly contemporary, the natural world and the manmade environment, the frontier town and the cosmopolitan city, a harmonious blend of diverse cultures and peoples.

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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
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:

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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
- **Shuguang Deng,** Assistant Professor, *University of Cincinnati*
  Adsorption, Nanostructured Materials, and Fuel Cell Technology
- **Charles L. Johnson,** Professor and Head, *Washington University-St. Louis*
  High Temperature Polymers
- **Richard L. Long,** Professor and Associate Head *Rice University*
  Transport Phenomena, Biomedical Engineering, Separations
- **Martha C. Mitchell,** Associate Professor, *University of Minnesota*
  Molecular Modeling of Adsorption and Separations, Thermodynamic Analysis of Aerospace Fuels
- **Stuart H. Munson-McGee,** Professor, *University of Delaware*
  Advanced Materials, Materials Processing
- **John T. Patton,** Professor Emeritus, *Oklahoma State University*
- **David A. Rockstraw,** Associate Professor, *University of Oklahoma*
  Reaction Kinetics, Environmental Engineering, Carbon Materials
- **Rudi V. Roubicek,** Professor Emeritus, *Technical University of Prague*
- **Edward F. Thode,** Professor Emeritus, *Massachusetts Institute of Technology*
- **D. Bruce Wilson,** Professor Emeritus, *Princeton University*

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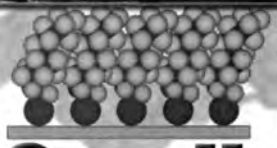
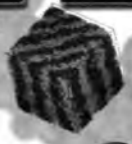
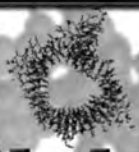

North Carolina State University

Department of Chemical Engineering

Faculty

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

Research

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Catalysis, Electrochemical & Reaction Engineering
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Molecular Simulations
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Chemical and Biological 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

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

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 and Biological Engineering
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Graduate Studies in Chemical and Biomolecular Engineering

The University of Notre Dame

Faculty

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Davide A. Hill
Jeffrey C. Kantor
David T. Leighton, Jr.
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Research Areas

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Catalysis and Reaction Engineering
Combinatorial Materials Synthesis
Combustion Synthesis
Drug Delivery
Electrochemical Processes
Environmentally Conscious Design
Enzyme Encapsulation
Inorganic Membranes
Ionic Liquids
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University of Notre Dame

The University

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The Department

The Department of Chemical and Biomolecular Engineering is developing the next generation of research leaders. Our program is characterized by the close interaction between faculty and students and a focus on cutting-edge, interdisciplinary research that is both academically interesting and industrially relevant.

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  Industrial Ecology, Process Engineering, Analysis of Complex Systems
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  Experimental Measurements for Validation of Computational Fluid Mechanics and Applications to Mixing Process Applications
- **Jeffrey J. Chalmers,** *Cornell*
  Immunumagnetic Cell Separation, Effect of Hydrodynamic Forces on Cells, Interfacial Phenomena and Cells, Bioengineering, Biotechnology, Cancer Detection
- **Stuart Cooper,** *Princeton*
  Polymer Science and Engineering, Properties of Polyurethanes and Ionomers, Polyurethane Biomaterials, Blood-Material Interactions, Tissue Engineering
- **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. Koellnig,** *Princeton*
  Rheology, Polymer Processing, Microfluidics
- **Isamu Kusaka,** *CalTech*
  Statistical Mechanics and 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
- **Barbara E. Wyslouzil,** *CalTech*
  Nucleation, Aerosol Formation, Growth and Transport, Atmospheric Aerosols, Thermodynamics and Phase Equilibria
- **Shang-Tian Yang,** *Purdue*
  Biochemical Engineering, Biotechnology, and Tissue Engineering
- **Jacques L. Zakin,** *New York*
  Rheology, Drag Reduction, Surfactant Microstructures, and Heat Transfer Enhancement

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chemical engineering & materials science
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For more information, call, fax, write, or e-mail:

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School of Chemical Engineering and Materials Science
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Over the past several years, the School of Chemical Engineering and Materials Science (CEMS) at the University of Oklahoma has excelled in research and developed a broad base of external research support.

Faculty Members

- **M.J. Bagajewicz**
(Ph.D. California Institute of Technology, 1987)
- **B.P. Grady**
(Ph.D. University of Wisconsin-Madison, 1994)
- **R.G. Harrison, Jr.**
(Ph.D. University of Wisconsin-Madison, 1975)
- **J.H. Harwell**
(Ph.D. University of Texas at Austin, 1983)
- **L.L. Lee**
(Ph.D. Northwestern University, 1971)
- **L.L. Lobban**
(Ph.D. University of Houston, 1987)
- **R.G. Mallinson**
(Ph.D. Purdue University, 1983)
- **P.S. McFetridge**
(Ph.D. University of Bath, UK, 2002)
- **M.U. Nollert**
(Ph.D. Cornell University, 1987)
- **E.A. O'Rear, III**
(Ph.D. Rice University, 1981)
- **D. Papavassiliou**
(Ph.D. University of Illinois at Urbana-Champaign, 1996)
- **D.E. Resasco**
(Ph.D. Yale University, 1983)
- **J.F. Scamehorn**
(Ph.D. University of Texas, Austin, 1980)
- **D.W. Schmidtke**
(Ph.D. University of Texas, Austin, 1997)
- **R.L. Shambaugh**
(Ph.D. Case Western Reserve University, 1976)
- **V.I. Sikavitsas**
(Ph.D. University at Buffalo, 2000)

Research Areas

•Bioengineering

Genetic engineering, protein production, bioseparations, vascular tissue engineering, cell adhesion, biosensors, orthopaedic tissue engineering

•Energy & Chemicals

Catalytic hydrocarbon processing, natural gas conversion, novel fuel cell components, data reconciliation, hydrogen production, process design retrofit and optimization, molecular thermodynamics, computational modeling of turbulent transport and reactive flows, detergency, applied surfactant technologies

•Materials Science & Engineering

Catalytic SWNT production and functionalization, polymer melt blowing, polymer characterization and structure-property relationships, polymer nanolayer formation and use

•Environmental Processes

Photocatalytic oxidation, catalytic NOx reduction, zero-discharge process engineering, soil and aquifer remediation, surfactant-based water decontamination

Oklahoma State University

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Faculty

Gary L. Foutch (Ph.D., University of Missouri-Rolla)
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
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Molecular Design
Nanomaterials
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For more information contact
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School of Chemical Engineering
Oklahoma State University
Stillwater, OK 74078-5021
gasem@okstate.edu

Penn 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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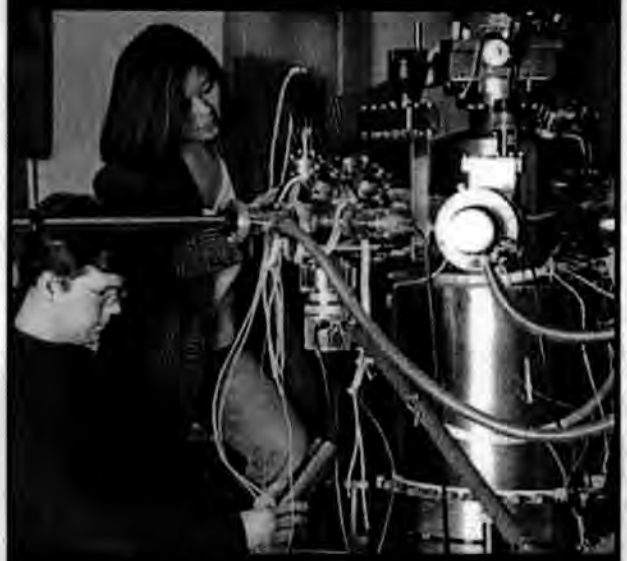

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Chemical Engineering

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

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

Patrick Cirino *(Ohio)*—Biocatalysis, metabolic engineering, protein engineering and directed evolution

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

Jong-in Hahm *(University of Chicago)*—Nano-Biotechnology

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

Joseph M. Perez *(Penn State)*—Tribology, Lubrication

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

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

M. Albert Vannice *(Stanford)*—Heterogeneous Catalysis

Darrell Velegol *(Carnegie Mellon)*—Colloidal and Nanoparticle Systems, Bacterial Adhesion

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

Andrew Zydney *(Massachusetts Institute of Technology)*—Biomedical Engineering, Bioseparations, and Membrane Processes

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

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Information on Fellowships and Applications:

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Pittsburgh, PA 15261
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Conformation and interactions in biopolymers

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Interactions of lasers with molecules, polarization effects

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Chirality of macromolecules, liquid crystals

R. Gross
Biosynthesis, biocatalysis, and biotechnology

K. Levon
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L. Stiel
Thermodynamics and transport properties of fluids

I. Teraoka
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A. Ulman
Surface Science and engineering, nanotechnology

E. Ziegler
Air pollution control engineering

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Plasma polymerization, polymer thin films

Princeton University

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

Faculty

Ilhan A. Aksay
Jay B. Benziger
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  - *Systems Modeling and Optimization*
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  - *Biopreservation*
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  - *Protein and Enzyme Engineering*
- Environmental and Energy Science and Technology
  - *Aerosol Physics and Chemistry*
  - *Art and Monument Conservation*
  - *Fuel Cell Engineering*
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  - *Flow in Porous Media*
  - *Granular and Multiphase Flow*
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  - *Rheology*
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  - *Colloidal Dispersions*
  - *Nanoscience and Nanotechnology*
  - *Polymers*
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  - *Heterogeneous Catalysis*
  - *Process Control and Operations*
  - *Process Synthesis and Design*
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  - *Liquid State Theory*
  - *Molecular Simulation*

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James M. Caruthers
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W. Nicholas Delgass
Elias I. Franses
Robert E. Hannemann
Michael T. Harris
Hugh W. Hillhouse
R. Neal Houze
Sangtae Kim
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John A. Morgan
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D. Ramkrishna
G. V. Reklaitis
Fabio H. Ribeiro
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George T. Tsao
Arvind Varma (Head)
V. Venkatasubramanian
Nien-Hua L. Wang
Philip C. Wankat
You-Yeon Won

Research areas

Biochemical Engineering • Biomolecular Engineering •
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Combustion Synthesis • Electronic Materials •
Fluid Mechanics & Transport Phenomena •
Interfacial Engineering & Colloid Science •
Micro- & Nanofluidics • Molecular Modeling & Statistical Mechanics •
Nanofabrication & Nanomaterials • Pharmaceutical Engineering •
Polymer Materials & Composites • Product & Process Systems Engineering •
Separation Processes • Surface Science •

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For more information, contact:

Graduate Studies, Forney Hall of Chemical Engineering, Purdue University, 480 Stadium Mall Drive, West Lafayette, Indiana 47907 Phone: (765) 494-4057 Web: http://engineering.purdue.edu/ChE

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http://www.eng.rpi.edu/dept/chem-eng/

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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, *Prof. Emeritus*
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, bequette@rpi.edu
Acting Department Chair
Process modeling, control, and drug delivery

Henry R. Bungay III, bungah@rpi.edu, *Prof.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
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

Lealon Martin, lealon@rpi.edu
Chemical and biological process modeling and design; optimization; systems engineering

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 engineering, 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

FACULTY

Constantine Armeniades
(Case Western Reserve, 1969)

Walter Chapman
(Cornell, 1988)

George Hirasaki
(Rice, 1967)

Paul Laibinis
(Harvard, 1991)

Nikolaos Mantzaris
(Minnesota, 2000)

Clarence Miller
(Minnesota, 1966)

Matteo Pasquali
(Minnesota, 2000)

Marc Robert
(Swiss Fed. Inst. Tech., 1980)

Michael Wong
(MIT, 2000)

Kyriacos Zygourakis
(Minnesota, 1981)

Joint Appointments

Vicki Colvin
(UC Berkeley, 1994)

Antonios Mikos
(Purdue, 1988)

Ka-Yiu San
(Caltech, 1984)

Jennifer West
(UT Austin, 1996)

Mark Wiesner
(Johns Hopkins, 1985)

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Cell population heterogeneity, metabolic engineering, signal transduction and biological pattern formation, cellular and tissue engineering.

Energy & Sustainability:

Gas hydrates, statistical mechanics, transport and thermodynamic fluid properties, enhanced oil recovery, reservoir characterization, aquifer remediation, pollution control.

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S. H. CHEN, Ph.D. 1981, Minnesota
Polymer Science and Engineering • Organic Materials for Optics and Photonics • Molecular Dynamics Simulation

E. H. CHIMOWITZ, Ph.D. 1982, Connecticut
Critical Phenomena • Statistical Mechanics of Fluids • Computer-Aided Design

D. R. HARDING, Ph.D. 1986, Cambridge (England)
Chemical Vapor Deposition • Mechanical and Transport Properties • Advanced Aerospace Materials

S. D. JACOBS, Ph.D. 1975, Rochester
Optics, Photonics, and Optoelectronics • Magnetorheology • Optics Manufacturing

J. JORNE, Ph.D. 1972, California (Berkeley)
Electrochemical Engineering • Microelectronics Processing • Theoretical Biology

M. R. KING, Ph.D. 1999, Indiana (Notre Dame)
Dynamics of leukocyte and platelet adhesion, Computational biofluid mechanics

L. J. ROTHBERG, Ph.D. 1984, Harvard
Organic Materials and Device Sciences • Light-Emitting Diodes • Thin Film Transitors

Y. SHAPIR, Ph.D. 1981, Tel Aviv (Israel)
Critical Phenomena • Transport in Disordered Media • Scaling Behavior of Growing Surfaces

J. H. D. WU, Ph.D. 1987, M.I.T.
Biochemical Engineering • Fermentation • Biocatalysis • Bone Marrow Tissue Engineering • Genetic and Protein Engineering

H. YANG, Ph.D. 1998, Toronto
Nanostructured Materials • Magnetic Nanoparticles • Mesoporous Solids • Micro- and Nanofabrication • Materials and Structures for Photonics and Biophotonics

M. YATES, Ph.D. 1999, Texas (Austin)
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Zenaida Gephardt · *University of Delaware*
Brian G. Lefebvre · *University of Delaware*
James Newell · *Clemson University*
Mariano J. Savelski · *University of Oklahoma*
C. Stewart Slater· *Rutgers University*

Research Areas

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For additional information

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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 of complex fluids, 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*
- **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,** Associate 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,** AssociateProfessor; 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,** AssociateProfessor; 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*

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For further information contact:

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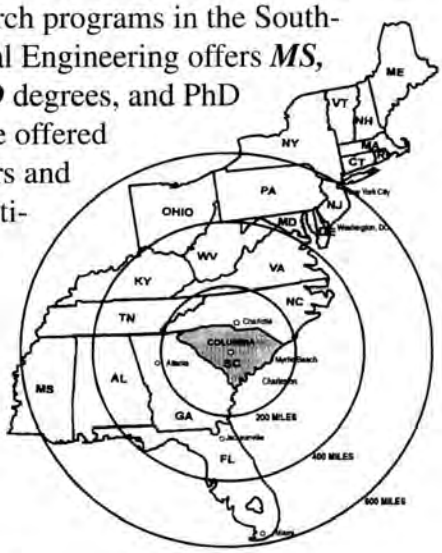

For further information:
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Faculty

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F.A. Gadala-Maria, *Stanford*
E.P. Gatzke, *Delaware*
J.H. Gibbons, *Pittsburgh*
E. Jabbari, *Purdue*
M.A. Matthews, *Texas A&M*
M.A. Moss, *Kentucky*
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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***
Biomedical Engineering	***Rheology***
Biomaerials	***Separations***
Colloids and Interfaces	***Sol-Gel Processing***
Composite Materials	***Solvent Extraction***
Corrosion Engineering	***Surface Science***
Electrochemistry	***Supercritical Fluids***
Heterogeneous Catalysis	***Thermodynamics***
Nanotechnology	***Waste Management***
Numerical Methods	***Waste Processing***

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FACULTY

W. Victor Chang
(Ph.D., Ch.E., California Institute of Technology, 1978) • Physical properties of polymers and composites; adhesion; finite element analysis

Iraj Ershaghi
(Ph.D., PTE, University of Southern California, 1972) • Formation evaluation and characterization of subterranean reservoirs; smart oilfield technologies; geostatistical methods; fractured flow systems

Michael Kezirian
(Ph.D., CHE, MIT, 1996) (Adjunct) • Polymer sciences, non-Newtonian fluid mechanics; interfacial transport phenomenon; chemical engineering of satellite and space sciences; kinetics of liquid propulsion and system engineering

C. Ted Lee
(Ph.D., Ch.E., Texas, Austin, 2000) • Responsive surfactant systems; templated nanomaterials; protein folding; gene transfection; drug delivery; biosurfaces

Ching-An Peng
(Ph.D., Ch.E., University of Michigan, 1995) • Bio-based products; cellular and tissue engineering; drug and gene delivery; fluorinated materials; nanomaterials

Muhammad Sahimi
(Ph.D., Ch.E., Minnesota, 1964) • Membrane separation; heterogeneous materials; atomistic modeling of transport and separation of fluid mixtures in nanaporous materials; flow, transport, reaction and wave propagation in large-scale porous media; percolation theory; massively-parallel computations

Ronald Salovey
(Ph.D., Phys. Chem., Harvard, 1958) (Emeritus) • Physical chemistry and irradiation of polymers; characterization of elastomers and filled systems; polymer crystallization

Katherine S. Shing
(Ph.D., Ch.E., Cornell, 1982) • Thermodynamics and statistical mechanics; supercritical extraction; protein adsorption

Theodore T. Tsotsis
(Ph.D., Ch.E., Illinois, Urbana, 1978) • Chemical reaction engineering; membrane separation processes

Pin Wang
(Ph.D., Ch.E., Caltech, 2004) • Protein biosysthesis; bimolecular engineering; biomaterials engineering and microfluidic devices for biological application

Yanis C. Yortsos
(Ph.D., Ch.E., Caltech, 1979) • Flow, transport and reaction in porous media

Please write for further information about the program, financial support, and application forms:

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Los Angeles, CA 90089-1211
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or visit our website at:

www.usc.edu/dept/che

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The State University of New York

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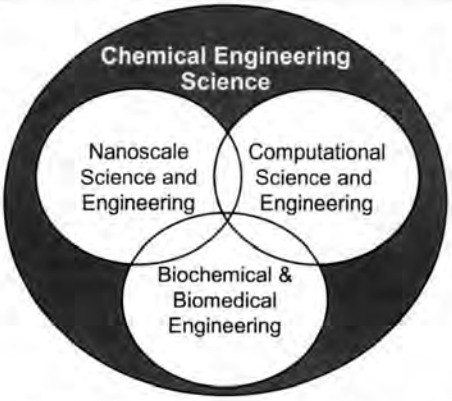

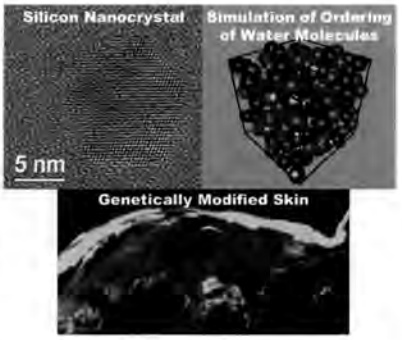

Faculty

Paschalis Alexandridis (MIT) • *self-assembly, complex fluids, nanomaterials, interfacial phenomena, amphiphilic polymers*
Stelios T. Andreadis (Michigan) • *gene therapy, tissue engineering of skin & blood vessels, controlled protein and gene delivery*
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, evolutionary engineering*
David A. Kofke (Pennsylvania) • *molecular modeling and simulation*
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) • *nanoparticle formation, modeling of reactive flows, computational chemistry, chemical kinetics*
E. (Manolis) S. Tzanakakis (Minnesota) • *cell and tissue engineering, biochemical engineering*

Adjunct Faculty

William M. Mihalko (Orthopaedics) • *biomechanical engineering*
Athos Petrou (Physics) • *spectroscopy, semiconductor nanostructures*
Frederick Sachs (Biophysics) • *cellular mechanics and signaling*
Carel Jan van Oss (Microbiology and Immunology) • *colloids and interfaces*
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

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For more information and an application, write to: Director of Graduate Studies, Department of Chemical and Biological 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.

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R. Blanks (PhD, University of California at Berkeley)
G.B. DeLancey (PhD, University of Pittsburgh)
H. Du (PhD, Penn State University)
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)
A. Ritter (Ph.D. University of Rochester)
G. Rothberg (PhD, Columbia University)
K. Sheppard (PhD, University of Birmingham)

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Processing of Highly Filled Materials
Chemical Reaction Engineering
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Polymer Characterization and Morphology
High Temperature Gas-Solid and Solid-Solid Interactions
Environmental and Thermal Barrier Coatings

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Stevens Institute of Technology
Hoboken, NJ 07030
201-216-5234

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Chemical, Biochemical, and Materials Engineering Department
Stevens Institute of Technology
Hoboken, NJ 07030
201-216-5546

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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)
Green Engineering, Design, Separations

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

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

Frederick E. Weber (Ph.D., Minnesota, 1982)
Radiation Chemistry, Engineering Pedagogy

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*

For additional information contact:
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Phone: (865) 974-2421
Email: cheinfo@utk.edu
http://www.che.utk.edu

Tennessee Tech

Research areas

Electrical Field-Based Processes and Systems

Energy conversion (fuels cells) and energy storage systems (rechargeable batteries and supercapacitors); hydrogen storage process; modeling and simulation of power sources; AC impedance spectroscopy for transport properties in batteries; microfluidics, field flow fractionation and bio-micro electrophoresis; electrokinetics in soil remediation and bioseparation; cold plasma high oxidation methods.

Nanoscale-Based Engineered Materials and Systems

Multi-scale approach for the design, synthesis and characterization of advanced materials; micro- and nano-scale engineering of cementeous materials and soft, i.e. colloidal and biodegradable gel materials for bioseparation, controlled-drug delivery, tissue engineering, and contact lenses; micro-rheology of bio-macromolecules in fibrous and porous matrices; visualization of bio-macromolecule micro-flows; design and characterization of foam blowing agents.

Biological-Based Process and Systems

Intelligent-based computational approaches (Signature) for drug design; pharmacokinetics and drug delivery; bioinformatics; biological microflows in the human body; micro-separation of biological macromolecules; micro-biosensors; dynamics of environments for biogrowth.

Computational Mathematics and Modeling

Methods of lines; design of complex fluid mixtures; Monte-Carlo, molecular dynamic and integral-spectral approaches in multi-scale environments with and without electro/chemical/biological reactions; novel methods for phase-equilibrium calculations; micro-flows in drops at low Reynolds No.; averaging methods in multi-scale and field sensitive systems; particle flows in micro-channels.

Engineering Education

System-based learning and high performance (student-centered) learning environments; problem-based learning; social learning approaches; ABET-based models of assessments; research-based methods for undergraduate education.

Tennessee Tech University's Chemical Engineering Department blends scholarship and research with advanced studies, offering excellent opportunities to graduate students. The dynamic and flexible program offers an M.S. in Chemical Engineering and a Ph.D. in Engineering with a concentration in Chemical Engineering. The program's interdisciplinary nature lends itself to relevant projects in current areas of research. Core faculty members enhance student opportunities by working closely with faculty in Electrical Engineering, Environmental and Civil Engineering, Mechanical Engineering, Chemistry, Biology, and Manufacturing and Industrial Technology to build a unique and effective environment for graduate research and learning. The relatively small size of the program and friendly campus atmosphere promote close interaction among students and faculty. Opportunities to mentor undergraduate students in research and in the use of instruments such as NMR, electron microscopy, x-ray diffraction and microflow visualization lead to well-rounded training, as does the department's partnership with TTU's Centers of Excellence.

TTU's ChE faculty conduct research sponsored by NSF, DOE, NASA, and state and private sources among others, and they are actively involved in national and regional organizations including AIChE, American Electrophoresis Society, American Ceramic Society, American Concrete Institute, Electrochemical Society, ACS, and ASEE. They conduct their research in close collaboration with leading regional and/or international institutions such as Florida State, Georgia Tech, Texas A&M, UT-Space Institute, University of Michigan, University of South Carolina, UCN (Antofagasta, Chile), and Oak Ridge, Sandia and Brookhaven national labs, in addition to TTU's Centers of Excellence in Manufacturing Research, Water Resources, and Electric Power. This environment brings unique opportunities for graduate students interested in frontier areas of research.

Core Faculty in Chemical Engineering

Pedro E. Arce, Chair, Ph.D., Purdue
Joseph J. Biernacki, Dr. Eng., Cleveland State
Richard Booth, Ph.D., Clemson
Patricia Dycus, Ph.D., Tennessee Tech
John Eliassen, Ph.D., Minnesota
Venkat Subramanian, Ph.D., Univ. of S. Carolina
Donald P. Visco, Jr., Ph.D., Univ. at Buffalo-SUNY
Chensung Wang, Ph.D., Zhejiang University
David Whitmire, Ph.D., Auburn

Collaborating Faculty

Jeffrey O. Boles, Chemistry, Ph.D., Univ. of S. Carolina
Glen Cunningham, Mechanical Eng., Ph.D., Tennessee Tech
Ahmed ElSawy, Industrial and Manufacturing, Ph.D., Cairo Univ.
Dennis George, Environmental Systems, Ph.D. Clemson
Satish M. Mahajan, Electrical Eng., Ph.D., Univ. of S. Carolina
Martha J.M. Wells, Chemistry, Ph.D., Auburn

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FOR MORE INFORMATION, please contact
Dr. Joseph J. Biernacki, Graduate Program Coordinator
TTU Chemical Engineering Department, Box 5013, Cookeville, TN 38505-0001
jbiernacki@tntech.edu • Phone (931) 372-3667 • Fax (931) 372-6352
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Chemical Engineering at the University of Texas at Austin is an exciting, broad-based and interdisciplinary program, with faculty of diverse research interests. We are one of the leading programs in chemical engineering excelling in all aspects of scholarship, research and education. Both M.S. ChE and Ph.D. ChE degrees are offered. Fellowships and research assistantships are provided, including tuition and fees.

Faculty and their research

David T. Allen, Ph.D., Caltech, 1983 • environmental modeling, air pollution chemistry
Roger T. Bonnecaze, Ph.D., Caltech, 1991 • rheology of complex fluids, materials processing
Thomas F. Edgar, Ph.D., Princeton U., 1971 • process modeling, control, optimization
John G. Ekerdt, Ph.D., U. of C. Berkeley, 1979 • electronic materials chemistry, surface science
R. Bruce Eldridge, Ph.D., U. of Texas, 1986 • separations research
Benny D. 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 • nanostructured materials, complex fluids, polymer physics, interfacial phenomena
Adam Heller, Ph.D., Hebrew U., 1961 • electrochemical biosensing, environmental photoelectrochemistry
Gyeong S. Hwang, Ph.D., Caltech, 1999 • multiscale modeling, nanostructuring, surface & interface science, defect-dopant engineering
Keith P. Johnston, Ph.D., U. of Illinois, 1981 • drug delivery, 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, organic electronics, patterning
C. Buddie Mullins, Ph.D., Caltech, 1990 • surface science, molecular beams, nanostructured film growth
Donald R. Paul, Ph.D., U. of Wisconsin, 1965 • polymer blends and nanocomposites, membranes, barrier materials
Nicholas A. Peppas, Sc.D., MIT, 1973 • polymer physics, biomaterials, controlled drug delivery
S. Joseph Qin, Ph.D., U. of Maryland, 1992 • process control, monitoring & optimization, process modeling & system identification
Gary T. Rochelle, Ph.D., U. of C. Berkeley, 1977 • CO_2 capture to control global warming, 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
Mukul M. Sharma, Ph.D., U. of Southern California, 1985 • surface and colloid chemistry
Thomas M. Truskett, Ph.D., Princeton U., 2001 • molecular-based modeling of protein solutions & nano-confined materials
John M. White, Ph.D., U. of Illinois, 1966 • chemical reactions on surfaces, electronic materials
C. Grant Willson, Ph.D., U. of C. Berkeley, 1973 • polymer synthesis, nanotechnology, materials for micro-electronics

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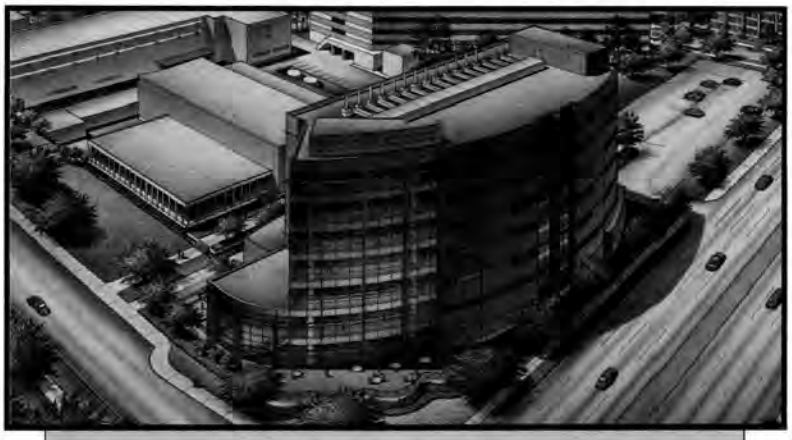

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- ***Biochemical Engineering***
- ***Advanced Materials/Electronics***
- ***Microfluids*** ■ ***Electrochemical Engineering***
- ***Reaction Engineering/Kinetics/Catalysis***
- ***Interfacial Phenomena***
- ***Environmental Engineering*** ■ ***Thermodynamics***

For More Information

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Texas A&M University • College Station, Texas 77843-3122
Phone (979) 845-3361 • Website http://www.cheweb.tamu.edu

R.G. Anthony • Ph.D., University of Texas, 1966
C.D. Holland Professor
Environmental remediation & benign processing kinetics, catalysis & reaction engineering

J. Appleby, Ph.D. • Cambridge University, 1965
Electrochemistry

P. Balbuena, Ph.D. • University of Texas, 1996
Molecular simulation and computational chemistry

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

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

J.L. Bradshaw • B.S., Texas A&M University, 1960
Process safety

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

J.A. Bullin, Ph.D. • U. of Houston, 1972, Professor Emeritus

Z. Cheng, Ph.D. • Princeton University, 1999
Nanotechnology

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

M. El-Halwagi, Assoc. Head, Ph.D. • Univ. of California
1990 McFerrin Professor
Environmental remediation & benign processing process, design, integration, & control

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

D.M. Ford, Ph.D. • University of Pennsylvania, 1996
Molecular simulation & computational chemistry, thermodynamics, transport and interfacial phenomena

G. Froment, Ph.D. • University of Gent, Belgium, 1957
Kinetics, catalysis, and reaction engineering

C.J. Glover, Ph.D. • Rice University, 1974
Materials chemistry, synthesis, and characterization, transport and interfacial phenomena

J. Hahn, Ph.D. • University of Texas, 2002
Process, design, integration, and control

K.R. Hall, Head, Ph.D. • Univ. of Oklahoma, 1967
Jack E. & Frances Brown Chair
Process safety, thermodynamics

C.E. Isdale • M.B.A., Southern Illinois University at Edwardsville, 1978

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
Biomedical/biochemical

A. Jayaraman, Ph.D. • University of California, 1998
Biomedical/biochemical

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. Process safety

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

J. Seminario, Ph.D. • Southern Illinois University, 1988
Molecular simulation and computational chemistry

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

L. Yurttas • Ph.D., Texas A&M University, 1988

Faculty

Martin A. Abraham, Professor
Ph.D., University of Delaware
Green Eng., Catalysis, Hydrogen Production, Fuel Cells

Abdul-Majeed Azad, Associate Professor
Ph.D., University of Madras, India
Materials & Ceramic Processing, Solid Oxide Fuel Cells

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

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

John P. Dismukes, Professor
Ph.D., University of Illinois
Materials Processing, Managing 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
Polymer Physical Properties, Orientation & Crystallization

Dong-Shik Kim, Assistant Professor
Ph.D., University of Michigan
Biomaterials, Metabolic Pathways, Biomass Energy

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

G. Glenn Lipscomb, Professor and Chair
Ph.D., University of California at Berkeley
Membrane Separations, Alternative Energy, Education

Arunan Nadarajah, Professor
Ph.D., University of Florida
Characterization of Surfaces, 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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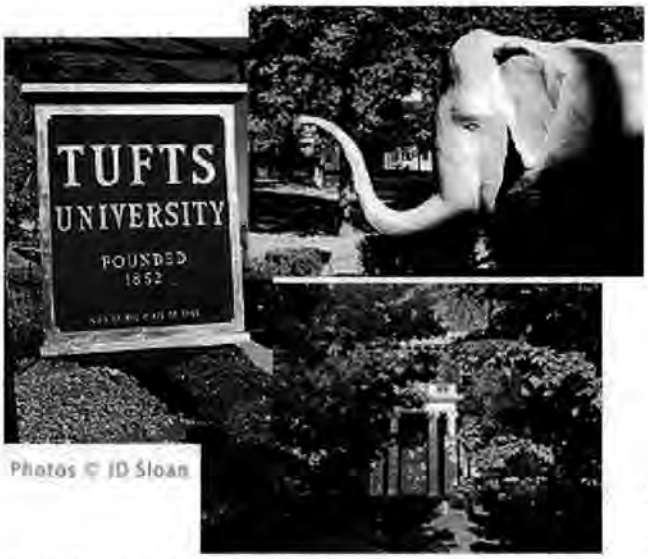

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FACULTY

Maria Flytzani-Stephanopoulos
Environmental catalysis, clean energy, pollution prevention

Christos Georgakis, Chairman
Reactor modeling, control of chemical reactors and complex processes

David L. Kaplan
Bioengineered polymers related to self assembly, biomaterials and tissue engineering

Kyongbum Lee
Metabolic engineering, biotechnology, bioinformatics

Jerry H. Meldon
Membrane science and technology, mass transfer with chemical reaction including mathematical modeling

Blaine Pfeifer
Biotechnology, biomaterials, drug and gene delivery for cancer therapy

Daniel F. Ryder
Materials science, advanced process control applications

Nak-Ho Sung
Polymers and composites, interface science, polymer diffusion, surface modification

Kenneth A. VanWormer
Optimization, reaction kinetics, VLSI fabrication

ADJUNCT AND RESEARCH FACULTY

Gregory D. Botsaris
Crystallization, nucleation, applied surface science

Aurelie Edwards
Biomedical engineering, role of microcirculation in the renal medulla

Dale Gyure
Novel therapeutics and nutrition supplements

Brian Kelley
Novel methods for protein purification, large-scale purifications, high-density bacterial fermentation

Ljiljana Kundakovic
Biological reactors

Howard Saltsburg
Catalysis, materials science

Regina Valluzzi
Molecular biophysics, ordering of highly structured patterned polymers into complex nanostructured materials

Vladimir Volloch
Cellular and molecular biology

Gordana Vunjak-Novakovic
Biomedical engineering, transport phenomena, tissue engineering, bioreactors

Tulane University

Department of Chemical and Biomolecular Engineering

Faculty and Research Areas

Henry S. Ashbaugh • *Classical Thermodynamics and Statistical Mechanics • Molecular Simulation • Solution Thermodynamics • Multi-Scale Modeling of Self-Assembly and Nanostructured Materials*

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

W T. Godbey • *Gene Delivery • Cellular Engineering • Molecular Aspects of Nonviral Transfection • Biomaterials*

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*

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

Graduate Advisor
Department of Chemical and Biomolecular Engineering
Tulane University • New Orleans, LA 70118
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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

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- 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

D.W. Crunkleton • Fuel cells, sensors
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
K.L. Sublette • Bioremediation, biological waste treatment, ecological risk assessment
K.D. Wisecarver • Multiphase reactors, multiphase flows

Further Information
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E-mail: chegradadvisor@utulsa.edu • Graduate School application: 1-800-882-4723

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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.

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.

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.

Clare McCabe *(Ph.D., University of Sheffield)*
Molecular modeling of complex fluids, nanomaterials, biological systems, molecular rheology, molecular theory, phase equilibria.

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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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 Pennsylvnaia*
Environmental remediation, microbial transport in porous media

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

David Green, *PhD, University of Maryland*
Reaction engineering of nanoparticles, rheology of complex nanoparticle suspensions

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

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

Cato Laurencin, *MD, Harvard Medical School*
PhD, Massachusetts Institute of Technology
Biomaterials, tissue engineering, nanotechnology

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

James P. Oberhauser, *PhD, University 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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Polymer Materials and Interface Laboratory
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Center for Biomedical Engineering
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
Computational Science and Engineering

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

Amadeu K. Sum (Delaware)
Simulation of biorelated systems, complex fluids

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

Virginia Tech

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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 Study in Chemical Engineering at

Washington University

Master's and Doctoral Programs

M. Al-Dahhan ► Chemical Reaction Engineering, Multiphase Reactors, Mass Transfer, Process Engineering
L. Angenent ► Biological Waste Conversion, Bioaerosol Control, Environmental Engineering
P. Biswas ► Aerosol Dynamics, Environmental Engineering
M. P. Dudukovic ► Multiphase Reaction Engineering, Tracer Methods, Environmental Engineering
J. T. Gleaves ► Heterogeneous Catalysis, Surface Science, Microstructured Materials
J. L. Kardos ► Composite Materials and Polymer Engineering
B. Khomami ► Rheology, Polymer and Composite Materials Processing
P. A. Ramachandran ► Chemical Reaction Engineering, Boundary Element Methods
R. Sureshkumar ► Complex Fluids Dynamics, Interfacial Nanostructures, Multiscale Modeling and Simulations
J. Turner ► Environmental Reaction Engineering, Air Quality Policy and Analysis, Air Pollution Control

For Information Contact

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Chemical Engineering and Materials Science

WAYNE STATE UNIVERSITY

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

M.S. and Ph.D. in Materials Science and Engineering

Graduate Certificate in Polymer Engineering

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, Chair, 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

Contact:

Prof. Huang, Graduate Advisor, Chemical Engineering • yhuang@che.eng.wayne.edu
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RESEARCH AREAS

Biochemical Engineering and Biotechnology

Carbon Products • Catalysis and Reaction Engineering

Electro-Optical Materials • Environmental Engineering

Fluid-Particle Sciences • Fluidization

Multi-Phase Flow • Particle Coating

Polymer Composites • Polymer Rheology

Powder Technology • Separation Processes

Eung H. Cho
(University of Utah)
Eugene V. Cilento, *Dean*
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(University of Delaware)
Aleksey Drozdov
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Ruifeng Liang
(Inst. Chemistry, Chinese Acad. Science)
Joseph A. Shaeiwitz
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Peter G. Stansberry
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(Carnegie-Mellon University)

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For Application Information, Write

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Nicholas L. Abbott
Biotechnology, interfacial phenomena, colloid chemistry, soft materials, nanotechnology

Juan de Pablo
Molecular thermodynamics, statistical mechanics, polymer physics

James A. Dumesic
Kinetics and catalysis, surface chemistry

Michael D. Graham
Fluid mechanics, complex fluids, applied and computational mathematics

Charles G. Hill, Jr.
Immobilized enzyme technology, photocatalysis, kinetics and catalysis, membrane separations

Daniel J. Klingenberg
Colloid science, complex fluids, suspension rheology

Thomas F. Kuech (Chairman)
Semiconductor and advanced materials processing, solid-state and electronic materials, nanostructured materials, interface science

David M. Lynn
Polymer synthesis, biomaterials, functional materials, gene and drug delivery, controlled release, high-throughput synthesis/screening

Christos T. Maravelias
Process modeling and optimization, supply chain optimization, new product development, systems biology, scheduling

Manos Mavrikakis
Thermodynamics, kinetics and catalysis, surface science, computational chemistry, electronic materials, fuel cells

Regina M. Murphy
Biomedical engineering, protein-protein interactions, targeted drug delivery

Paul F. Nealey
Polymers, thin films, nanofabrication, cell-substrate interactions

Sean P. Palecek
Cellular engineering, biosensors, cell adhesion, genomics and proteomics

James B. Rawlings
Process modeling, dynamics and control, particle technology, crystallization

Thatcher W. Root
Green chemistry, catalysis, solid-state NMR, and protein recovery

Eric V. Shusta
Drug delivery, protein engineering, biopharmaceutical design

Ross E. Swaney
Process design, synthesis, modeling, and optimization

John Yin
Molecular virology, bio-informatics, pre-biotic chemistry, systems biology

Graduate Study in Chemical Engineering at WPI

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- Reaction Route Graph Theory
- Adsorption and Transport in Porous Media
- Membrane Reactors
- Catalytic Reforming

Nano Materials
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- Zeolite Nucleation and Growth
- Inorganic Membranes (Zeolite, Perovskite, Palladium)
- Fluid Behavior in Nanopores

Process Analysis and Control
- Nonlinear Process Analysis and Control
- Process Condition Monitoring, Fault Detection and Diagnosis

Sustainable and Green Engineering
- Fate and Transport of Heavy Metals in Atmosphere
- Bioremediation
- Water Remediation by Liquid-phase Adsorption
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Faculty

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William M. Clark • *Ph.D., Rice*

Ravindra Datta • *Ph.D., U.C. Santa Barbara*

David DiBiasio • *Ph.D., Purdue*

Anthony G. Dixon • *Ph.D., Edinburgh*

Nikolaos K. Kazantzis • *Ph.D., Michigan*

Yi Hua Ma • *Sc.D., MIT*

Robert W. Thompson • *Ph.D., Iowa State*

Jennifer L. Wilcox • *Ph.D., Arizona*

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Eric Altman, *Ph.D. Pennsylvania*

Menachem Elimelech,
Ph.D. Johns Hopkins

Gary L. Haller, *Ph.D. Northwestern*

Michael Loewenberg, *Ph.D. Cal Tech*

William Mitch, *Ph.D. University of California*

Lisa D. Pfefferle, *Ph.D. Pennsylvania*

Daniel E. Rosner, *Ph.D. Princeton*

Paul Van Tassel,
Ph.D. University of Minnesota

John Y. Walz, *Ph.D. Carnegie Mellon*

Adjunct Professors

- **Joseph J. Pignatello**
- **L. Lee Wikstrom**
- **Yehia Khalil**

Joint Appointments

- **Thomas Graedel** (School of Forestry & Environmental Studies)
- **Kurt Zilm**
- **Donald Crothers** (Chemistry)
- **Mark Saltzman** (Biomedical)

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Fine Particle Technology

Interfacial and Colloidal Phenomena

Membrane Separations

Materials Synthesis and Processing

Multiphase Transport Phenomena

Separation Science and Technology

Surface Science

BRIGHAM YOUNG UNIVERSITY

Graduate Studies in Chemical Engineering

M.S. and Ph.D. Degree Programs

Faculty and Research Interests

Calvin H. Bartholomew *(Stanford)* • kinetics and catalysis
Larry L. Baxter *(BYU)* • combustion of fossil and renewable fuels
Merrill W. Beckstead *(Utah)* • propellant combustion, modeling
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
John L. Oscarson *(Michigan)* • calorimetry and thermodynamics
William G. Pitt *(Wisconsin)* • materials science
Richard L. Rowley *(Michigan State)* • thermophysical properties
Kenneth A. Solen *(Wisconsin)* • biomedical engineering
Ronald E. Terry *(BYU)* • engineering education, reservoir engineering
Dean R. Wheeler *(UC Berkeley)* • electrochemical engineering, computer simulation and modeling
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BYU

Department of Chemical and Biological Engineering

University of British Columbia

Vancouver, Canada

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The Department operates joint research programs at the M.A.Sc. and Ph.D. levels with the UBC Biotechnology Laboratory and the Pulp and Paper Research Institute of Canada (PAPRICAN) in areas of common interest.

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J. Csernica, Chair (PhD, M.I.T.)
Diffusion in polymers, polymer surface modification

D.P. Cavanagh (PhD, Northwestern)
Interfacial dynamics, biotransport

M.E. Hanyak (PhD, Pennsylvania)
Process analysis, multimedia courseware design

E.L. Jablonski (PhD, Iowa Stte)
Thin films, surface chemistry

W.E. King (PhD, Pennsylvania)
Photodynamic therapy, hemodialysis

J.E. Maneval (PhD, U.C. Davis)
NMR methods, membrane and novel separations

M.J. Prince (PhD, U.C. Berkeley)
Biochemical systems, environmental barriers

T.M. Raymond (PhD, Carnegie Mellon)
Atmospheric physics and chemistry, organic aerosols, indoor air pollution

W.J. Snyder (PhD, Penn State)
Polymer degradation, kinetics, drag reduction

M.A.S. Vigeant (PhD, Virginia)
Bacterial adhesions to surfaces

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