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Purdue University
School of Chemical Engineering

Message from the Head

Purdue University Board of Trustees approved the founding of our School of Chemical Engineering on June 14, 1911. Thus, we have declared 2011 as the Centennial Celebration Year! Multiple events and activities are ongoing: 12 Centennial seminars presented by School alumni from different walks of life throughout the 2011 year; a Main Event on October 7-8 2011; the publishing of a book, titled “100 Years of Chemical Engineering at Purdue University, 1911-2011” and a pictorial school history book. For details of the celebration activities and current information, please visit https://engineering.purdue.edu/ChE/AboutUs/Centennial.

This fall we welcome two new faculty members. Bryan Boudouris (BS University of Illinois at Urbana-Champaign, 2004; PhD University of Minnesota, 2009) joins us as Assistant Professor, after completing two years as post-doctoral fellow at the University of California, Berkeley. Bryan’s research interests are in optoelectronically active polymers and their applications in solar energy, particularly a) the synthesis of low bandgap homopolymers and block copolymers and their application in organic photovoltaic (OPV) devices; b) the design and utilization of functional polymers for enhanced carrier extraction at the metal/organic interfaces of OPV devices; and c) the fabrication of well-ordered, nanostructured organic non-volatile memory elements from block copolymer templates.

Jeffrey Sirola (BS University of Utah, 1967; PhD University of Wisconsin-Madison, 1970) is an industry veteran, who recently retired as Technology Fellow at Eastman Chemical Company and joins us as Professor of Engineering Practice. His areas of interest include chemical process synthesis, computer-aided conceptual process engineering, chemical process development and technology assessment, sustainable development and growth, carbon management, and chemical engineering education. Sirola is a member of the National Academy of Engineering and was the 2005 President of the American Institute of Chemical Engineers.

Our School is pleased to report high enrollment numbers in both the undergraduate program (499 students from sophomores to seniors) and the graduate program (126 fulltime graduate students, of which 29 joined us this August).

This April, in only the second year since the program was spearheaded by our School, the Electric Vehicle (EV) Grand Prix held the first collegiate evGrandPrix on May 7, 2011. Thirty teams from ten universities competed on a course built on the Indianapolis 500 Speedway grounds, during the Emerging Tech Day, an activity organized as part of the Speedway's 100th anniversary celebration. This is just one example of the kaleidoscope of activities in which our faculty and students are shaping the future.

Along with all this activity, it gives me great pleasure to inform that the goal we set seven years ago to renovate the original part of Forney Hall is now approaching completion. With the generous support of our loyal alumni and friends, we successfully concluded the fund raising campaign for the renovation and are tirelessly working to finish the last phase of the construction in time for the Centennial Celebration main event. We invite you to visit us any time, but especially we hope that you will join us for the Centennial Celebration events during October 7-8, 2011.

Sincerely,

Arvind Varma
R. Games Slayter Distinguished Professor
Head, School of Chemical Engineering

Arvind Varma
Vision: Be widely recognized among the premier ranks of chemical engineering programs in the world.

Mission: Provide students with a rigorous and relevant education, conduct field-defining research, and enhance the School's global impact.

Values: Leadership; excellence and innovation; relevance and impact; commitment and responsibility; teamwork and partnership; diversity and respect; safety and sustainability.

Research: To pursue breakthrough research that extends the boundaries of chemical engineering into areas which promote sustainability and which will have the greatest positive impact on our global society.

Education:

Graduate Programs - Recruit and retain high caliber graduate students from top-tier chemical engineering programs, provide challenging and relevant research programs, and a quality graduate level education.

Undergraduate Programs - Recruit and retain the most capable, motivated and diverse class of undergraduates, and help them to obtain a solid and relevant education throughout their Purdue experience.

Global Impact: Educate undergraduate and graduate students who will be successful in a global environment. Cultivate and expand research relationships with prominent international research organizations.

Development: Secure and improve the School’s financial foundation as a means to continually improve its programs and physical facilities, while balancing short and long term goals.

Engagement: Encourage faculty, staff and students to develop a sense of personal responsibility and accountability for service at both the local and national levels. Promote entrepreneurial activity, leading to intellectual property, including invention disclosures and patents. Become a leader in sustainability on the Purdue campus.

Professional Development and Recognition: Encourage all faculty, staff and students to participate in activities that will enhance their career, develop their skills, and help them become more creative and productive. Actively promote recognition by internal and external award nominations.

Culture and Environment: Create an environment where faculty, staff and students are treated with respect and where superior teamwork is achieved. Enhance and expand safety activities and safety education.
### Fields of Study

**Catalysis and Reaction Engineering** – Delgass, Ramkrishna, Ribeiro, Thomson, Varma

**Fluid Mechanics and Interfacial Phenomena** - Basaran, Beaudoin, Corti, Franses, Harris, Houze, Kim, Litster

**Mass Transfer and Separations** – Agrawal, Franses, Wang, Wankat

**Molecular and Nanoscale Modeling** – Chakrabarti, Corti, Harris, Thomson, Won

**Polymers and Materials** – Boudouris, Caruthers, Litster, Pipes, Varma, Won, Wu

**Product and Process Systems Engineering** - Agrawal, Kim, Litster, Pekny, Reklaitis, Venkatasubramanian

**Chemical Synthesis** - Baertsch, Caruthers, Delgass, Morgan, Ribeiro, Thomson, Varma

**Energy** - Agrawal, Boudouris, Caruthers, Chakrabarti, Delgass, Ho, Morgan, Pekny, Ramkrishna, Ribeiro, Varma, Wu

**Medical Engineering** - Caruthers, Chakrabarti, Franses, Liu, Pekny, Ramkrishna, Won, Yuan

**Pharmaceutical Engineering** - Basaran, Beaudoin, Harris, Kim, Litster, Ramkrishna, Reklaitis, Venkatasubramanian
Faculty

Rakesh Agrawal
Sc. D., Massachusetts Institute of Technology, 1980

Winthrop E. Stone Distinguished Professor

Member, National Academy of Engineering
AIChe Founders Award - 2011

Research Areas
Energy transformation and use issues for solar, coal, biomass and hydrogen economy; Novel separation processes using distillation, membranes and adsorption; Process development, cryogenics and gas liquefaction processes

Selected Professional Activities
Member, Editorial Advisory Board, I&EC Research
Member, Chem. Eng. Department Advisory Committee, WPI
Member, Technical Advisory Boards of Dow Chemicals, Genometica, Kyrogen Ltd., Weyerhaeuser
Member, NRC Committee on Energy and Environmental Systems
Member, NRC Board on Energy and Environmental Systems
Member, NRC Board on Plug-in Hybrid Electric Vehicles
Member, Board of Trustees AIChe Foundation (2011)

Selected Invited Lectures

“Chemical Engineering in a Solar Energy Driven Sustainable Future,” PPG Foundation Keynote Address, 32nd Annual Chemical Engineering Graduate Student Association Symposium, Carnegie Mellon University, Pittsburgh, PA, October (2010)

“Energy Saving Opportunities in Multicomponent Distillation: Optimum Configuration and Thermal Coupling between Distillation Columns,” EPFL, Lausanne, Switzerland, September (2010)

“Solar Based Sustainable Energy Solutions,” Pirkey Lecture, University of Texas, Austin, TX, November (2010)

Selected Publications


Selected Conference Presentations


Intellectual Property
Osman Basaran  
Ph. D., University of Minnesota, 1984  
Burton and Kathryn Gedge Professor  

Research Areas: Fluid Mechanics, Rheology, Drop Dynamics, Interfacial Phenomena, Finite Element, Computational Analysis, Ink-Jet Printing, MEMS, Electroseparations

Selected Professional Activities
Session Chair, “Drops X (Session LS),” 63rd Annual Meeting of the Division of Fluid Dynamics (DFD) of the American Physical Society (APS), Long Beach, CA, November 21-23, 2010

Selected Invited Lectures
“EHD jetting and emission of charged drops from Taylor cones,” Mechanical Engineering Department, Clemson University, Clemson, SC, October (2010)

“EHD jetting and emission of charged drops from Taylor cones,” Mechanical Engineering Department, Clemson University, Clemson, SC, October (2010)

“Modeling of free surface flows,” Fuji-Dimatix Corporation, Lebanon, NH, July (2010)

Selected Publications

Selected Conference Presentations


Appathurai, S., Harris, M. T., and Basaran, O. A., “Analogies between a drop impacting a solid surface, an oscillating sessile drop, and two coalescing drops, 63rd Annual Meeting of the Division of Fluid Dynamics (DFD) of the American Physical Society (APS), Long Beach, CA, November (2010)


Stephen P. Beaudoin
Ph. D., North Carolina State University, 1995

Professor

Purdue University Faculty Scholar (2006-2011)

Research Areas
Particle and Thin Film Adhesion, Electronic Materials, Chemical Mechanical Polishing, Biosensors

Selected Professional Activities
President, Particle Division, Adhesion Society, 2008-present

Selected Invited Lectures
“Particle Adhesion Fundamentals,” BEST (Building Excellence in Science and Technology) Seminar Series, Andrews University, Berrian Springs, MI, February (2011)

“Moisture Effects in Particle Adhesion,” Trace Explosives Detection Workshop, Portland, OR, April (2011)

Selected Publications


Selected Conference Presentations
Smith, K., Jaiswal, R. and Beaudoin, S., “Effects of Varying Surface Film Thickness on Particle Adhesion,” Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November (2010)


James M. Caruthers  
Sc. D., Massachusetts Institute of Technology, 1977  

Reilly Professor  

Research Areas  
Materials Design, Non-linear Viscoelasticity of Polymers, Glass-to-Rubber Transition, Engineering Elastomers, Catalyst Design, Bioinformatics

Selected Professional Activities  
Board of Directors, Discovery Park Cyber Center  
Director, Center of Impact Science  

Selected Publications  

Selected Conference Presentations  


Intellectual Property  

Raj Chakrabarti
PhD, Princeton University, 2002
Assistant Professor

Research Areas
Quantum Control and Information Theory, Theoretical and Computational Biophysics, Application to Energy Sciences

Selected Professional Activities
Reviewer:
- NSF CBET Biocatalysis Review Panel, January, 2010
- French National Research Council Reviewer, Quantum Control, 2010

Selected Publications


Selected Conference Presentations
Marimuthu, K., and Chakrabarti, R., “Kinetic Modeling and Optimal Control of the Polymerase Chain Reaction,” AICHE Conference at Salt Lake City, UT, November (2010)


Intellectual Property
David S. Corti
Ph. D., Princeton University, 1997

Professor
Director of Undergraduate Studies

Research Areas
Molecular Thermodynamics, Metastable Liquids, Nucleation Phenomena, Colloidal Dispersions, Computer Simulation Techniques

Selected Professional Activities
Member, Area 1a Programming Committee, AIChE (Term: September 2007 to November 2010)

Chair, Area 1a Program Committee, AIChE (Term: November 2010 to November 2012)

Selected Invited Lectures


Selected Publications


Selected Conference Presentations


Selected Professional Activities
Editorial Board, Journal of Catalysis
Two day short course on kinetic analysis to Conoco Phillips, April 19-20, 2011

Selected Invited Lectures


Selected Publications


Elias I. Franses
Ph. D., Minnesota, 1979

Professor

Research Areas

Selected Invited Lectures

Selected Publications

Selected Conference Presentations

Dong, J., Chen, S., Corti, D.S., Zhao, Y., Hanson, E. and Ng, H.T., “Colloidal Dispersion Stability of CuPc Pigment Nanoparticles: Effects of Triton X-100 and NaNO3,” AIChE Annual Meeting, Salt Lake City, UT, November (2010)

Robert E. Hannemann
M.D., Indiana University, 1959

Visiting Professor

Research Areas
Healthcare Engineering, Modeling Erythrocyte size distribution for evaluation of Leukemia chemotherapy, serum bilirubin determination by skin reflectance, surfactant in respiratory distress syndrome treatment

Selected Professional Activities
Executive Committee and Liaison for the Center for Assistive Technology, Regenstrief Center on Healthcare Engineering, Purdue University
Chair, Healthcare Engineering Signature Area, Purdue University
Board of Directors, National Center for Missing and Exploited Children
Indiana Clinical and Transitional Sciences Institute Project Development Team

Selected Invited Lectures
“Chemical Engineering Centennial Seminar,” School of Chemical Engineering, Purdue University January (2011)

Selected Publications

R. Neal Houze
Ph. D., University of Houston, 1968

Professor
Conoco Phillips Faculty Fellow, 2009-10
Inducted in Purdue Co-Op Hall of Fame, 2010

Selected Professional Activities
Purdue University Senate, Superior Student Committee
Ombudsman for College of Engineering, Purdue University
Interdisciplinary Engineering Committee, College of Engineering, Purdue University
Michael T. Harris  
Ph. D., University of Tennessee – Knoxville, 1992

Professor  
Associate Dean for Undergraduate Education

Research Areas
Nanoparticle Technology, Synthesis of Nanowires and Nanotubes, Micropatterning, Protein Crystallization, Interfacial and Transport Phenomena

Selected Professional Activities
Engineering Advisory Council, Mississippi State University
Associate Editor, Journal of Nanomaterials, (2005 to present)
Associate Editor, Chemical Engineering Letters, (2007 to present)
Program Chair, Minority Division, ASEE (2011 and 2012 annual meetings)
Trustee of AIChE Foundation (2009 to present)
Member, External Advisor Board for RU (Rutgers University)
FAIR ADVANCE project (2010 – present)

Selected Publications

Selected Conference Presentations
Oglesby, P. and Harris, M.T., “Modeling Electrokinetic Remediation of Concrete by G/FEM,” paper 694e, AIChE Annual Meeting, November (2010)
Nancy W. Y. Ho
Ph. D., Purdue University, Molecular Biology

Research Professor
Senior Research Scientist and Group Leader of Molecular Genetics Group
Laboratory of Renewable Resources Engineering (LORRE)

Research Areas
Genetic engineering of the Saccharomyces yeast to convert sugars from cellulosic biomass to ethanol

Selected Publications


Selected Conference Presentations

“Metabolic Engineering the Saccharomyces Yeast to Co-ferment Glucose and Xylose for Cost Effective Production of Renewable Fuels and Chemicals,” Invited to present at Society For Industrial Microbiology Annual Meeting, New Orleans, LA, July (2011)

“An Overview of Yeast-Based Technologies for Ethanol Production from Cellulosic Materials,” Invited to present at 27th Annual International Fuel Ethanol Workshop & Expo, Indianapolis, IN, June (2011)

“Recent Advances in Yeast-Based Technologies for Ethanol Production from Cellulosic Materials,” Presented at the Sixth Frontier in Biofuels Conference, Invited to present at United States-Brazil Symposium on Sustainable Bioenergy (Purdue University’s 6th Frontiers in Bioenergy Conference), Purdue University, West Lafayette, IN, May (2011)

Sangtae Kim  
Ph. D., Princeton, 1983  

Donald W. Fedderson Distinguished Professor (on leave)  

Member, National Academy of Engineering  

Research Areas  
Pharmaceutical Informatics; Bioinformatics, Cheminformatics, Systems Biology;  
Computational Microfluidics and Nanofluidics; Radio Frequency Identification (RFID) and  
Enabling Information Technologies  

Selected Professional Activities  
FDA Science Board Working Group, Chair – IT Subgroup  
Vice Chair, World Technology Evaluation Center (WTEC)  

Advisory Boards (academic):  
Dept. of Chemical Engineering, University of California Santa Barbara  
College of Engineering, Illinois Institute of Technology  
National University of Singapore, Graduate School Integrative Studies Program  
Dept. of Chemical Engineering, Tennessee Tech. University
James D. Litster  
Ph. D., University of Queensland, 1985

Professor of Chemical Engineering and Industrial and Physical Pharmacy  
Director of Graduate Studies, Chemical Engineering

Fellow, Australian Academy for Technological Sciences and Engineering - 2011

Research Areas  
Particle Design and Formulation, Granulation and Agglomeration,  
Crystallization of Bioactives, Engineering Education

Selected Professional Activities
Honorary Professor, The University of Queensland  
Member, Solae LLC (St Louis) Scientific Advisory Board  
Fellow, Institution of Chemical Engineers (UK)  
Consultant, International Fine Particle Research Institute  
Editorial Board, AAPS Pharmaceutical Science and Technology (2009-present)

Selected Publications
Smith, R.M., Liu, L.X., and Litster, J.D., “Breakage of drop nucleated granules in a breakage only high shear mixer,”  

*Powder Technology* (in press)

*AIChe J.* (in press)

Kayrak-Talay, D. and Litster, J.D. “A priori Performance Prediction in Pharmaceutical Wet Granulation; Testing the Applicability of the Nucleation Regime Map to a Formulation with a Broad Size Distribution and Dry Binder Addition,”  

*Chemical Engineering Science* (in press)

Selected Conference Presentations

Julie C. Liu
Ph. D., Caltech, 2006

Assistant Professor
3M Non-tenured Faculty Award

Research Areas
Biomaterials, Tissue Engineering, Protein Engineering

Professional Activities
American Institute of Chemical Engineers
- Women’s Initiatives Committee, vice chair, November 2009 – November 2010
- Session co-chair, Naturally-Derived Biomaterials, November 8, 2010
- Session chair, Tissue Engineering Microenvironment, November 9, 2010
- Women’s Initiatives Committee, chair, November 2010 – November 2011
- Engineering Fundamentals in Life Science (Area 15d/e), 2nd vice chair, November 2010 – November 2011
- NSF review panel
- Annual Meeting abstract reviewer for Biomimetics and Responsive Biomaterials: Exploiting Biological Signals, Dec 2010
- Symposium co-organizer, Strategies to Promote Vascularization of Tissue-engineered Constructs, April 2011
- Panel co-organizer, Exploring Alternative Careers in Biomaterials Student Luncheon, April 2011
- Materials Research Society
- Symposium co-organizer, Engineering Polymers for Stem-Cell Fate Regulation and Regenerative Medicine
- NSF review panel

Selected Invited Lectures
“Peptide-based Cues for Adult Stem Cell Differentiation in Cartilage Graft Applications,” Chemical Engineering, University of Illinois at Urbana-Champaign, (UIUC), March (2011)

Selected Publications

Selected Conference Presentations

Galas, R. and Liu, J.C., “Producing and Characterizing Vascular-Endothelial-Growth-Factor-Modified Surfaces,” Biomaterials Day, sponsored by the Society for Biomaterials and co-organized by Case Western Reserve University, University of Kentucky, and Purdue University, Cleveland, OH, Session B: Cell Material Interactions, November (2010)

Renner, J.N. and Liu, J.C., “Material-based Cues that Influence Mesenchymal Stem Cell Differentiation to Cartilage,” Biomaterials Day, sponsored by the Society for Biomaterials and co-organized by Case Western Reserve University, University of Kentucky, and Purdue University, Cleveland, OH, Session D: Orthopedics, November (2010)

Su, S-C and Liu, J.C., “Modular Protein-based Materials with Tunable Mechanical Properties,” Biomaterials Day, sponsored by the Society for Biomaterials and co-organized by Case Western Reserve University, University of Kentucky, and Purdue University, Cleveland, OH, Poster session, November (2010)


Renner, J.N. and Liu, J.C., “Material-based Cues that Influence Mesenchymal Stem Cell Differentiation to Cartilage,” annual meeting of the Society for Biomaterials, Orlando, FL, Poster session, April (2011)

John A. Morgan  
Ph. D., Rice, 1999  
Associate Professor  
Research Areas: Metabolic Engineering, Biocatalysis

Selected Professional Activities
Associate Editor, Bioprocess and Biosystems Engineering  
Invited Site Reviewer for Singapore’s A*STAR program  
Programming Chair A.I.Ch.E. National Meeting Division 15 (2011)  
Reviewer for the Consortium for Plant Biotechnology Research, Inc  
Review Panel, NSF CBET division  
Review Panel, DOE-ARPA-E  
Review Panel, DOE- Young Investigator Program

Selected Invited Lectures
“Determination of metabolic fluxes in photosynthetic organism,” Chemical Engineering, Cornell University, September (2010)

Selected Publications


Selected Conference Presentations


Joseph F. Pekny
Ph. D., Carnegie Mellon University, 1989

Professor
Interim Head, School of Industrial Engineering (until December, 2010)

Research Areas
Systems analysis; combinatorial optimization; supply chain management, planning and scheduling systems; pharmaceutical pipeline management; model-based and data driven management; systems analysis and decision models in healthcare engineering, real-time decision systems

Selected Professional Activities
Member of the Purdue Global Policy Research Institute
Co-Leader of the Systems Engineering Task Force/Systems of Systems Institute Working Group for the College of Engineering
Technical Advisor – Advanced Process Combinatorics, Inc.
Advisory Board Member, VA Center of Excellence on Implementing Evidence Based Practice, Roudebush VA Hospital

Selected Invited Lectures


“Mathematical Programming Methods for Operations Planning and Scheduling,” (approximately 30 engineers, scientists, and staff), Bristol Myers Squibb/Syracuse, April (2011)

Selected Publications


Selected Conference Presentations


R. Byron Pipes  
Ph. D., University of Texas – Arlington, 1972  

John Leighton Bray Distinguished Professor  
Director, Purdue Institute for Defense Innovation  

Member, National Academy of Engineering  

Research Areas  
Application of nanotechnology to engineering disciplines including aerospace, composite materials and polymer science and engineering  

Selected Professional Activities  
Fellow, American Society of Mechanical Engineers  
Fellow, Society for Advanced Materials and Process Engineering  
Fellow, American Society of Composites  
Member, NRC Committee Panel on Building and Fire Research  
Session Chair ASC Conference – Dayton, OH  
Member, Army Research Laboratory Technical Assessment Board, 2011-2013  
Member, NASA Glenn Polymer Branch Review Team, 2011-2012  

Selected Publications  


Doraiswami Ramkrishna  
Ph. D., University of Minnesota, 1965

H. C. Peffer Distinguished Professor  
Member, National Academy of Engineering

Purdue College of Engineering Mentoring Award, 2010
Purdue College of Engineering, Team Award, 2010

Research Areas
Applied Mathematics, Dispersed phase systems, Biochemical engineering, Chemical reaction engineering

Selected Professional Activities
Member Advisory Council, Pacific Northwest National Laboratory, Richland, WA

Selected Invited Lectures


Selected Publications


Selected Conference Presentations

Gintaras V. “Rex” Reklaitis
Ph. D., Stanford University, 1969

Burton and Kathryn Gedge Distinguished Professor

Member, National Academy of Engineering
Co-director, Pharmaceutical Technology & Education Center
Deputy Director, NSF ERC on Structured Organic Composites

George Lappin Award, National Program Committee, AIChE (2010)

Research Areas
Process systems engineering, design and operation of batch/semicontinuous systems, enterprise-wide modeling and optimization, applications to pharmaceutical product development, process design and manufacturing

Selected Professional Activities
US National Academy of Engineering, Section 3 Peer Committee, 2010-2012
AIChE Foundation, Board of Trustees, 2010-2012
Smart Process Manufacturing, Steering Committee, NSF EVO, 2007- present
National Institute for Pharmaceutical Technology & Education, Purdue representative, 2005- present
Editorial Advisory Boards
- Computers & Chemical Engineering
- Journal of Pharmaceutical Innovation
- Computer Applications in Engineering Education
- Journal of Process Systems Engineering

Selected Invited Lectures
“Progress and Prospects for the ERC on Structured Organic Particulate Systems,” University of Kentucky, Department of Chemical and Biomolecular Engineering, October (2010)

“Progress and Prospects for the ERC on Structured Organic Particulate Systems,” Vanderbilt University, Department of Chemical and Biomolecular Engineering, March (2011)


Selected Publications


Selected Conference Presentations

Selected Professional Activities
Member of the Editorial Board, Applied Catalysis B: Environmental
Member of the Editorial Board, Catalysis Letters
Past-chair, Catalysis and Reaction Engineering Division AIChE (2011)
Chair of the Catalysis and Reaction Engineering Division AIChE (2010)
Editor, Journal of Catalysis

Selected Invited Lectures
“Water-gas shift on Au and Pt: A simple reaction that is not simple to quantify,” Dinner speaker at the Michigan Catalysis Society, Livonia, MI, December 8th, 2010

Selected Publications

Selected Conference Presentations
Kendall T. Thomson  
Ph. D., University of Minnesota, 1999

Associate Professor

Purdue University Faculty Scholar (2008-2013)

Shreve Teaching Award 2010

Research Areas
Computational Catalysis Design, Computer-Aided Design of Nanoporous Materials, 
Ab Initio Molecular Dynamics, Molecular Electronics, Modeling Nano- and 
Mesoporous Materials
Arvind Varma  
Ph. D., Minnesota, 1972  

R. Games Slayter Distinguished Professor  
Head, School of Chemical Engineering  

Elected Foreign Member, Academy of Engineering, Mexico 2010  
Elected Fellow, American Association for the Advancement of Science, 2011  
Elected Fellow, Industrial & Engineering Chemistry Division, American Chemical Society, 2011  
Leadership Award, College of Engineering, Purdue University, 2011

Research Areas: Chemical and Catalytic Reaction Engineering, New Energy Sources, Synthesis of Advanced Materials

Selected Professional Activities
Series Editor, Cambridge Series in Chemical Engineering, Cambridge University Press  
Member of Editorial Board, International Journal of Petroleum Science and Technology  
Member of Editorial Board, Industrial & Engineering Chemistry Research  
Member, AIChE Awards Solicitation Committee  
Chair, Session in honor of Roger Schmitz’ 75th Birthday, 2010 AIChE Annual Meeting

Selected Invited Lectures
Department of Chemical Engineering, Columbia University, New York, NY, October (2010)  
Induction Lecture, Academy of Engineering, Mexico, November (2010)  
Department of Chemical Engineering, Georgia Institute of Technology, Atlanta, GA, December (2010)  
Department of Chemical Engineering, Vanderbilt University, Nashville, TN, February (2011)

Selected Publications
department of Chemical Engineering, University of Colorado, Boulder, CO, 25th Birthday, 2010  

Selected Conference Presentations


“Neal R. Amundson: His Chief Contributions to the Development of Chemical Reaction Engineering,” University of Houston, Houston, TX, March (2011)  


Intellectual Property


New Methods to Generate Hydrogen from Boron Compounds and Water for Fuel Cell Applications,” 8th Tactical Power Sources Summit, Washington, DC, January (2011)  

“Neal R. Amundson: His Chief Contributions to the Development of Chemical Reaction Engineering,” University of Houston, Houston, TX, March (2011)  


Intellectual Property


Venkat Venkatasubramanian  
Ph. D., Cornell, 1984

Reilly Professor  
Professor of Industrial and Physical Pharmacy (Courtesy)

AIChe Fellow, 2011  
Research Excellence Award, College of Engineering, 2011

Research Areas  
Pharmaceutical Informatics, Abnormal Events Management and Process Safety,  
Discovery Informatics for Molecular Products Design, Systems Biology, Complex  
Adaptive Systems, Artificial Intelligence, Artificial Life, Statistical Mechanics

Selected Professional Activities  
Editor, Computers and Chemical Engineering  
Program Chair, Computing and Systems Technology (CAST)  
Area 10E, Information Technology, 2010

Selected Invited Lectures  
“Abnormal Events Management in Complex Engineered Systems,” University of California, Berkeley (EECS Department), February (2010)

Selected Publications  
Nien-Hwa Linda Wang  
Ph. D., Minnesota, 1978

Professor

Research Areas
Chemical and Biochemical Separations, Ion Exchange, Adsorption, Simulated Moving Bed Chromatography, Complex Adaptive Systems

Selected Professional Activities
Elected chair of Area 2E, Adsorption and Ion Exchange, Separations, AIChE
Elected second vice chair of the Separations Division, AIChE
Co-Chair of the Plenary on Fundamental and Applications of Adsorption and Ion Exchange I, AIChE Annual Meeting, Salt Lake City, UT, November (2010)

Selected Invited Lectures


“Standing Wave Design of Simulated Moving Beds for the Recovery of Sugars from Biomass Hydrolysate,” N.-H.L. Wang, University Research In the Field of Biomass/ Renewables, AIChE Spring Meeting, Chicago, IL, March (2011)


“Standing Wave Design of Simulated Moving Beds for High-Purity and High-Yield Multi-component Separations,” N.-H.L. Wang, the Murphree Award Symposium on Recent Advances in Membranes and Separations, in Honor of Dr. Norman Li, 2011 ACS Spring Meeting, Anaheim, California, March (2011)

“Principles and Tools for Designing SMB for High-Purity and High-Yield Multi-component Separations,” Rhodes Technologies, Coventry, RI, June (2011)

Selected Publications


Selected Conference Presentations


Phillip C. Wankat  
Ph. D., Princeton University, 1970 

C. L. Lovell Distinguished Professor  
Director, Undergraduate Degree Programs,  
Department of Engineering Education 

Research Areas  
Adsorption Operations, Large-scale Chromatography, Distillation, Engineering Education 

Selected Professional Activities 
Associate Editor, Chemical Engineering Education, 1995–present.  
Contributing Editor, College Teaching, 2006–present.  
Director AIChE Education Division, 2009–2010  
Editorial board, Separation Science and Technology 1977–present  
Editorial Board, Adsorption, 1993–present  
Editorial board, Separation and Purification Reviews, 1998–present  
AIChE, Member Group 4, Education and Consulting of National Program Committee, 1977–present 

Selected Invited Lectures 

Selected Publications 

Selected Conference Presentations 
You-Yeon Won
Ph. D., Minnesota, 2000

Associate Professor

Research Areas
Physics of polymers, polyelectrolytes, and block copolymers; polymer synthesis; polymer-based gene delivery; colloid self-assembly at liquid interfaces; scattering; microscopy; rheology

Selected Professional Activities
Organizer/Chair for a Focus Session, “Polymer Brushes”, APS March Meeting in Dallas, TX, 2011
Vice-Chair for session titled “Polymerization Reaction Engineering, Kinetics, and Catalysis I”, AIChE Annual Meeting in Salt Lake City, UT, 2010
Chair for session “Polymerization Reaction Engineering, Kinetics, and Catalysis II” AIChE Annual Meeting in Salt Lake City, UT, 2010

Selected Invited Lectures
“Block Copolymers for Tumor-Targeted Theragnostics”
Organic Chemistry Division Seminar, Department of Chemistry, Purdue University, West Lafayette, IN, April (2011)

Selected Publications

Selected Conference Presentations
Park, H. W., Ohn, K. and Won, Y.-Y., “Formation and Collapse of Biodegradable Polymer Monolayers at the Air-Water Interface,” APS March Meeting, Dallas, TX, March (2011)
Yue Wu
Ph. D., Harvard, 2006

Assistant Professor

Air Force Summer Faculty Fellowship, 2010
DuPont Young Professor Award, 2010

Research Areas
Synthesis, Characterization, Assembly of Nanostructured Materials and
Their Potential Applications in Nanoscale Devices and Sustainable Energy

Selected Professional Activities

Selected Invited Lectures
Department of Chemical Engineering, Tsinghua University, Beijing, P. R. China, December (2010)

Department of Chemistry, Tsinghua University, Beijing, P. R. China, December (2010)

National Center for Nanoscience and Technology (NCNST), Beijing, P. R. China, December (2010)

Department of Electronics, Peking University, Beijing, P. R. China, December (2010)

Selected Publications


Selected Conference Presentations

Chongli Yuan  
Ph. D., Cornell, 2007  
Assistant Professor  

Research Areas  
Biomimetic Nanoparticle Systems, Molecular Biophysics  

Selected Professional Activities  
AIChE 2011, Nanoscale Science Session Co-Chair  
Peer reviewer of Journal of American Chemical Society, Nucleic Acids Research  
Panelist: National Science Foundation, Biomedical Engineering, January, 2011; May, 2010  

Selected Publications  
## Graduate Degrees Awarded

**Ph. D. Degrees - August 2010**

- **Chaugule, Saurabh S.**
  - NO, Storage and Regeneration on Pt/BaO/γ-Al₂O₃, Lean NO (Ribeiro/Delgass), Research Engineer, Shell Oil, Houston, TX

- **Fingland, Bradley R.**
  - Novel Approaches to Catalyst Characterization in Planar and Porous Systems, (Ribeiro/Delgass), Advanced Researcher, ExxonMobil, Clinton, NJ

- **Gary, Dana J.**
  - A-B-C Triblock Copolymer Micelles for Intracellular Delivery of Cancer-Targeted siRNA, (Won), R&D Engineer, ExxonMobil, Paulsboro, NJ

- **Hodge, Bri-Mathias**
  - A Multi-Paradigm Modeling Approach for Energy Systems Analysis, (Pekny/Reklaitis), Postdoc. NREL, Golden, CO

- **Kar, Mahaprasad**
  - Formation Pathway of CulnSe₂ Nanocrystals and Solution Deposition of CulnSe₂ Films for Photovoltaic Applications, (Agrawal/Hillhouse), Associate Engineer, ConocoPhillips, Bartlesville, OK

- **Lim, Jung-Sun**
  - Preparation of Uniform Sized Metal-Orgonomic Nanocomposites Using Tobacco Mosaic Virus, (Harris), Research Scientist, Hiroshi Matsui-Hunter College, New York, NY

- **Pathare, Rugved P.**
  - Design and Optimization of Binary Membrane-Based Separations, (Agrawal), Senior Engineer, Dow Chemical Company, Midland, MI

- **Ramalingam, Santhosh K.**
  - Fluid Mechanics of Coupled Interfacial Systems, (Basaran), Senior Engineer, Dow Chemical Company, Freeport, TX

- **Sharma, Pradeep K.**
  - Adsorption Based Novel Purification Processes, (Wankat), Senior Engineer, Algenol Biofuels, Fort Myers, FL

## M.S. Degrees - August 2010

- **AL-Musleh, Easa**
  - Efficient Liquefaction Cycles for Natural Gas, (Agrawal/Reklaitis), Continuing on for PhD, Purdue University, West Lafayette, IN

- **Luque, Maria Elisa**
  - Towards the Development of an Ontological Framework for Drug-Loaded Film Manufacture, (Reklaitis/Pinal), Oil Loss/Off Site Technical Coordinator, Esso Petrol Levi Argentina S.R.L., Compana-Provincia de Guenos Aires

- **Venkatesan, Anand**
  - Ion Exchange Pretreatment for Reverse Osmosis Desalination of Brackish Water, (Wankat), Continuing for PhD, Purdue University, West Lafayette, IN

- **Zarate, Nyah**
  - The Influence of Interfacial Condensed Moisture on Adhesion Between Solid Organic Particles and Surfaces, (Litster), Continuing for PhD, Purdue University, West Lafayette, IN

- **Li, Jianfeng**
  - (Litster), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD

## Ph.D. Degrees – December 2010

- **Chen, Shuang**
  - In Vitro Folding of Metathione-Arginine Human Lyspro-Proinsulin: Pathways and Kinetics, (Wang), Senior Scientist, Pfizer, Inc., Chesterfield, MO

- **Hamdan, Intan M.**
  - Exceptional Events Management Applied to Pharmaceutical Manufacturing, (Venkatasubramanian/Reklaitis), Senior Engineer, Dow Chemical Company, Freeport, TX

- **Shukla, Aviral**
  - Evaluation Trade-Offs for Profitable Design of Network Infrastructure Using Multi-Criteria Optimization, (Venkatasubramanian), Sr. Process Engineer, Intel Corporation, Chandler, AZ

## M.S. Degrees - December 2010

- **Bates, Shane A.**
  - A Study to Determine the Active Site in the Oxidative Dehydrogenation of Ethanol Over Mixed Fe₂(Mo0₄)₃-Mo0₃ Catalysts, (Baertsch), Continuing on for PhD, Purdue University, West Lafayette, IN

- **Chen, Ye**
  - (Reklaitis/Pekny), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD

- **Huang, Shisheng**
  - (Agrawal/Reklaitis/Pekny), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD

- **Shenvi, Anirudh Arun**
  - (Reklaitis), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD

- **Zhang, Rong**
  - (Baertsch), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD
Ph.D. May 2011

Ford, Grayson M.
*Solar Cells from Multinary Nanocrystal Links,* (Agrawal/Hillhouse), Postdoc, Purdue University, West Lafayette, IN

Hu, Wenbin
*Catalytic Oxidation of Glycerol to High-Value Chemical Dihydroxyacetone Over Pt-Bi/C Catalyst,* (Varma), CDP Research Engineer, Air Products, Inc., Allentown, PA

Stamatis, Stephen D.
*Bayesian Microkinetic Modeling of Epoxy Resin Curing and Water Gas Shift Catalysis,* (Caruthers/Delgass), Postdoc, University of Iowa, Iowa City, IA

Zhang, Rong
*Catalyst and Microsystem Investigations for the Selective Detection of CO in Concentrated H₂ Fuels Using Mixed Copper Cerium Oxide Catalysts,* (Baertsch), Tamp, FL

M.S. Degrees – May 2011

Al-Kukhun, Ahmad Y.
(Varma), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD

Gao, Haojing
(Basaran/Harris), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD

Lee, Wensheng
(Caruthers), MS Non-Thesis, Purdue University, West Lafayette, IN, Continuing on for PhD
## Graduate Student Enrollment - Fall 2010

<table>
<thead>
<tr>
<th>Last Name</th>
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<th>Advisor(s)</th>
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<td>Abbou Oucherif</td>
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<td>New Mexico Institute of Mining</td>
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<td>Al-Kukhun Ahmad</td>
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<td>Caruthers/Delgass</td>
<td>University of Michigan</td>
<td>Fall 2005</td>
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<td>Su</td>
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<td>Liu</td>
<td>National Taiwan University</td>
<td>Fall 2009</td>
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<td>Suchomel</td>
<td>Mark</td>
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<td>University of Minnesota,Duluth</td>
<td>Fall 2009</td>
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<td>Sung</td>
<td>Pei-Fang</td>
<td>Harris</td>
<td>National Taiwan University</td>
<td>Fall 2006</td>
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<td>Switzer</td>
<td>Jeffrey</td>
<td>Caruthers/Thomson</td>
<td>University of California, Davis</td>
<td>Fall 2006</td>
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<tr>
<td>Thomas</td>
<td>Myles</td>
<td>Beaudoin</td>
<td>Utah State University</td>
<td>Fall 2010</td>
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<tr>
<td>Torabi</td>
<td>Korosh</td>
<td>Corti</td>
<td>Isfan University/IIT-Chicago</td>
<td>Fall 2007</td>
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<tr>
<td>Tsui</td>
<td>Hung-Wei</td>
<td>Franses/Wang</td>
<td>National Taiwan University</td>
<td>Fall 2009</td>
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<tr>
<td>Venkatakrishnan</td>
<td>Vinod</td>
<td>Agrawal/Delgass Ribeiro</td>
<td>Indian Institute of Technology, Madras</td>
<td>Fall 2009</td>
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<td>Venkatesan</td>
<td>Anand</td>
<td>Wankat</td>
<td>Indian Institute of Technology, Madras</td>
<td>Fall 2008</td>
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<tr>
<td>Verma</td>
<td>Anuj</td>
<td>Ribeiro/Delgass</td>
<td>Institute of Chemical Technology</td>
<td>Fall 2010</td>
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<tr>
<td>Vora</td>
<td>Shaunak</td>
<td>Litster</td>
<td>UICT - Mumbai</td>
<td>Fall 2007</td>
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<td>Walker</td>
<td>Bryce</td>
<td>Hillhouse/Agrawal</td>
<td>Brigham Young University</td>
<td>Fall 2009</td>
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<td>Williams</td>
<td>W. Damion</td>
<td>Delgass/Ribeiro</td>
<td>University of Oklahoma</td>
<td>Fall 2006</td>
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<tr>
<td>Xiong</td>
<td>Silei</td>
<td>Caruthers/Delgass/Thomson</td>
<td>Tsinghua University</td>
<td>Fall 2009</td>
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<td>Yadav</td>
<td>Gautam</td>
<td>Wu</td>
<td>University of Western Ontario</td>
<td>Fall 2009</td>
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<td>Yang</td>
<td>Haoran</td>
<td>Wu</td>
<td>Tsinghua University</td>
<td>Spring 2010</td>
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<td>Yohe</td>
<td>Sara</td>
<td>Agrawal/Delgass/ Ribeiro</td>
<td>University of Minnesota,Twin Cities</td>
<td>Fall 2008</td>
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<td>Zarate</td>
<td>Nyah</td>
<td>Beaudoin/Litster</td>
<td>Illinois Institute of Technology, Chicago</td>
<td>Fall 2008</td>
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<td>Zhang</td>
<td>Rong</td>
<td>Baertsch</td>
<td>Peking University/Miami University</td>
<td>Fall 2007</td>
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<td>Zhu</td>
<td>Qing</td>
<td>Harris/Taylor</td>
<td>Zhejiang University</td>
<td>Fall 2006</td>
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</table>
Facilities

Forney Hall of Chemical Engineering
In October 2004, the School of Chemical Engineering dedicated a 100,000 ft² expansion that more than doubled the size of our building. The building was then re-named the Forney Hall of Chemical Engineering. With new lecture facilities and new bioengineering, catalysis, and nanoscience research laboratories, the School has, for the first time in decades, space to grow. The original building is currently undergoing modernization, particularly in the laboratory and associated spaces. Renovation is scheduled to be completed in early 2012.

Discovery Park
Since 2002, Discovery Park - made up of 10 centers - has grown from an idea to a $450 million interdisciplinary research, learning and engagement complex. More than 1,000 faculty have been involved in Discovery Park. Nearly 3,000 students have participated in Discovery Park programs, and 250 graduate students have offices there. Our faculty are involved in cutting edge research in the Bindley Bioscience, Birck Nanotechnology, Energy, and Oncological Sciences Centers.

Bindley Bioscience Center
The Bindley Bioscience Center initiates and facilitates multi-investigator, multidisciplinary research that blends life sciences and engineering. State-of-the-art research programs focus along strategic lines that advance proteomic science and technology, bionanotechnology and biomicrotechnology, spectroscopy-microscopy for cellular and tissue imaging, tissue engineering, and bio-informatics.

Birck Nanotechnology Center
The Birck Nanotechnology Center is a leading-edge national center for nanoscale research. The BNC leverages advances in nano-scale science and engineering to create innovative nanotechnologies that address challenges in computing, communications, the environment, security, energy independence and health. The Center is located in a $54 million state-of-the-art building that houses specialized laboratories for nano-scale chemistry, physics, and biology; semiconductor-grade cleanrooms; and office space.

Energy Center
The Energy Center is a multidisciplinary community of researchers, scientists, engineers, political scientists and economists. Their goal is create the energy solutions needed by Indiana, the Nation, and the World. Energy research areas include clean coal, solar, bio, wind, electrochemical, electric machines and power electronics, hydrogen and nuclear. Global partnerships and the social, economic and political aspects of energy use and policy are also being advanced. Research on the conversion of agricultural waste into transportation fuels is conducted in the Laboratory for Renewable Resource Engineering (LORRE) in the Energy Center.

Oncology Center
The Oncological Sciences Center’s mission is to eliminate cancer as a cause of suffering and death by applying and synergizing Purdue’s strengths in the biological, chemical, engineering and human behavioral sciences. The Oncological Sciences Center builds and expands on the strong foundation of Purdue's NCI-designated Cancer Center. The Center has established strategic research partnerships with the Walther Cancer Institute and the Indiana University Simon Cancer in Indianapolis. The relationship with the Indiana University Simon Cancer Center provides the clinical setting necessary to advance and refine early-stage detection and treatment of cancers.
Visiting Faculty

Dr. Luis Puigjaner  
UPC - ETSEIB  
Dpt. Enginyeria Química, Barcelona, Spain

Dr. Enrico Martinez  
Profesor, Instituto de Estudios Superiores de Tamaulipas Altamira, Mexic

Academic Advisory Board

Formed in 2006 to provide input on academic issues, the Academic Advisory Board had its meeting on April 11-13, 2011. Current Board members are:

- Kristi Anseth, Distinguished Professor, University of Colorado, Boulder;
- Alexis T. Bell, Dow Professor of Sustainable Chemistry, UC-Berkeley;
- Ignacio Grossman, Rudolph R. and Florence Dean University Professor of Chemical Engineering, Carnegie-Mellon University;
- Michael Ramage, Executive Vice President, ExxonMobil (Retired);
- Gregory Stephanopoulos, Bayer Professor of Chemical Engineering, MIT;
- Frank Bates, Regents Professor and Head, Chemical Engineering and Materials Science, University of Minnesota.

Industrial Advisory Council

The Chemical Engineering Industrial Advisory Council (IAC) was initiated in 1988 through the leadership support of senior executives from Abbott Laboratories, Air Products and Chemicals, Amoco, Dow Chemical and Quantum Chemical. Today the ChE IAC remains a partnership of leading corporations with the School of Chemical Engineering to advance and improve the education and professional preparation of chemical engineers who will meet the needs of industry in the 21st century.

The current IAC members are listed below.

3M  
Abbott  
Air Liquide  
Air Products and Chemicals Inc.  
Anheuser-Busch, Inc.  
BP  
ChevronPhillips Chemical  
Dow Chemical Company  
Du Pont  
Eastman Chemical Company  
Elanco Animal Health, a division of Eli Lilly  
ExxonMobil Chemical Co.  
Honeywell Process Solutions  
Lubrizol Corporation  
LyondellBasell  
National Starch & Chemical Corp.  
Pfizer Global  
Procter & Gamble Co.  
Roquette America Inc.  
Shell Global Solutions (US) Inc.  
UOP LLC

These corporations provide financial support for curriculum innovations, scholarships, experimental facilities enhancements, instructional computing facilities and start-up support for young faculty. The Fall 2010 meeting took place on October 14 in Forney Hall, Purdue; the Spring 2011 meeting occurred February 11, 2011 in Naples, Florida.
September 7, 2010
**Dr. Linda J. Broadbelt**  
Sarah Rebecca Roland Professor & Chair of the Department of Chemical Engineering  
Northwestern University  
“Designing Reaction Pathways to Novel Chemicals and Materials Using Kinetic Modeling”

October 19, 2010
**Dr. Christodoulos A. Floudas**  
Stephen C. Macaleer ’63 Eng. & Applied Science, Professor of Chemical Engineering  
Princeton University  
“De Novo Design of Proteins and Protein-Peptide Complexes”

September 14, 2010
**Dr. Ramon Gonzalez**  
Associate Professor  
Rice University  
“Understanding and harnessing microbial metabolism: the role of systems biology and metabolic engineering”

November 23, 2010
**Dr. John Morgan**  
Associate Professor  
School of Chemical Engineering  
Purdue University  
“Determination of Metabolic Fluxes in Green Organisms”

October 5, 2010
**Dr. Mary Kraft**  
Assistant Professor  
University of Illinois-Urbana Champaign  
“Chemical imaging of lipid organization in model and cellular membranes”

November 30, 2010
**Dr. Jeffrey Reimer**  
Chair, Chemical Engineering  
University of California - Berkeley  
“Spin Control for Chemical Engineers”

October 7, 2010
**Dr. Michael P. Ramage**  
Executive Vice President (retired)  
Exxon Mobil Research and Engineering Company  
“Transitions To Alternative Transportation Technologies: A Focus on Plug-In Hybrid Electric Vehicles”

December 7, 2010
**Dr. Denis Wirtz**  
Theophilus H. Smoot Professor  
Johns Hopkins University  
“Cell motility in 3D”
Seminar Speakers – Spring 2011

January 18, 2011
Dr. Joseph S. Francisco
William E. Moore Distinguished Professor of Earth & Atmospheric Sciences & Chemistry
Purdue University
“Structure and Reactivity of Radical-Molecule Complexes: New Frontier in Atmospheric Chemistry”

January 25, 2011
Centennial Seminar
Dr. Robert Hannemann (BS 1952)
Professor of Biomedical/Chemical Engineering/ Psychological Sciences
Purdue University
"Purdue Chemical Engineering and Medical Research – A Review of the Past and a Vision of the Future"

February 17, 2011
Centennial Seminar
Dr. Surya K. Mallapragada (PhD 1996)
Stanley Professor of Interdisciplinary Engineering Chair, Dept. of Chemical & Biological Engineering
Iowa State University
“Bioinspired Materials”

February 22, 2011
Dr. Robert R. Peoples
Director, Green Chemistry Institute (GCI)
American Chemical Society
“Path to a Sustainable Future – Role of Green Chemistry and Engineering”

March 22, 2011
Centennial Seminar
Dr. Aditya Bhan (PhD 2005)
Assistant Professor
Department of Chemical Engineering & Materials Science
University of Minnesota
“Catalysis in a Pocket: Catalytic Consequences of Spatial Constraints in Acidic Zeolites”

March 31, 2011
Faculty Lecture Award
Dr. Vishesh H. Shah (PhD 2010)
Senior Engineer, Dow Chemical Company
“Energy Savings in Distillation via Identification of Useful Configurations”

April 5, 2011
Kelly Lectures
Dr. Stanley I. Sandler
H.B. DuPont Chair of Chemical Engineering, Professor of Chemistry & Biochemistry
University of Delaware
“Destroying Weapons of Mass Destruction”

April 6, 2011
“Quantum Mechanics: An Underutilized Tool in Thermodynamics”

April 14, 2011
Centennial Seminar
Mr. Michael J. Graff (MS 1979)
President/CEO
American Air Liquide Holdings, Inc.
Air Liquide
“Science & Engineering: Serving in the 21st Century”

April 21, 2011
Centennial Seminar
Mr. Charles D. Davidson (BS 1972)
Chairman/CEO
Noble Energy, Inc.
“Technology Impacts on Global Energy Supplies”

April 26, 2011
Dr. Roger A. Schmitz
Keating-Crawford Professor Emeritus
Dept. of Chemical & Biomolecular Engineering
University of Notre Dame
“A Venture into Ecosystem Dynamics: Models and Complexities”

April 28, 2011
Centennial Seminar
Mr. Michael H. Ott (BS 1974)
President/CEO
Polysciences Incorporated

May 3, 2011
Dr. Sampson A. Jenekhe
Boeing-Martin Professor of Chemical Engineering and Professor of Chemistry
University of Washington