

Appendix I - Additional Program Information

C. Faculty Curriculum Vitae

This section of the self-study document contains the current curriculum vitae for all departmental faculty with the rank of instructor and above who have primary responsibility for course work associated with the undergraduate program.

The faculty involved are:

MARK BYRNE, Assistant Professor

ROBERT P CHAMBERS, Professor

HARRY T. CULLINAN, Professor and Director of Pulp and Paper Education and Research Center

STEVE R. DUKE, Associate Professor

MARIO RICHARD EDEN, Assistant Professor

SAID ELNASHAIE, Professor

JAMES A. GUIN, Professor

GOPAL A. KRISHNAGOPALAN, Philpott/WestPoint Stevens Professor

YOON Y. LEE, Professor

GLENNON MAPLES, Professor

DAVID R. MILLS, Manager of Process Engineering Laboratories

RONALD D. NEUMAN, Professor

TIMOTHY D. PLACEK, Assistant Professor

CHRISTOPHER B. ROBERTS, Chair and Uthlaut Associate Professor

A. R. TARRER, Professor

BRUCE J. TATARCHUK, Professor and Director, Center for Microfibrous Materials Manufacturing

MARK BYRNE

Assistant Professor

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E-mail: byrneme@eng.auburn.eduWebsite: www.eng.auburn.edu/~mbyrne**EDUCATION**

- 2003 - Ph.D., Chemical Engineering, Purdue University
- 1997 - M.S.Ch.E., Chemical Engineering, Purdue University
- 1994 - B.S., Chemical Engineering (Minor: Biomedical Eng.), Carnegie Mellon University

EXPERIENCE

Years of experience at Auburn: 1

- 2003 - Present: Assistant Professor, Chemical Engineering, Auburn University
- 2002 - 2003: Research Fellow, Chemical Engineering, The University of Texas at Austin
- 1999 - 2003: NSF IGERT Fellow, Chemical Engineering, Purdue University
- 1998 - 1999: Research Engineer, Energy Division, Oak Ridge National Laboratory
- 1997 - 1998: Research Associate, Department of Surgery, The University of Chicago
- 1995 - 1997: Graduate Research Assistant, Chemical Engineering, Purdue University
- 1994 - 1995: Research Assistant, Thomas E. Starzl Transplantation Institute, The University of Pittsburgh Medical Center

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 2002 - Present: Sigma Xi
- 2000 - Present: Materials Research Society
- 1999 - Present: American Chemical Society
- 1992 - Present: American Institute of Chemical Engineers

HONORS AND AWARDS

- 2002: Chorafas Prize for Best Doctoral Dissertation, Chorafas Foundation, Switzerland
- 2002: Materials Research Society Graduate Student Silver Award
- 2002: Sigma Xi Inductee
- 2001: Magoon Award for Excellence in Teaching - Purdue University.
- 1999: National Science Foundation IGERT Fellowship
- 1998: US Department of Energy Research Associate Fellowship
- 1997: Magoon Award for Excellence in Teaching - Purdue University.
- 1997: Outstanding Teaching Assistant Award - Chemical Engineering, Purdue University.
- 1994: Geoffrey D. Parfitt Award for Excellence in Research - Chemical Engineering, Carnegie Mellon University.

RESEARCH INTERESTS

- Polymeric Materials and Dynamics
- Therapeutic and Diagnostic Biomedical Devices
- Biomimetic, Bioinspired, and Biohybrid Materials
- Recognitive Networks and Sensors

- Bionanotechnology
- Drug Delivery

SELECTED PUBLICATIONS

- Hilt, J.Z. and Byrne, M.E., "Configurational Biomimesis in Drug Delivery", Advanced Drug Delivery Reviews, in press, 2004.
- Hilt, J.Z. and Byrne, M.E., "Biomedical Applications: Tissue Engineering, Therapeutic Devices, and Diagnostic Systems", In: J.A. Schwarz, C. Contescu, and K. Putyera, eds., Dekker Encyclopedia of Nanoscience and Technology, Marcel Dekker, New York, NY, in press., 2004.
- Byrne, M.E. , Park , K. , and Peppas, N.A., "Biomimetic Materials for Selective Recognition of Biologically Significant Molecules", In: J. McKittrick, J. Aizenberg, C. Orme, P. Vekilov, eds., Biological and Biomimetic Materials – Properties to Function, MRS, Pittsburgh, PA, Vol. 724, pp 193-199, 2002.
- Byrne, M.E., Oral, E., Hilt, J.Z., and Peppas, N.A., "Networks for Recognition of Biomolecules: Molecular Imprinting and Micropatterning Poly(ethylene glycol)-Containing Films", Polymers for Advanced Technologies, Vol. 13, pp 798-816, 2002.
- Byrne, M.E. , Park, K. and Peppas, N.A., "Molecular Imprinting Within Hydrogels", Advanced Drug Delivery Reviews, Vol. 54, No. 1, pp 149-161, 2002.
- Byrne, M.E. and Wankat, P.C., "Pressure Effects in Adsorbers and Adsorptive Reactors", Separation Science and Technology, Vol. 35, No. 3, pp 323-351, 2000.

PATENTS

- M.E. Byrne, K. Park, N.A. Peppas., "Molecularly Imprinted Polymer Gels with Specific Glucose Recognition", Patent, No. Pending, 2002.

ROBERT P CHAMBERS

Professor

234 Ross

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E-mail: chambers@eng.auburn.edu**EDUCATION**

- 1965 - PhD, Chemical Engineering, University of California(Berkeley)
- 1958 - MS, Chemical Engineering, California Institute of Technology
- 1957 - BS, Chemical Engineering, California Institute of Technology

EXPERIENCE

Years of experience at Auburn: 28

- 2003 - Present: Professor, Chemical Engineering, Auburn University
- 1976 - 2003: Professor and Department Chair, Chemical Engineering, Auburn University
- 1975 - 1976: Professor, Chemical Engineering and Biomedical Engineering, Tulane University
- 1965 - 1975: Asst Professor, Assoc Professor and Professor, Chemical Engineering, Tulane University
- 1958 - 1962: Design Engineer, Process Design and Development, Chevron Oil Research and Development, Richmond, CA

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 1976 - 2003: Southeast Department Chairs Association
- American Chemical Society
- American Institute of Chemical Engineers
- American Society for Engineering Education
- Council for Chemical Research

INSTITUTIONAL AND PROFESSIONAL SERVICES

- *Design, Bio and Laboratory Course Committees* - Chemical Engineering Department
- *Undergraduate Program Committee* - Chemical Engineering Department
- *Graduate Program Committee* - Chemical Engineering Department
- *Biomedical and Biochemical Specialization Advisor* - Chemical Engineering Department

HONORS AND AWARDS

- 2004: Outstanding Chemical Engineering Teacher - Auburn University College of Engineering.
- 2003: Auburn University Representative - Council for Chemical Research. *For years 1993-2003*
- Sigma Xi
- Tau Beta Pi

PROFESSIONAL DEVELOPMENT ACTIVITIES

- 2000 - Seven Habits of Highly Effective People - *Franklin Covey Workshop*
- 1995 - National Conf. on Continuous Quality Improvement - *Continuous Improvement in Higher Education*
- 1976 - 2002: Annual Teaching and Research Workshop - *Southeast Department Chairs Meeting*

- 1969 - Visiting Associate Professor University of Oregon - *Interdisciplinary Institute of Molecular Biology(with Sidney Bernard)*
- 1965 - Present: Annual Conference - *American Institute of Chemical Engineers*

RESEARCH INTERESTS

- Environmental Biotechnology- advanced biochemical systems including novel extracellular metabolizing systems and fluidized polymer-encapsulated cells for effluent treatment and remediation of chlorinated organics to environmental friendly products.
- Bioresource Engineering-Advanced biochemical systems including novel in situ cellular harvesting and protein separation systems for the production of high value products from low cost biological resources.
- Biomedical Engineering and Pharmaceutical Biotechnology-advanced biochemical systems including metabolic engineering, multienzyme pathways, cofactor recycling, metabolic modeling, nanobiotechnology, and biomedical simulation

SELECTED PUBLICATIONS

- Bethune, K.J. and Chambers, R.P., "Improved Laccase Enzyme Bioremediation of Pentachlorophenol -Protein Binding", American Institute of Chemical Engineers Annual Conference Abstracts, pp 411c, Nov. 2003.
- Bethune, K.J., Zhao, R. and Chambers, R.P., "Novel Multiphase Bioreactor System for Remediation of Pentachlorophenol from Aqueous Streams", American Institute of Chemical Engineers Annual Conference Abstracts, pp 537d, Nov. 2003.
- Bethune, K.J., Samojedny, S.M. and Chambers, R.P., "Decolorization and Detoxification of Bleach Plant Effluents by *Trametes versicolor* and its Extracellular Enzymes", American Institute of Chemical Engineers Annual Conference Abstracts, pp 107bi, Nov. 2003.
- Holl, R. and Chambers, R.P., "The Synthesis of Semipermeable Microcapsules Using In-Situ Cyanoacrylate Ester Polymerization", Journal of Microencapsulation, Vol. 19, No. 6, pp 699-724, 2002.
- Chambers, R.P., Bethune, K.J., Zhao, R., Samojedny, S.M., Pallerla, S. and Bham, A., "Environmental Biotechnology for Waste Recycle and Environmentally Benign Products for the Pulp and Paper and Forest Products Industries", Proceedings-International Conference on the Fiber Industry and Environmental Complexity, Vol. 2, No. 1, pp 401-421, Jan. 2002.

HARRY T. CULLINAN

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Website: www.eng.auburn.edu/center/pnp/pnp.htm

EDUCATION

- 1965 - Ph.D., Chemical Engineering, Carnegie Institute of Technology
- 1963 - MS, Chemical Engineering, Carnegie Institute of Technology.
- 1961 - BS (Magna Cum Laude), Chemical Engineering, University of Detroit

EXPERIENCE

Years of experience at Auburn: 13

- 1991 - Present: Professor, Chemical Engineering, Auburn University
- 1991 - Present: Director, Pulp & Paper Research & Education Center, Auburn University
- 1989 - 1991: Professor of Pulp and Paper Technology, Monash University, Melbourne.
- 1989 - 1991: Director, The Australian Pulp and Paper Institute
- 1987 - 1988: Consultant, Independent
- 1977 - 1987: Vice-President-Academic Affairs, Institute of Paper Chemistry, Appleton, Wisconsin
- 1976 - 1987: Academic Dean, Professor & Sr. Research Associate, Institute of Paper Chemistry, Appleton, Wisconsin
- 1972 - 1973: Visiting Professor, Chemical Engineering, Univ. of Manchester Institute of Science & Tech.
- 1969 - 1976: Chairman, Department of Chemical Engineering, State University of N.Y. at Buffalo
- 1967 - 1970: Associate Professor, State University of N.Y. at Buffalo
- 1964 - 1967: Assistant Professor, State University of N.Y. at Buffalo
- 1963 - 1964: Research Engineer, Westinghouse Research
- 1960 - 1961: Development Engineer, Avon Cosmetics

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 1995 - Present: AF&PA
- 1978 - Present: TAPPI

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2001 - Present: *Co-Chair* - AF&PA Advanced Workforce Task Group
- 2000 - 2001: - TAPPI Operating Committee
- 1996 - Present: - Agenda 2020 CTO Committee - AF&PA
- 1996 - 2000: - TAPPI Board Research Committee
- 1995 - 1999: - TAPPI Futurists
- 1989 - Present: *Past Chairman* - TAPPI Research Management Committee

HONORS AND AWARDS

- 2001: Herman L. Joachim Distinguished Service Award - TAPPI.
- 1988: Fellow - TAPPI.

RESEARCH INTERESTS

- Multicomponent diffusion & mass transfer; irreversible thermodynamics; coupled transport processes; active transport; multicomponent thermodynamics, brownstock washing, stock refining, recycled fiber

SELECTED PUBLICATIONS

- Closset, G., Cullinan, H.T., "Who Will Run Tomorrow's Mills?", Solutions, 30, Oct. 2001, No. 30, Oct. 2001.
- Cullinan, H.T., Krishnagopalan, A.G., "Coating Technology", Paper Age, Feb. 1999.

CONSULTING EXPERIENCE

- 2003 - *Institute of Paper Science and Technology* -
- 1988 - 1991: *Australian Pulp and Paper Manufacturers' Association* -
- 1976 - 1988: *Various Paper Companies* -

STEVE R. DUKE

Associate Professor

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E-mail: srduke@eng.auburn.eduWebsite: www.eng.auburn.edu/~srduke**EDUCATION**

- 1996 - Ph.D., Chemical Engineering, University of Illinois Urbana
- 1994 - MS, Chemical Engineering, University of Illinois Urbana
- 1988 - BS, Chemical Engineering, Georgia Institute of Technology

EXPERIENCE

Years of experience at Auburn: 8

- 2002 - Present: Associate Professor, Chemical Engineering, Auburn University
- 1996 - 2002: Assistant Professor, Chemical Engineering, Auburn University
- 1988 - 1990: Process Engineer, Baytown Refinery, Exxon
- 1987 - 1987: Summer Intern, Product Research, Procter and Gamble Company
- 1982 - 1986: Co-op Intern, Technical Services, Milliken and Company

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Institute of Chemical Engineers
- Technical Association of the Pulp and Paper Industry

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2003 - Present: *Chair of the National Student Chapters Committee* - American Institute of Chemical Engineers
- 1996 - 2003: *Auburn Student Chapter Advisor* - American Institute of Chemical Engineers

HONORS AND AWARDS

- 2000: Birdsong Superior Teaching Award - Auburn University.
- 1998: Outstanding Professor for Chemical Engineering - Auburn University.
- 1997: Young Faculty Enhancement Award - NSF Alabama EPSCoR.

RESEARCH INTERESTS

- Environmental and Industrial Separations, Air-Water Gas Exchange, Paper Recycling and Deinking Processes, Optical Methods and Image Processing, Advanced Technology Education

SELECTED PUBLICATIONS

- Roy, S. and Duke, S.R., "Visualization of oxygen concentration fields and measurement of concentration gradients at bubble surfaces in surfactant-contaminated water.", Experiments in Fluids, pp in press, 2004.

- Duke, S.R., Gu, H., Reed, P.J., Morrison, T.A., Bransby, D.I., and Krishnagopalan, G.A., "Potential of mimosa (*Albizia julibrissin*) for papermaking", TAPPI Journal, Vol. 2, No. 6, pp 9-12, 2003.
- Davies, A.P. and Duke, S.R., "Visualizations of offset and flexographic inks at bubble surfaces", TAPPI Journal, Vol. 1, No. 1, pp 41-47, 2002.
- Woodrow, P.T. and Duke, S.R., "Laser-induced fluorescence studies of oxygen transfer across unsheared flat and wavy air-water interfaces", Ind. & Eng. Chem. Res., Vol. 40, No. 8, pp 1985-95, 2001.
- Woodrow, P.T. and Duke, S.R., "LIF measurements of oxygen concentration gradients along flat and wavy air-water interfaces", Gas Transfer at Water Surfaces, pp 83-88, 2001.
- Roy, S. and Duke, S.R., "Laser-induced fluorescence measurements of dissolved oxygen concentration fields near air bubble surfaces", Rev. Sci. Inst., Vol. 71, No. 9, pp 3494-3501, 2000.

MARIO RICHARD EDEN

Assistant Professor

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E-mail: edenmar@eng.auburn.eduWebsite: www.eng.auburn.edu/users/edenmar**EDUCATION**

- 2003 - Ph.D., Chemical Engineering, Technical University of Denmark
- 1999 - M.Sc., Chemical Engineering, Technical University of Denmark

EXPERIENCE

Years of experience at Auburn: 1

- 2004 - Present: Assistant Professor, Department of Chemical Engineering, Auburn University
- 2002 - 2003: Visiting Lecturer, Department of Chemical Engineering, Auburn University
- 1999 - 2000: Research Associate, Technical University of Denmark

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 2004 - Present: American Society for Engineering Education
- 1999 - Present: American Institute of Chemical Engineers
- 1999 - Present: Danish Society for Processing Technology
- 1999 - Present: Danish Society of Chemical Engineers
- 1999 - Present: Society of Danish Engineers

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2004 - Present: *Graduate Student Recruiting Committee* - AU ChE
- 2004 - Present: *Computers in Chemical Engineering Committee* - AU ChE
- 1999 - 2001: *Organizer* - 11th European Symposium on Computer Aided Process Engineering

HONORS AND AWARDS

- 2003: Ph.D. Thesis Awarded with Distinction - Technical University of Denmark.
- 2001: Best Paper Award - 2nd International Symposium on Process Integration.

RESEARCH INTERESTS

- Computer aided process engineering
- Process integration and optimization
- Process and product design
- Sustainable and environmentally benign technologies

SELECTED PUBLICATIONS

- Eden, M. R.; Jørgensen, S. B.; Gani, R.; El-Halwagi, M. M., "A Novel Framework for Simultaneous Separation Process and Product Design", Chemical Engineering and Processing, Vol. 43, pp 595-608, Jun. 2004.

- Eden, M. R.; Jørgensen, S. B.; Gani, R., "A New Modeling Approach for Future Challenges in Process and Product Design", Computer Aided Chemical Engineering, Vol. 14, pp 101-106, Jun. 2003.
- Eden, M. R.; Jørgensen, S. B.; Gani, R.; El-Halwagi, M. M., "Reverse Problem Formulation based Techniques for Process and Product Design", Computer Aided Chemical Engineering, Vol. 15, pp 451-456, Aug. 2003.
- Eden, M. R.; Jørgensen, S. B.; Gani, R.; El-Halwagi, M. M., "Property Cluster based Visual Technique for Synthesis and Design of Formulations", Computer Aided Chemical Engineering, Vol. 15, pp 1175-1180, Aug. 2003.
- Eden, M. R.; Jørgensen, S. B.; Gani, R.; El-Halwagi, M. M., "Property Integration – A New Approach for Simultaneous Solution of Process and Molecular Design Problems", Computer Aided Chemical Engineering, Vol. 10, pp 79-84, Jun. 2002.
- Eden, M. R.; Koggersbøl, A.; Hallager, L.; Jørgensen, S. B., "Dynamics and Control During Startup of Heat-integrated Distillation Column", Computers and Chemical Engineering, Vol. 24, pp 1091-1097, Jul. 2000.

SAID ELNASHAIE

Professor

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E-mail: nashaie@eng.auburn.eduWebsite: <http://www.eng.auburn.edu/users/nashaie/>**EDUCATION**

- 1973 - PhD, Chemical Engineering, University of Edinburgh, UK
- 1970 - MS, Chemical Engineering, University of Waterloo, Canada
- 1968 - BS, Chemical Engineering, Cairo University, Egypt

EXPERIENCE

Years of experience at Auburn: 5

- 1999 - Present: Professor, Chemical Engineering Department, Auburn University
- 1996 - 1999: Vice President, Environmental/Energy Systems and Services, EESS
- 1986 - 1996: Professor, Chemical Engineering Department, King Saud University, Riyadh , Saudi Arabia
- 1984 - 1994: Professor, Chemical Engineering Department, Cairo University, Cairo, Egypt
- 1979 - 1984: Associate Professor, Chemical Engineering Department, Cairo University, Cairo, Egypt
- 1974 - 1979: Assistant Professor, Chemical Engineering Department, Cairo University, Cairo, Egypt
- 1968 - 1974: Assistant Lecturer, Chemical Engineering Department, Cairo University, Cairo, Egypt

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Institute of Chemical Engineers

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 1997 - 1999: *Vice President* - Energy and Environmental Systems and Services (EESS)

HONORS AND AWARDS

- 1991: Included in International Who's Who of Intellectuals - International Biographical Center, Cambridge , UK.
- 1989: 20th Century Achievement Award(500 leaders of Influence) - American Biographical Institute, USA.
- 1972: University of Edinburgh Research Fellowship - University of Edinburgh, UK.
- 1970: NRC of Canada Research Grant - University of Waterloo, Canada.
- 1968: Egyptian Government Undergraduate Engineering Award Grant for Outstanding Students - Cairo University, Egypt.
- 1963: Egyptian Government Undergraduate Engineering Award Grant for Outstanding Students - Cairo University, Egypt.

RESEARCH INTERESTS

- 1.Novel Chemical and Biochemical Processes for the Production of Clean Fuels. 2-Novel Technologies for Clean Hydrogen Production for Fuel Cells from Renewable Sources
- 3- Practical Implications of Bifurcation and Chaos on Industrial Chemical and Biochemical Processes. 4-Membrane Catalytic reactors.
- 5- Novel Technologies for the Production of Fuel Ethanol. 6-Modeling and Simulation of Enzyme Systems.
- 7-In-Process Modification for Industrial Waste Minimization.

SELECTED PUBLICATIONS

- Andres Botero, Parag Garhyan and Said Elnashaie, "Bifurcation and Chaotic Behaviour of a Coupled Acetylcholinestrse/Choline Acetyltransfrase Diffusion-Reaction Enzyme System", Chemical Engineering Science, Vol. 59, pp 581-597, 2004.
- P.Garhyan , Said Elnashaie, S.Haddad, G.Ibrahim and S.Elshishini, "Exploration and Exploitation of Bifurcation/Chaotic Behavior of a Continuous Fermenter for the Production of Ethanol", Chemical Engineering Science Journal, Vol. 58, pp 1479-1496, 2003.
- Z.Chen, C.Yibin and Said Elnashaie, "Novel Circulating Fluidized-Bed Membrane Reformer for Efficient Production of Hydrogen from Steam Reforming of methane", Chemical Engineering Science Journal, Vol. 58, pp 4335-4349, 2003.
- Said Elnashaie and Parag Garhyan, "Conservation Equations and the Modeling of Chemical and Biochemical Processes", Book, pp 700, Apr. 2003.
- Z.Chen, C.Yibin and Said Elnashaie, "Modeling and Optimization of a Novel Reformer for Higher Hydrocarbons", AIChE Journal, Vol. 49, No. 4, pp 1250-1265, May. 2003.
- P.Parasd and Said Elnashaie, "Novel Circulating Fluidized Bed membrane Reformer for the Efficient Production of Ultraclean Fuels from Hudrocarbons", Industrial and Engineering Chemistry Research, Vol. 41, pp 6518-6527, 2002.

PATENTS

- A.Adris, J.Grace , C.Lim and Said Elnashaie, "Fluidized Bed Reaction System for Steam/Hydrocarbon Gas Reforming to Produce Hydrogen", Patent issued, No. 2,081,170, 2004.
- A.Adris, J.Grace , C.Lim and Said Elnashaie, "Fluidized Bed Reaction System for Steam/Hydrocarbon Gas Reforming to Produce Hydrogen", Patent issued, No. 5,326,550, 1994.

JAMES A. GUIN

Professor

230 Ross Hall

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E-mail: jaguin@eng.auburn.edu**EDUCATION**

- 1970 - Ph.D., Chemical Engineering, University of Texas
- 1966 - MS, Chemical Engineering, University of Alabama
- 1965 - BS, Chemical Engineering, University of Alabama

EXPERIENCE

Years of experience at Auburn: 34

- 1981 - Present: Professor, Chemical Engineering, Auburn University
- 1974 - 1981: Associate Professor, Chemical Engineering, Auburn University
- 1970 - 1974: Assistant Professor, Chemical Engineering, Auburn University

HONORS AND AWARDS

- 1997: Senior Faculty Research Award - Auburn University.
- 1993: Sanders Professorship - Auburn University.

RESEARCH INTERESTS

- C-1 Chemistry, Catalyst Development for Methanol and Syngas to Olefins, Hydrogen Production, Synthetic Fuels, Fischer-Tropsch Catalysis

SELECTED PUBLICATIONS

- Liu, J.; Wang, S.; Guin, J.A., "Etherification of Dimethylbutenes in Excess Methanol", Fuel Processing Technology, Vol. 69, No. 3, pp 205-219, 2004.
- Obrzut, D.L.; Adekkanattu, P.M.; Thundimadathil, J.; Liu, J.; Dubois, D.R.; Guin, J.A., "Reducing Methane Formation in Methanol to Olefins Reaction on Metal Impregnated SAPO-34 Molecular Sieve", Reaction Kinetics & Catalysis Letters, Vol. 80, No. 1, pp 113-121, 2003.
- Wang, S.; Guin, J.A., "Catalytic Activity of Silica Supported Sulfated Zirconia Catalysts for Liquid Phase Etherification of C6 Olefins with Alcohols", Fuel Processing Technology, Vol. 84, No. 1, pp 135-146, 2003.
- Dubois, D.R.; Obrzut, D.L.; Liu, J.; Thundimadathil, J.; Adekkanattu, P.M.; Guin, J.A.; Punnoose, A.; Seehra, M.S., "Conversion of Methanol to Olefins over Cobalt-, Manganese- and Nickel-incorporated SAPO-34 Molecular Sieves", Fuel Processing Technology, Vol. 83, No. 1, pp 203-218, 2003.
- Wang, S.; Guin, J. A., "Etherification of Dimethylbutene with Methanol over Clay-based Acid Catalysts", Reaction Kinetics and Catalysis Letters, Vol. 75, No. 1, pp 169-175, 2002.
- Wang, S.; Guin, J. A., "Si-MCM41 Supported Sulfated Zirconia and Nafion for Ether Production", Energy & Fuels, Vol. 15, No. 3, pp 666-670, 2001.
- Wang, S.; Guin, J. A., "Silica-supported Sulfated Zirconia: a New Effective Acid Solid for Etherification", Chemical Communications (Cambridge), Vol. 24, pp 2499-2500, 2000.

RAM B GUPTA

Alumni Associate Professor

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E-mail: gupta@auburn.eduWebsite: www.eng.auburn.edu/users/gupta**EDUCATION**

- 1993 - Ph.D., Chemical Engineering, University of Texas, Austin
- 1989 - MS, Chemical Engineering, University of Calgary, Canada
- 1987 - BS, Chemical Engineering, Indian Institute of Technology, Roorkee

EXPERIENCE

Years of experience at Auburn: 9

- 2004 - Present: Professor, Chemical Engineering, Auburn University
- 2003 - Present: Alumni Professor, Chemical Engineering, Auburn University
- 1999 - 2003: Associate Professor, Chemical Engineering, Auburn University
- 1995 - 1999: Assistant Professor, Chemical Engineering, Auburn University
- 1993 - 1995: Research Associate, Chemical Engineering, University of California, Berkeley

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 1998 - Present: American Chemical Society
- 1989 - Present: American Institute of Chemical Engineering

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2004 - Present: *Member of Editorial Advisory Board* - Industrial & Engineering Chemistry Research
- 2002 - Present: *Member, Patent and Invention Disclosure Committee* - Auburn University

HONORS AND AWARDS

- 2003: DuPont Science and Engineering Award - DuPont.
- 2002: Senior Faculty Research - Auburn Alumni Engineering Council.
- 1998: Junior Faculty Research Award - Auburn Alumni Engineering Council.
- 1998: James A. Shannon Director's Award - The National Institutes of Health.
- 1997: Young Faculty Career Enhancement Award - Alabama NSF-EPSCoR.
- 1993: Professional Development Award - University of Texas at Austin.
- 1987: Dr. N. Gopalkrishna Silver Medal - Indian Institute of Technology, Roorkee.
- 1987: University Silver Medal, "Transfer Processes Group," - Indian Institute of Technology, Roorkee.
- 1987: University Silver Medal, "Thermodynamics, Kinetics & Process Design" - Indian Institute of Technology, Roorkee.

PROFESSIONAL DEVELOPMENT ACTIVITIES

- 2002 - 2002: Engineering Summer School - *American Society for Engineering Education*

RESEARCH INTERESTS

- Dr. Gupta's current research focus is on nanotechnology and supercritical fluids for pharmaceutical, photonics, materials, catalysis, and cosmetics applications.

SELECTED PUBLICATIONS

- Cai, Wensheng; Gupta, Ram B., "Molecularly-imprinted polymers selective for tetracycline binding", Separation and Purification Technology, Vol. 35, No. 3, pp 215-22, 2004.
- Viswanathan, R.; Lilly, G. D.; Gale, W. F.; Gupta, R. B., "Formation of Zinc Oxide-Titanium Dioxide Composite Nanoparticles in Supercritical Water", Industrial & Engineering Chemistry Research, Vol. 42, No. 22, pp 5535-5540, 2003.
- Bell, Philip W.; Thote, Amol J.; Park, Yoonkook; Gupta, Ram B.; Roberts, Christopher B., "Strong Lewis Acid-Lewis Base Interactions between Supercritical Carbon Dioxide and Carboxylic Acids: Effects on Self-association", Industrial & Engineering Chemistry Research, Vol. 42, No. 25, pp 6280-6289, 2003.
- Thote, Amol J.; Gupta, Ram B., "Hydrogen-Bonding Effects in Liquid Crystals for Application to LCDs", Industrial & Engineering Chemistry Research, Vol. 42, No. 6, pp 1129-1136, 2003.
- Viswanathan, Raghu; Gupta, Ram B., "Production of Zinc Oxide Nanoparticles in Supercritical Water", Journal of Supercritical Fluids, Vol. 27, pp 187-193, 2003.
- Chattopadhyay, Pratibhash; Gupta, Ram B., "Supercritical CO₂ based Formation of Silica Nanoparticles Using Water-in-Oil Microemulsions", Ind. Eng. Chem. Res., Vol. 42, pp 465-472, 2003.
- Chattopadhyay, Pratibhash; Gupta, Ram B., "Supercritical CO₂ Based Production of Magnetically Responsive Micro- And Nanoparticles For Drug Targeting", Ind. Eng. Chem. Res., Vol. 41, No. 24, pp 6049-6058, 2002.
- Park, YoonKook; Gupta, Ram B.; Curtis, Christine W.; Roberts, Christopher B., "Solvent Effects on the Self-Association of Formic Acid in Carbon Dioxide and Ethane", Journal of Physical Chemistry B, Vol. 106, No. 37, pp 9696-9700, 2002.
- Muthukumar, P.; Brinkley, R.L.; Gupta, Ram B., "Lattice-fluid equation of state with hydrogen-bond cooperativity", AIChE J., Vol. 48, pp 386-392, 2002.
- Chattopadhyay, P.; Gupta, Ram B., "Protein nanoparticles formation by supercritical antisolvent with enhanced mass transfer", AIChE J., Vol. 48, pp 235-244, 2002.
- Cai, Wensheng; Gupta, Ram B., "Fast-responding bulk hydrogels with microstructure.", J. Appl. Polym. Sci., Vol. 83, No. 1, pp 169-178, 2002.
- Chattopadhyay, P.; Gupta, R. B., "Production of griseofulvin nanoparticles using supercritical CO₂ antisolvent with enhanced mass transfer.", Int. J. Pharm., Vol. 228, No. 1, pp 19-31, 2001.
- Chattopadhyay, Pratibhash; Gupta, Ram B., "Production of Antibiotic Nanoparticles Using Supercritical CO₂ as Antisolvent with Enhanced Mass Transfer.", Ind. Eng. Chem. Res., Vol. 40, No. 16, pp 3530-3539, 2001.
- Cai, Wensheng; Gupta, Ram B., "Poly(N-ethylacrylamide) hydrogels for lignin separation", Ind. Eng. Chem. Res., Vol. 40, No. 15, pp 3406-3412, 2001.
- Brinkley, Ray L.; Gupta, Ram B., "Hydrogen bonding with aromatic rings.", AIChE J., Vol. 47, No. 4, pp 948-953, 2001.
- Cai, Wensheng; Anderson, Eric C.; Gupta, Ram B., "Separation of lignin from aqueous mixtures by ionic and nonionic temperature-sensitive hydrogels", Ind. Eng. Chem. Res., Vol. 40, No. 10, pp 2283-2288, 2001.
- Betageri, Guru V.; Deshmukh, Deepali V.; Gupta, Ram B., "Oral sustained-release bioadhesive tablet formulation of didanosine.", Drug Dev. Ind. Pharm., Vol. 27, No. 2, pp 129-136, 2001.

PATENTS

- Gupta, R.B.; Chattopadhyay, P., "Method of forming nanoparticles and microparticles of controllable size", Patent issued, No. 6620351, 2003.

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EDUCATION

- 1976 - PhD, Chemical Engineering, University of Maine, Orono
- 1973 - MS, Pulp and Paper Technology, University of Maine, Orono
- 1963 - BS, Chemical Engineering, Bombay University
- 1959 - BS, Chemistry, University of Madra

EXPERIENCE

Years of experience at Auburn: 20

- 1996 - Present: Professor, Chemical Engineering, Auburn University
- 1990 - 1996: Associate Professor, Chemical Engineering, Auburn University
- 1984 - 1990: Assistant Professor, Chemical Engineering, Auburn University
- 1979 - 1984: Production Manager, J.K. Paper Mills, India
- 1978 - 1979: Production Manager, Sehgal Papers, India
- 1976 - 1977: Assistant Professor, Chemical Engineering, University of Maine, Orono
- 1974 - 1976: Instructor, Chemical Engineering, University of Maine, Orono
- 1965 - 1971: Shift Superintendent, Paper Machine, West Coast Paper Mills, India
- 1964 - 1964: Shift Superintendent, Chemical Recovery, Gwalior Rayons, Wood Pulp Div., India

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 1998 - Present: Paper Industry Management Association
- 1973 - Present: Technical Association of the Pulp and Paper Industry

HONORS AND AWARDS

- 2002: Tappi Fellow - Tech. Association of the Pulp and Paper Industry.
- 2002: Philpott/WestPoint Stevens Professor - Auburn University. 2002-2005
- 2001: Walker Teaching Award - Auburn University.
- 2000: College of Engineering Senior Research Award - Auburn University.
- 1997: Alumni Professor - Auburn University. 1997 – 2002
- 1996: Pulp and Paper Foundation Professor - Auburn University. 1996-97
- 1993: Birdsong Teaching Award - Auburn University.
- 1992: Pulp and Paper Foundation Assoc. Professor - Auburn University. 1992 - 1994

RESEARCH INTERESTS

- Paper Recycling: Deinking old newsprint containing substantial quantities of flexo printed news. Use of ultrafiltration for water clarification in wash deinking and for stickies removal.
- Kraft Pulping: Kraft process liquor component measurement for pulping and causticizing control applications. Process model development using in-situ liquor analysis.
- Alternative Raw Materials: Studies to evaluate fast growing fiber sources as substitute for hardwood fibers in fine papers.

SELECTED PUBLICATIONS

- Yan, D. and Krishnagopalan, G.A., "Dynamic Modeling of Carbohydrates Degradation in Kraft Pulping of softwood", Appita Journal, Vol. 56, No. 5, pp 391-396, Sep. 2003.
- Duke, S.R., Reed, P.J., Gu, H., Krishnagopalan, G.A., Morrison, T.A., and Bransby, D.I., "Potential of mimosa (*Albizia julibrissin*) for papermaking", Tappi Journal, Vol. 2, No. 9, pp 9-12, Sep. 2003.
- Saucedo, V., and Krishnagopalan, G.A., "Kinetics of Conventional and Alkali Profiled Hardwood Cooks Using On-line Liquor Analysis", Appita Journal, Vol. 55, No. 3, pp 202-207, May. 2002.
- Saucedo, V., Josephson, W. and Krishnagopalan, G.A., "Dynamic Modeling of Carbohydrates Degradation in Kraft Pulping of Hardwood", Appita Journal, Vol. 55, No. 5, pp 398-403, Sep. 2002.
- Saucedo, V., and Krishnagopalan, G.A., "Effective Alkali Dynamics in Modified Cooking: Fundamental Modeling", Ind. Eng. Chem. Res., Vol. 41, No. 5, pp 1142 -1151, Sep. 2002.
- Saucedo, V., and Krishnagopalan, G.A., "Analysis of Delignification Dynamics in Profiled Pulping", Appita Journal, Vol. 54, No. 2, pp 221-225, Mar. 2001.
- Kesavan, P., Lee, J.H., Saucedo, V. and Krishnagopalan, G.A., "Partial Least Squares (PLS) Based Monitoring and Control of Batch Digesters", Journal of Process Control, Vol. 10, pp 229-236, 2000.
- Saucedo, V., and Krishnagopalan, G.A., "Application of In-Situ Near Infrared Analysis for the Measurement of Cooking Liquor Components During Kraft Pulping", Journal of Pulp and Paper Science, Vol. 26, No. 1, pp 25-29, Jan. 2000.
- Varma, V. and Krishnagopalan, G.A., "Optimising Pulp Quality in Alkali Profiled Kraft Cooks", Appita Journal, Vol. 53, No. 4, pp 305-311, Jun. 2000.
- Sethuraman, J., Ramdoss, P.K., Vaidyanathan, R. and Krishnagopalan, G.A., "Influence of Mass Transfer Effects in Causticizing", Journal of Pulp and Paper Science, Vol. 25, No. 2, pp 60-65, Feb. 1999.
- Hodges, R. and Krishnagopalan, G.A., "Near-Infrared Spectroscopy for On-line Analysis of White and Green Liquors", Tappi Journal, Vol. 82, No. 9, pp 101-106, Sep. 1999.
- Chabot, B., Abubakr., S. and Krishnagopalan, G.A., "Flexographic Newspaper Deinking: Treatment of Wash Filtrate Effluent by Membrane Technology", Journal of Pulp and Paper Science, Vol. 25, No. 10, pp 337-343, Oct. 1999.
- Chabot, B., Abubakr., S. and Krishnagopalan, G.A., "Coagulation Pretreatment for Ultrafiltration of Deinking Effluents Containing Flexographic Inks", Progress in Paper Recycling, Vol. 9, No. 1, pp 46-55, Nov. 1999.
- Upton, B., Abubakr., S. and Krishnagopalan, G.A., "Ultrafiltrative Deinking of Flexographic ONP: The Role of Surfactants", Tappi Journal, Vol. 82, No. 11, pp 104-114, Nov. 1999.

PATENTS

- Tatarchuk, B. Rose, M., Krishnagopalan, A., Zabasajja, J. and Kohler, D., "Preparation of Mixed Fiber Composite Structures", Patent issued, No. 5,304,330, 1994.
- Tatarchuk, B. Rose, M., Krishnagopalan, A., Zabasajja, J. and Kohler, D., "Mixed Fiber Composite Structures: High Surface Area-High Conductivity Mixtures", Patent issued, No. 5,080,963, 1992.
- Tatarchuk, B. Rose, M., and Krishnagopalan, A., "Mixed Fiber Composite Structures", Patent issued, No. 5,102,745, 1992.

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E-mail: yylee@eng.auburn.eduWebsite: <http://www.eng.auburn.edu/~yylee>**EDUCATION**

- 1972 - Ph.D, Chemical Engineering, Iowa State University
- 1969 - MS, Chemical Engineering, University of South Carolina
- 1964 - BS, Chemical Engineering, Seoul National University, Korea

EXPERIENCE

Years of experience at Auburn: 30

- 1996 - 1967: Process Engineer, Petrochemical Division, Korea Oil Corporation
- 1984 - Present: Professor, Chemical Engineering, Auburn University
- 1978 - 1984: Associate Professor, Chemical Engineering, Auburn University
- 1974 - 1978: Assistant Professor, Chemical Engineering, Auburn University
- 1973 - 1974: Visiting Assistant Professor, Chemical Engineering, Iowa State university
- 1972 - 1973: Postdoctoral Research Associate, Chemical Engineering, Iowa State university

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 1974 - Present: American Chemical Society
- 1972 - Present: American Institute of Chemical Engineers

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2000 - Present: *Founding Member* - Biomass Refining Consortium of Applied and Fundamental Innovations

HONORS AND AWARDS

- 2004: Walker Teaching Award - College of Engineering, Auburn University.
- 2000: Sanders Professorship - Auburn University.
- 1996: Outstanding Research Achievement Award - College of Engineering, Auburn University.
- 1988: Outstanding Faculty Award - College of Engineering, Auburn University.

RESEARCH INTERESTS

- Bioprocessing of lignocellulosic materials for production of fuels and chemicals. Physico-chemical properties of biomass. Bioreactor development. Enzyme and microbial process technology. Pretreatment/delignification of biomass for enzymatic saccharification and SSF. High temperature–low acid processing for total hydrolysis of biomass. Transport properties of acid catalyst in biomass. Ammonia recycle percolation (ARP) process for biomass pretreatment.

SELECTED PUBLICATIONS

- Qian Xiang and Y.Y. Lee, "Effect of Ethyl Alcohol on Dilute Acid Hydrolysis of Cellulosic Component in Biomass", Bioresource Technology, pp Accepted, 2004.
- Qian Xiang, and Y.Y. Lee, Robert W. Torget, "Kinetics of Glucose Decomposition During Dilute Acid Hydrolysis Of Lignocellulosic Biomass", Appl. Biochem. Biotechnol., pp Accepted, 2004.
- Tae Hyun Kim and Y.Y. Lee, "Pretreatment And Fractionation Of Corn Stover By Two-Stage Percolation Process", Appl. Biochem. Biotechnol., pp Accepted, 2004.
- Yongming Zhu, Y. Y. Lee, and Richard Elander, "Acid Hydrolysis of Corn Stover Hemicellulose with Low-Liquid Percolation Process", Appl. Biochem. Biotechnol., pp Accepted, 2004.
- Tae Hyun Kim, Jun Seok Kim, Changshin Sunwoo, and Y. Y. Lee, "Pretreatment of Corn Stover by Ammonia Recycle Percolation Process", Bioresource Technology, Vol. 90, pp 39-47, 2003.
- Qian Xiang, JunSeok Kim, and Y.Y. Lee, "A Comprehensive Kinetic Model for Acid Hydrolysis of Lignocellulose", Bioresource Technology, Vol. 94, pp 337-352, 2003.
- Pär O. Pettersson, Robert W. Torget, Qian Xiang, Y.Y. Lee, and Guido Zacchi, "Simplistic modeling approaches to the heterogeneous dilute-acid hydrolysis of cellulose microcrystallites derived from lignocellulose", Appl. Biochem. Biotechnol., Vol. 94, pp 451-456, 2003.
- Qian Xiang, Y.Y. Lee, Robert W. Torget, and Pär O. Pettersson, "Cellulose", □ "Heterogeneous Aspects of Acid Hydrolysis of Appl. Biochem. Biotechnol., Vol. 94, pp 505-514, 2003.
- Qian Xiang and Y.Y. Lee, "Production of Oxychemicals from Precipitated Hardwood Lignin", Appl. Biochem. Biotechnol., Vol. 91, pp 71-80, 2002.
- S. B. Kim and Y. Y. Lee, "Diffusion of Sulfuric Acid within Lignocellulosic Biomass Particles and Its Impact on Dilute-Acid Pretreatment", Appl. Biochem. Biotechnol., Vol. 83, pp 165-171, 2002.
- Jun Seok Kim, Y.Y. Lee, and Robert W. Torget, "Cellulose Hydrolysis Under Extremely Low Sulfuric Acid and High-Temperature Conditions", Appl. Biochem. Biotechnol., Vol. 91, No. 331, 2002.
- Niru Balasubramanian, Jun-Seok Kim, and Y.Y. Lee, "Fermentation of Xylose into Acetic Acid by *Clostridium thermoaceticum*", Appl. Biochem. Biotechnol., Vol. 91, pp 367-376, 2001.
- R. W. Torget, Jun Seok Kim, and Y.Y. Lee, "Theoretical Aspects of Dilute-Acid Hydrolysis/Fractionation Kinetics of Hardwood Carbohydrates", I&EC, Res., Vol. 39, pp 2817-2825, 2000.
- J.R Borden., Y. Y. Lee. and H. H. Yoon, "Simultaneous saccharification and fermentation of cellulosic biomass to acetic acid", Applied Biochemistry & Biotechnology, Vol. 84, pp 963-970, 2000.
- P. V. Iyer, Suzanna Thomas, and Y. Y. Lee, "High-yield fermentation of pentoses into lactic acid", Applied Biochemistry & Biotechnology, Vol. 84, pp 665-677, 2000.
- Q. Xiang and Y. Y. Lee, "Oxidative cracking of precipitated hardwood lignin by hydrogen Peroxide", Applied Biochemistry & Biotechnology, Vol. 84, pp 153-162, 2000.

CONSULTING EXPERIENCE

- 2004 - Present: *Characterization of Biomass Feedstocks* - Abengoa Bioenergy R&D, Inc., Chesterfield, MO
- 2000 - Present: *Pretreatment and Saccharification of Agricultural Residues* - BC International, Inc., Dedham, MA
- 1996 - 2000: *Pretreatment of Biomass with Aqueous Ammonia* - Korea Energy Research Institute

PATENTS

- Y. Y. Lee and Hataem Harraz, "Production of non-crystalline cellose from refined and unrefined cellulosic materials", Patent, No. Pending, 2004.
- Y. Y. Lee and Tae Hyun Kim, "Low temperature treatment of lignocellulosic biomass with aqueous ammonia for improvement of enzymatic digestibility", Patent, No. US-60/458670, 2004.

GLENNON MAPLES

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E-mail: maplegl@eng.auburn.edu**EDUCATION**

- 1966 - PhD, Mechanical Engineering, Oklahoma State University
- 1961 - MS, Mechanical Engineering, Mississippi State University
- 1955 - BS, Mechanical Engineering, Mississippi State University

EXPERIENCE

Years of experience at Auburn: 38

- 1987 - Present: Professor, Chemical Engineering, Auburn University
- 1977 - 1987: Professor, Mechanical Engineering, Auburn University
- 1971 - 1977: Associate Professor, Mechanical Engineering, Auburn University
- 1966 - 1971: Assistant Professor, Mechanical Engineering, Auburn University

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- Alabama Society of Professional Engineers
- American Association for the Advancement of Science
- American Institute of Aeronautics and Astronautics
- American Society of Engineering Education
- American Society of Mechanical Engineers
- ASME, AIAA, NSPE and ASPE
- National Society of Professional Engineers

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 1975 - Present: *Member, University Discipline Committee -*
- 1972 - Present: *Member, Auburn University Auxiliary Policeman -*

HONORS AND AWARDS

- Outstanding Teaching Award - Auburn University. *Voted on by students in chemical engineering*

PROFESSIONAL DEVELOPMENT ACTIVITIES

- 2002: Directions for Training Engineers - *Presentation to: Yale University Group*
- 2002: System Performance and Safety - *Presented to: Chief Engineers Association of Illinois*
- 2003: Evaluation of Equipment at Off Design Conditions - *Presented to: Premira Engineering in Chicago, IL*
- 2003: Development of Training Materials - *VA Administration, Washington, DC*
- 2003: Performance of Equipment - *Presentation to: University of Delaware*
- Consultant - *Serves as Consultant to numerous companies, institutions, military*
- Expert Law Case Witness - *Served as expert witness on several court cases*

SELECTED PUBLICATIONS

- D.F. Dyer, T. Burch, D. Maples, G. Maples, "Boiler Plant Safety Testing", Boiler Institute, 2002.

PATENTS

- G. Maples, D.F. Dyer, "Pulsed Electrical Heating of Concrete", Patent issued, No. 4, 1990.
- G. Maples, D.F. Dyer, "Add-On Refrigerant Boiler for Electric Heat Pump", Patent issued, No. 4, 1990.
- G. Maples, D.F. Dyer, "Outside Air Monitor/Trim Controller", Patent issued, No. 0, 1990.
- G. Maples, D.F. Dyer, "Dryer with Low Temperature Heat Recovery System", Patent issued, No. 4, 1977.

REGISTERED PROFESSIONAL ENGINEER

- State of Alabama

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EDUCATION

- 1995 - MS, Chemical Engineering, Washington State University
- 1994 - BS, Chemical Engineering, University of California- Davis

EXPERIENCE

Years of experience at Auburn: 6

- 1998 - Present: Manager of Process Engineering Labs, Chemical Eng., Auburn University
- 1995 - 1998: Faculty Research Associate & Unit Ops. Manager, Chemical Eng., WSU
- 1994 - 1995: Research/ Teaching Assistant, Chemical Eng., WSU
- 1994 - 1994: Graduate Researcher, Chemical Eng., UC-Davis
- 1993 - 1994: Process Engineering Intern, Tosco Refining, Co.
- 1992 - 1992: Filed Service Technician, Rio Linda Chemical Co

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 2003 - Present: ASEE

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2001 - Present: *Faculty Advisor* - Auburn Triathletes

HONORS AND AWARDS

- 2003: Walker Teaching Award - Auburn University.
- 2003: Alabama State Triathlon Champion - USA Triathlon. *Athletic award*
- 2002: National Ultra-Distance Masters Champion - USA Triathlon. *Athletic award*
- 2000: Southeast Region Sprint Distance Champion - USA Triathlon. *Athletic award*

RESEARCH INTERESTS

- Technology for Engineering Instruction

SELECTED PUBLICATIONS

- Mills, D, "Teaching Experimental Design in a Flexible Format Using Expert System Software", Proceedings of ASEE Conference, May. 2004.
- James, E. , Mills, D.R., Lee,J.M., "Increased Foreign Protein Production and Recovery from Plant Cells Cultured in an Affinity Chromatography Bioreactor", Biochemical Engineering Journal, Vol. 12, pp 205-213, Jun. 2002.

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E-mail: rdneuman@eng.auburn.eduWebsite: <http://www.eng.auburn.edu/department/che/research/rdneuman>**EDUCATION**

- 1973 - Ph.D., Chemical Engineering/Physical Chemistry, The Institute of Paper Chemistry, Appleton, WI
- 1968 - MS, Interdisciplinary, The Institute of Paper Chemistry, Appleton, WI
- 1966 - BS, Chemical Engineering, University of Washington, Seattle, WA

EXPERIENCE

Years of experience at Auburn: 19

- 1995 - 2000: Alumni Professor, Chemical Engineering, Auburn University
- 1993 - 1993: Guest Scientist, Institute for Surface Chemistry, Stockholm, Sweden
- 1990 - 1992: Guest Scientist, Oak Ridge National Laboratory, Oak Ridge, TN
- 1990 - 1991: Guest Scientist, Institute for Surface Chemistry, Stockholm, Sweden
- 1985 - Present: Professor, Chemical Engineering, Auburn University
- 1985 - 1990: Director, Pulp and Paper Research/Education Center, Auburn University
- 1984 - 1985: Professor, Department of Forest Products, University of Minnesota
- 1979 - 1979: Research Associate, Argonne National Laboratory, Argonne, IL
- 1979 - 1984: Associate Professor, Department of Forest Products, University of Minnesota
- 1976 - 1976: Research Engineer, Beloit Corporation, Beloit, WI
- 1974 - 1979: Assistant Professor, Department of Forest Products, University of Minnesota
- 1973 - 1974: Visiting Assistant Professor, Chemical Engineering, University of Idaho
- 1972 - 1973: Acting Assistant Professor, Chemical Engineering, University of Washington
- 1968 - 1968: Research Chemist, Hercules, Inc., Wilmington, DE
- 1967 - 1967: Project Chemical Engineer, Boise Cascade Corporation, Salem, OR
- 1966 - 1966: Project Chemical Engineer, Boise Cascade Corporation, Wallula, WA

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- 2002 - Present: American Society for Engineering Education

HONORS AND AWARDS

- 1995: Alumni Professor - Auburn University.
- 1995: Pulp and Paper Professor - Auburn University.
- 1993: Science and Technology Award - Peking University, P.R.C..

PROFESSIONAL DEVELOPMENT ACTIVITIES

- 2003 - Present: Established international research collaboration - *Molecular simulation program at Universidad Simon Bolivar, Venezuela*
- 2002 - Present: New Engineering Education Activities - *Development of innovative Peak Performance program for freshman*
- 1999 - 2001: Lecturer for M.S. degree program in Venezuela - *Sponsored by Universite du Quebec a Trois-Rivieres in Canada*

- 1999 - 2001: Developed and presented technical short courses - *Specialized short courses for Latin American companies*

RESEARCH INTERESTS

- Interfacial phenomena and surface/colloid science
- Research activities range from fundamental and applied studies of interfacial phenomena at liquid/vapor, liquid/liquid and solid/liquid interfaces, surface characterization of pharmaceutical and bio-relevant particles, fibers and solid surfaces, surfactant aggregation in aqueous and nonpolar media, liquid-liquid (heavy metal ion) extraction, polymer adsorption, cleanup of oil spills, stability of solids-stabilized water-in-oil emulsions, fundamentals and applications of supersaturated oxygen technology, adhesion and surface/atomic force microscopy.
- Troubleshooting surface chemistry related-problems in industrial manufacturing processes
- Molecular modeling and simulation of interfacial systems and processes

SELECTED PUBLICATIONS

- Ibrahim, T. H. and Neuman, R. D., "Nanostructure of Open Water-Channel Reversed Micelles. I. ¹H-NMR Spectroscopy and Molecular Modeling", Langmuir, Vol. 20, pp 3114-3122, 2004.
- Neuman, R. D., Berg, J. M. and Claesson, P. M., "Direct Measurement of Surface Forces in Papermaking and Paper Coating Systems", Nordic Pulp and Paper Research Journal, Vol. 8, pp 96-105, 1993.

CONSULTING EXPERIENCE

- 2001 - 2003: - Army Research Laboratory
- 2000 - 2002: - Hessa Chemical C.A.
- 1999 - 2000: - AVTCP
- 1998 - 2000: - Cenpapel
- 1995 - 1999: - Boehringer Ingelheim Pharmaceuticals
- 1995 - 1995: - Amway Corporation
- 1994 - 1996: - Georgia-Pacific Corporation
- 1993 - 1993: - B.F. Goodrich
- 1992 - 1992: - Pfizer, Inc.
- 1991 - 1991: - James River Corporation
- 1987 - 1991: - Callaway Chemical Company
- 1984 - 1984: - Economics Laboratory

TIMOTHY D. PLACEK

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- 1978 - PhD, Chemical Engineering, University of Kentucky
- 1973 - MS, Chemical Engineering, Cleveland State University
- 1971 - BS, Engineering Science, Cleveland State University

EXPERIENCE

Years of experience at Auburn: 26

- 1978 - Present: Assistant Professor, Chemical Engineering, Auburn University
- 1973 - 1975: Instructor, Chemical Engineering, Cleveland State University
- 1971 - 1973: Laboratory Manager, Chemical Engineering, Cleveland State University
- 1968 - 1971: Laboratory Research Assistant (Co-op), Carbon Products Division, Union Carbide

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Chemical Society
- American Institute of Chemical Engineers
- Technical Association of Pulp and Paper Industry

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2002 - Present: *Undergraduate Program Committee Chair* - Department of Chemical Engineering
- 1998 - Present: *Department Webmaster* -

HONORS AND AWARDS

- 1984: Faculty Assistance Program - Auburn University.
- 1978: Who's Who in the South and Southwest
- 1975: Ashland Oil Graduate Research Fellowship in Chemical Engineering - University of Kentucky.
- 1971: Tau Beta Pi (Chapter President) - Cleveland State University.
- 1971: Lubrizol Graduate Research Fellowship in Engineering Science - Cleveland State University.
- 1971: Order of Engineering (Steel Ring Society) - Cleveland State University.

RESEARCH INTERESTS

- Process Engineering: Expertise in chemical, environmental, pulp and paper, and energy industries. Industrial experience in carbon products, electrolytic processes, desalination technology. Directed projects in the areas of phase and sedimentation behavior, cellulosic biomass utilization, fermentation of wood hydrolyzates, solvent extraction technology, gas scrubber performance, air quality modeling, black liquor evaporator performance, secondary and tertiary water purification, recycled solvent quality.

- Process Modeling and Simulation: Developed models and performed simulation studies in the following areas: (1) area impact model for the distribution of new pollutant sources, (2) analysis of particulate removal during the scrubbing of hot flu gases, (3) bacterial growth in continuous systems, (4) Kamyr pulp digester model, (5) generalized multiple effect evaporator simulator, (6) sedimentation and compression behavior of sludges, (7) ethanol recovery technology using solvent recovery. Has also technically reviewed and debugged (refitted) existing computer simulation programs. Most notably, developed an advanced process simulator for the pulp and paper industry.
- Statistic Applications and Process Quality Control: Familiarity with statistical measures, data acquisition, process quality control.

SELECTED PUBLICATIONS

- Placek, T. D., "ASPPI for Windows User's Manual, Advanced Simulator for the Pulp and Paper Industries, Version 2.0", PPREC Auburn University, 1994.
- Placek, T. D., Venkataraman, B., Krishnagopalan G., "A Simulator for Kraft Black-Liquor Evaporation", AIChE Forest Products Division Symposium, pp 211-217, 1989.

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- 1994 - Ph.D., Chemical Engineering, University of Notre Dame
- 1992 - MS, Chemical Engineering, University of Notre Dame
- 1990 - BS, Chemical Engineering, University of Missouri - Columbia

EXPERIENCE

Years of experience at Auburn: 10

- 2003 - Present: Department Chair, Chemical Engineering, Auburn University
- 2000 - Present: Uthlaut Associate Professor, Chemical Engineering, Auburn University
- 1999 - 2000: Associate Professor, Chemical Engineering, Auburn University
- 1994 - 1999: Assistant Professor, Chemical Engineering, Auburn University

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Chemical Society
- American Institute of Chemical Engineers

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2003 - Present: *Editorial Board Member* - Fuel Processing Technology - Elsevier Journal
- 2001 - 2003: *Vice Chair of Area 1f (High Pressure)* - American Institute of Chemical Engineers

HONORS AND AWARDS

- 2003: Auburn Alumni Engineering Faculty Research Award - Auburn University.
- 2002: Walker Merit Teaching Award - College of Engineering - Auburn University.
- 2000: Outstanding Professor Award - Dept. of Chemical Engineering - Auburn University.
- 1999: Outstanding Professor Award - Dept. of Chemical Engineering - Auburn University.
- 1997: Birdsong Superior Teaching Award - Auburn University.
- 1997: Auburn Alumni Council Junior Faculty Research Award - Auburn University.
- 1995: Outstanding Dissertation Award - Engineering - University of Notre Dame.

RESEARCH INTERESTS

- Supercritical fluid (SCF) technologies; nano-materials synthesis and processing in SCFs; heterogeneous and homogeneous reactions in SCFs; microemulsions in SCFs; molecular thermodynamics; high pressure

SELECTED PUBLICATIONS

- Bell, P.W.; Thote, A.J.; Park, Y.; Gupta, R.B.; Roberts, C.B., "Strong Lewis Acid - Lewis Base Interactions between Supercritical Carbon Dioxide and Carboxylic Acids: Effects on Self-association", Industrial and Engineering Chemistry Research, Vol. 42, pp 6280-6289, 2003.
- Kitchens, C. L.; McLeod, M. C.; Roberts, C. B., " Solvent Effects on the Growth and Steric Stabilization of Copper Metallic Nanoparticles in AOT Reverse Micelle Systems", Journal of Physical Chemistry B, Vol. 107, No. 41, pp 11331-1133, 2003.
- Huang, X.; Roberts, C.B., "Selective Fischer-Tropsch Synthesis over an Al₂O₃ Supported Cobalt Catalyst in Supercritical Hexane", Fuel Processing Technology, Vol. 83, pp 81-89, 2003.
- McLeod, M.C.; McHenry, R.S.; Beckman, E.J.; Roberts, C.B., "Synthesis and Stabilization of Metallic Nanoparticles and Pre-metallic Intermediates In PFPE/CO₂ Reverse Micelle Systems", Journal of Physical Chemistry B, Vol. 107, No. 12, pp 2693-2700, 2003.
- Park, Y; Curtis, C. W.; Roberts, C. B., "Formation of Nylon Particles and Fibers Using Precipitation with a Compressed Antisolvent", Industrial and Engineering Chemistry Research, Vol. 41, No. 6, pp 1504-1510, 2002.
- Park, Y.; Gupta, R.B.; Curtis, C.W.; Roberts, C.B., "Self-Association of Formic Acid in Carbon Dioxide and Ethane", Journal of Physical Chemistry B, Vol. 106, No. 37, pp 9696-9700, 2002.
- Huang, X.; Curtis, C. W.; Roberts, C. B., "Reaction behavior of Fischer-Tropsch synthesis in near critical and supercritical hexane media", Fuel Chemistry Preprints - American Chemical Society, Vol. 47, No. 1, pp 150-153, 2002.

PATENTS

- Roberts, C.B.; Griffith, A.T., "Process for Recovering Polymers From Commingled Materials", Patent issued, No. 5994417, 1999.

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- 1973 - Ph.D., Chemical Engineering, Purdue University
- 1971 - MS, Chemical Engineering, Purdue University
- 1968 - BS, Chemical Engineering, Auburn University

EXPERIENCE

Years of experience at Auburn: 27

- 1983 - Present: Professor, Chemical Engineering, Auburn University
- 1980 - 1981: Consultant, AR & TD, Fossil Energy, U.S.D.O.E, Maryland
- 1977 - 1982: Alumni Associate Professor, Chemical Engineering, Auburn University
- 1973 - 1974: Assistant Professor, Chemical Engineering, Colorado School of Mines
- 1968 - 1968: Process Engineer, Y-12 plant, Nuclear Division, Oak Ridge National Laboratory
- 1964 - 1966: Coop Student, K-25 plant, Nuclear Division, Oak Ridge National Laboratory

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Institute of Chemical Engineers
- Certified Hazardous Materials Manager
- Fellow Member of the Institute of Hazardous Materials Management
- Omega Chi Epsilon
- Phi Kappa Phi
- Phi Lambda Upsilon
- Professional Engineer

INSTITUTIONAL AND PROFESSIONAL SERVICES

- 2002 - 2003: *PhD Qualifier Chair* - Chemical Engineering
- 2002 - 2003: *Tenure & Promotions Committee* - College of Engineering
- 2002 - Present: *Research Awards Committee* - College of Engineering
- 2001 - Present: *Peer Review Committee* - Chemical Engineering
- 2000 - Present: *UPC member* - Chemical Engineering

HONORS AND AWARDS

- 1997: Alumni Professorship - Auburn University.
- 1996: CHMM Fellow - Institute of Hazardous Materials Management.
- 1992: Distinguished Chemical Engineering Alumni Award - Auburn University.
- 1980: Faculty Rotator - Oak Ridge Associated Universities. *for Department of Energy*
- 1978: Reviewer for National Foundation Research Equipment Program
- 1977: Outstanding Chemical Engineering Professor - Auburn University. *Voted by undergraduate students*

RESEARCH INTERESTS

- Coal liquefaction, mass transfer, process controls, energy conservation, separations, professional engineer and certified hazardous waste manager

CONSULTING EXPERIENCE

- 1980 - 1981: *AR & TD, Fossil Energy* - U.S.D.O.E, Maryland

REGISTERED PROFESSIONAL ENGINEER

- State of Alabama

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EDUCATION

- 1981 - Ph.D., Chemical Engineering, University of Wisconsin
- 1976 - BS, Chemical Engineering, University of Illinois

EXPERIENCE

Years of experience at Auburn: 22

- 1996 - Present: Director, Center for Microfibrous Materials Manufa, Chemical Engineering, Auburn University
- 1990 - Present: Professor, Chemical Engineering, Auburn University
- 1986 - 1990: Associate Professor with tenure, Chemical Engineering, Auburn University
- 1982 - 1986: Assistant Professor, Chemical Engineering, Auburn University

SCIENTIFIC AND PROFESSIONAL SOCIETIES

- American Chemical Society
- American Institute of Chemical Engineers
- American Vacuum Society
- Materials Research Society

HONORS AND AWARDS

- 2003: Creative Research Award - Auburn University.
- 2003: Ginn Professor of Engineering Award - Auburn University.
- 1999: Senior Research Award of Excellence - Auburn University.
- 1997: Philpott-Westpoint Stevens Distinguished Professor of Engineering - Auburn University. 10/1/97 - 9/30/02
- 1990: Alumni Professor - Auburn University. 10/1/09 - 9/30/95

RESEARCH INTERESTS

- Surface science of solids and surface spectroscopic/analytical techniques
- Characterization of buried-interfaces and tribology including electrotribological interfaces
- Heterogeneous reactive systems: catalysts & catalysis; electrochemical systems & electrode materials; sorption and sorbent materials; battery, fuel cell and device electrodes; hybrid electrical and electrochemical power systems; on-demand fuel reforming/processing for fuel cell applications
- Microfibrous materials (invented by Dr. Tatarchuk and his students) including: (i) manufacturing methods, (ii) characterization, and (iii) applications to heterogeneous catalysis, sorption, electrochemistry & electrochemical processing, filtration, biological growth, and thermal control materials
- Technology Transfer: IP generation, patent disclosures, licensing agreements, focused fundamental R&D, joint development of demonstration programs.

SELECTED PUBLICATIONS

- Wenhua H.; Payne, Robert U.; Cahela, Donald R.; Tatarchuk, Bruce J, "Uniformity analysis at MEA and stack Levels for a Nexa PEM fuel cell system", Journal of Power Sources, Vol. 128, No. 2, pp 231-238, 2004.
- Chang, Bong-Kyu; Tatarchuk, Bruce J., "Preferential catalytic oxidation (PROX) of CO from model reformates for PEM fuel cells", Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry, Vol. 48, No. 2, pp 843-845, 2003.
- Zhu, W. H.; Poole, B. A.; Cahela, D. R.; Tatarchuk, B. J., "New structures of thin air cathodes for zinc-air batteries", Journal of Applied Electrochemistry, Vol. 33, No. 1, pp 29-36, 2003.
- Nickell, Ryan A.; Tatarchuk, Bruce J., "Development and optimization of highly porous, activated cathodes for low overpotential hydrogen production", Abstracts of Papers, 226th ACS National Meeting, Sep. 2003.
- Nickell, Ryan A.; Tatarchuk, Bruce J., "Comprehensive analysis of the Hg/HgO reference electrode for measuring overpotential in alkaline systems", Abstracts of Papers, 226th ACS National Meeting, Sep. 2003.
- Chang, Bong-Kyu; Tatarchuk, Bruce J, "Preferential catalytic oxidation (PROX) of CO from model reformates for PEM fuel cells", Abstracts of Papers, 226th ACS National Meeting, Sep. 2003.
- Lu, Yong; Tatarchuk, Bruce J, "Microfibrous entrapped supported-ZnO sorbents with high contacting efficiency for trace H₂S removal in PEMFC applications", Abstracts of Papers, 226th ACS National Meeting, Sep. 2003.
- Zhu, Wenhua H.; Flanzer, Mark E.; Tatarchuk, Bruce J., "Nickel-Zinc Accordian-fold Batteries with Microfibrous Electrodes Using a Papermaking Process", Journal of Power Sources, No. 112, pp 353-366, 2002.
- Zhu, Wenhua H.; McGee, Brian R.; Nelms, R. M.; Tatarchuk, Bruce J., "Heat management and stack pulse operation of PEM fuel cell", Proceedings of the Power Sources Conference, Vol. 40, pp 321-324, 2002.
- Zhu, Wenhua H.; Cahela, Donald R.; Tatarchuk, Bruce J., "Development of ultra-thin microfibrous cathodes for zinc/air pulse applications", Proceedings of the Power Sources Conference, Vol. 40, pp 163-166, 2002.
- Dong, Jian; Shen, Wanci; Kang, Feiyu; Tatarchuk, Bruce, "Whiskers with apex growing by a disclination growth mechanism", Journal of Crystal Growth, Vol. 245, No. 1, pp 77-83, 2002.
- Zhu, Wenhua H.; Durben, Peter J.; Tatarchuk, Bruce J, "Microfibrous nickel substrates and electrodes for battery system application", Journal of Power Sources, Vol. 111, No. 2, pp 221-231, 2002.
- Dong, Jian; Shen, Wanci; Tatarchuk, Bruce, "Origin of strong G' band in Raman spectra of carbon whiskers", Applied Physics Letters, Vol. 80, No. 20, pp 3733-3735, 2002.
- Chen, Laiyuan; Chang, Bong-Kyu; Lu, Yong; Yang, Weiguo; Tatarchuk, Bruce J., "Selective catalytic oxidation of CO for fuel cell application", Abstracts of Papers, 224th ACS National Meeting, pp 076, Aug. 2002.

PATENTS

- Tatarchuk , et al., "Preparation of mixed fiber composite structures", Patent issued, No. 5,304,330, 1994.
- Tatarchuk , et al., "Mixed fiber composite structures high surface area-high conductivity mixtures", Patent issued, No. 5,080,963, 1992.
- Tatarchuk; Bruce J., "Method of optimizing composite preparation for electrical properties: maximum capacitance electrodes", Patent issued, No. 5,096,663, 1992.
- Tatarchuk , et al., "Mixed fiber composite structures", Patent issued, No. 5,102,745, 1992.
- Overbeek , et al., "Production of composite structures", Patent issued, No. 6,231,792, 1992.