

Douglas M. Fox

Curriculum Vitae

PERSONAL INFORMATION

American University
Department of Chemistry
Beeghly Bldg., 110
4400 Massachusetts Ave., NW
Washington, DC 20016

TEL: (202) 885-1735
FAX: (202) 885-1752
dfox@american.edu

EDUCATION

Ph.D. in Physical Chemistry, advisor: Professor Leslie Leifer, Michigan Technological University, December 2001.

B.S. in Chemical Engineering, Michigan Technological University, May 1995.

EMPLOYMENT HISTORY

1995-2000	Graduate Teaching Assistant, Chemistry Department, Michigan Technological University, Houghton, MI.
2001	Instructor/Laboratory Advisor, Chemistry Department, Michigan Technological University, Houghton, MI.
2002	Visiting Assistant Professor, Chemistry Department, Michigan Technological University, Houghton, MI.
2002-2004	ASEE/NRL Postdoctoral Fellow, Chemistry Division, Naval Research Laboratory, Washington, DC.
2004-2006	Assistant Research Professor, Chemistry Department, U. S. Naval Academy, Annapolis, MD.
2003-present	NIST Guest Researcher, National Institute of Standards and Technology, Gaithersburg, MD.
2006-present	Assistant Professor, Department of Chemistry, American University, Washington DC.

HONORS AND AWARDS

Outstanding Doctoral Graduate Student, Michigan Technological University, 1998-1999.

Outstanding Teaching Assistant, Michigan Technological University, 1996-1997.

PUBLICATIONS

Refereed Journal Articles:

D. M. Fox and L. Leifer, "Thermodynamic studies of ternary systems: I. LiCl-(n-Bu)₄NCl-H₂O at 25°C," *J. Phys. Chem. B*, **2000**, 104, 1058-1068.

D. M. Fox and L. Leifer, "Thermodynamic treatment of complex multicomponent electrolyte solutions," *Fluid Phase Equilibria*, **2003**, 213, 1-17.

D. M. Fox, W. H. Awad, J. W. Gilman, P. H. Maupin, H. C. De Long, and P. C. Trulove, "Flammability, thermal stability, and phase change characteristics of several trialkylimidazolium salts," *Green Chem.*, **2003**, 5, 724-727.

W. H. Awad, J. W. Gilman, M. Nyden, R. H. Harris, Jr., T. E. Sutto, J. H. Callahan, P. C. Trulove, H. C. De Long, and D. M. Fox, "Thermal degradation studies of alkyl-imidazolium salts and their application in nanocomposites," *Thermochim. Acta*, **2004**, 409, 3-11.

D. M. Phillips, L. F. Drummy, D. G. Conrady, D. M. Fox, R. R. Naik, M. O. Stone, P. C. Trulove, H. C. De Long, R. A. Mantz, "Dissolution and regeneration of *Bombyx Mori* silk fibroin via ionic liquids," *J. Am. Chem. Soc.*, **2004**, 126, 14350-14351.

S. Bellayer, J. W. Gilman, N. Eidelmen, S. Bourbigot, X. Flambard, D. M. Fox, H. C. De Long, and P. C. Trulove, "Preparation of homogeneously dispersed trialkylimidazolium compatibilized multi-walled carbon nanotube / polystyrene nanocomposites via melt extrusion," *Adv. Funct. Mater.*, **2005**, 15, 910-916.

D. M. Fox, J. W. Gilman, H. C. De Long, and P. C. Trulove, "TGA decomposition kinetics of 1-butyl-2,3-dimethylimidazolium tetrafluoroborate and the thermal effects of contaminants," *J. Chem. Thermodynamics*, **2005**, 37, 900-905. (invited paper)

K. Dahl, G. M. Sando, D. M. Fox, T. E. Sutto, and J. C. Owrutsky, "Vibrational spectroscopy and dynamics of small anions in ionic liquid solutions," *J. Chem. Phys.*, **2005**, 123, Article #084504 (11 pages).

D. M. Phillips, L. F. Drummy, R. R. Naik, H. C. De Long, D. M. Fox, P. C. Trulove, and R. A. Mantz, "Regenerated silk wet spinning from an ionic liquid solution," *J. Mater. Chem.*, **2005**, 15, 4206-4208. (hot article)

W. A. Henderson, V. G. Young, Jr., D. M. Fox, H. C. De Long, and P. C. Trulove, "Alkyl vs. Alkoxy Chains on Ionic Liquid Cations," *Chem. Comm.*, **2006**, 35, 3708-3710.

D. M. Fox, P. H. Maupin, S. Bellayer, M. Murariu, R. H. Harris Jr., J. W. Gilman, D. V. Eldred, D. Katsoulis, P. C. Trulove, and H. C. De Long, "Use of a polyhedral oliomeric silsesquioxane (POSS) – imidazolium cation as an organic modifier for montmorillonite," *Langmuir*, **2007**, 23, 7707-7714.

R. A. Mantz, D. M. Fox, J. M. Green III, P. A. Fylstra, S. Bellayer, J. W. Gilman, P. C. Trulove, and H. C. De Long, "Dissolution of Biopolymers Using Ionic Liquids," *Z. Naturforsch. A*, **2007**, 62, 275-280.

M. Modesti, S. Besco, V. Causin, C. Marega, J. W. Gilman, D. M. Fox, P. C. Trulove, H. C. De Long, and M. Zammarano, "ABS/Clay Nanocomposites Obtained by Solution Technique: Influence of Clays' Organic Modifiers," *Polym. Degrad. Stab.*, **2007**, 92, 2206-2213.

R. Haggemueller, S. S. Rahatekar, J. A. Fagan, J. Chun, M. L. Becker, R. R. Naik, T. Krauss, L. Carlson, J. Kadla, P. Trulove, D. Fox, Z. Fang, S. Kelley, and J. W. Gilman, "A Comparison of Quality of Dispersion of Single Wall Carbon Nanotubes Using Different Surfactants and Biomolecules," *Langmuir*, **2008**, 24, 5070-5078.

M. Modesti, S. Besco, A. Lorenzetti, M. Zammarano, V. Causin, C. Marega, J. W. Gilman, D. M. Fox, P. C. Trulove, H. C. De Long, and P. H. Maupin, "Imidazolium Modified Clay Based ABS Nanocomposites: A Comparison Between Melt-Blending and Solution Intercalation Process," *Polym. Adv. Technol.*, in press.

D. M. Fox, J. W. Gilman, A. B. Morgan, J. R. Shields, P. H. Maupin, R. E. Lyon, H. C. De Long, and P. C. Trulove, "Flammability and Thermal Analysis Characterization of Imidazolium Based Ionic Liquids," *Ind. Chem. Eng. Res.*, in press.

Refereed Conference Proceedings:

P. C. Trulove, W. H. Awad, J. W. Gilman, R. D. Davis, T. E. Sutto, D. M. Fox, P. H. Maupin, and H. C. De Long, "Application of Imidazolium based Ionic Liquids for the Preparation of Polymer-Clay Nanocomposites," in *Proceedings of the International Symposium on Ionic Liquids in Honour of Marcelle Gaune-Escard*, H. A. Øye and A. Jagtøyen, Eds., The Norwegian University of Science and Technology, Trondheim, Norway, 2003, 345-. (invited paper)

H. C. De Long, T. E. Sutto, D. M. Fox, and P. C. Trulove, "Intercalation Power Structures in Ionic Liquids," in *Proceedings of the International Symposium on Ionic Liquids in Honour of Marcelle Gaune-Escard*, H. A. Øye and A. Jagtøyen, Eds., The Norwegian University of Science and Technology, Trondheim, Norway, 2003, 355-. (invited paper)

D. M. Fox, W. H. Awad, J. W. Gilman, P. H. Maupin, T. E. Sutto, H. C. De Long, and P. C. Trulove, "Thermal and Kinetic Studies of Trialkylimidazolium Salts," Chapter in *Ionic Liquids III: Fundamentals, Progress, Challenges, and Opportunities*, R. D. Rogers and K. R. Seddon, Eds., ACS Symposium Series, No. 901, 2005-. (invited paper)

D. M. Fox, S. Bellayer, M. Murariu, J. W. Gilman, P. H. Maupin, H. C. De Long, and P. C. Trulove, "Application of Trialkylimidazolium Liquids and Salts to the Preparation of Polymer – Layered Silicate Nanocomposites and Polymer – Carbon Nanotube Nanocomposites," Chapter in *Ionic Liquids in Polymer Systems: Solvents, Additives, and Novel Applications*, C. S. Brazel and R. D. Rogers, Eds., ACS Symposium Series, No. 913, 2005, 175-188. (invited paper)

D. M. Fox, J. W. Gilman, H. C. De Long, and P. C. Trulove, "Decomposition Kinetics of 1-Butyl-2,3-dimethylimidazolium Tetrafluoroborate and the Thermal Effects of Contaminants," in *Proc. Int. Symp. Molten Salts XIV*, R. A. Mantz, P. C. Trulove, H. C. De Long, G. R. Stafford, R. Hagiwara, and D. A. Costa, Eds., 2004 ECS Proceedings Volume, 2006, 435-443. (invited paper)

S. Bellayer, J. W. Gilman, N. Eidelman, S. Bourgibot, X. Flambard, D. M. Fox, H. C. De Long, and P. C. Trulove, "Preparation of Homogeneously Dispersed Trialkyl Imidazolium Compatibilized Muti Walled Carbon Nanotube/Polystyrene Nanocomposites Via Melt Extrusion," in *Proc. Int. Symp. Molten Salts XIV*, R. A. Mantz, P. C. Trulove, H. C. De Long, G. R. Stafford, R. Hagiwara, and D. A. Costa, Eds., 2004 ECS Proceedings Volume, 2006, 600-606. (invited paper)

D. M. Fox, P. H. Maupin, S. Bellayer, M. Murariu, J. W. Gilman, P. C. Trulove, and H. C. De Long, "The Use of 1,2-Dimethyl-3-(Benzyl Ethyl Iso-butyl-POSS)imidazolium Chloride as an Organic Modifier in Polymer – Layered Silicate Nanocomposites," in *Proc. Int. Symp. Molten Salts XIV*, R. A. Mantz, P. C. Trulove, H. C. De Long, G. R. Stafford, R. Hagiwara, and D. A. Costa, Eds., 2004 ECS Proceedings Volume, 2006, 607-616. (invited paper)

D. M. Phillips, R. A. Mantz, H. C. De Long, L. F. Drummy, D. G. Conrady, M. O. Stone, R. R. Naik, D. M. Fox, and P. C. Trulove, "Processing of *Bombyx mori* Silk Using Ionic Liquids," in *Proc. Int. Symp. Molten Salts XIV*, R. A. Mantz, P. C. Trulove, H. C. De Long, G. R. Stafford, R. Hagiwara, and D. A. Costa, Eds., 2004 ECS Proceedings Volume, 2006, 617-624. (invited paper)

P. C. Trulove, W. H. Awad, J. W. Gilman, C. Davis, R. D. Davis, T. E. Sutto, D. M. Fox, P. H. Maupin, and H. C. De Long, "Application of Trialkylimidazolium Ionic Liquids and Salts to the Preparation of Polymer-Clay Nanocomposites," Chapter in *Ionic Liquids IV: Not Just Solvents Anymore – OR -Ionic Liquids: Parallel Futures*, R. D. Rogers and K. R. Seddon, Eds., ACS Symposium Series, submitted. (invited paper)

J. W. Gilman, D. M. Fox, A. B. Morgan, J. R. Shields, P. H. Maupin, H. C. De Long, and P. C. Trulove, "Characterization of Flammability Properties of Ionic Liquids," in *Molten Salts 15: In Memory of Robert Osteryoung*, R. Mantz, H. De Long, R. Hagiwara, G. Stafford, P. Trulove, and D. Fox, Eds., ECS Transactions, 3(35), 105-115.

D. M. Fox, P. Fylstra, M. Hanley, W. Henderson, P. C. Trulove, S. Bellayer, J. W. Gilman, and H. C. De Long, "The Preparation and Characterization of *Bombyx mori* Silk Nanocomposites Using Ionic Liquids," in *Molten Salts 15: In Memory of Robert Osteryoung*, R. Mantz, H. De Long, R. Hagiwara, G. Stafford, P. Trulove, and D. Fox, Eds., ECS Transactions, 3(35), 11-20.

M. Hanley, J. M. Green III, P. Fylstra, W. A. Henderson, D. M. Fox, H. C. De Long, and P. C. Trulove, "Amino Acid Based Ionic Liquids: Solvents for Improved Biopolymer Dissolution," in *Molten Salts 15: In Memory of Robert Osteryoung*, R. Mantz, H. De Long, R. Hagiwara, G. Stafford, P. Trulove, and D. Fox, Eds., ECS Transactions, 3(35), 41-48.

Lectures: (Speakers are listed as first author for all lectures below)

D. M. Fox and L. Leifer, "Thermodynamics of Studies of Ternary Systems: II. LiCl - Bu₄NCl - H₂O at 25°C and High Total Ionic Strengths", Paper P7-MON-3, Symposium on *Other Aspects of Thermodynamics*, 16th IUPAC Conference on Chemical Thermodynamics, Halifax, Nova Scotia, August 2000.

L. Leifer and D. M. Fox, "Treatment of Systems Which Do Not Obey Harned's Rule", Paper P1-MON-3, Symposium on *Connections Between Theory and Experiment*, 16th IUPAC Conference on Chemical Thermodynamics, Halifax, Nova Scotia, August 2000.

D. M. Fox and L. Leifer, "Thermodynamic Studies of Ternary Systems: III. Me₄NCl - Bu₄NCl - H₂O at 25°C", Paper 276, Symposium on *Equilibrium Thermodynamics and Statistical Mechanics*, 222nd National ACS Meeting, Chicago, IL, August 2001.

D. M. Fox, W. H. Awad, R. D. Davis, J. W. Gilman, P. H. Maupin, T. E. Sutto, P. C. Trulove, and H. C. De Long, "Thermal Properties of Several Trialkylimidazolium Salts," Saskatchewan Green Chemistry Conference, Regina, SK, Canada, May 2003.

D. M. Fox, W. H. Awad, J. W. Gilman, P. H. Maupin, T. E. Sutto, H. C. De Long, and P. C. Trulove, "Thermal and Kinetic Studies of Trialkylimidazolium Salts," Symposium on *Ionic Liquids III: Fundamentals, Progress, Challenges, and Opportunities*, 226th National ACS Meeting, New York, NY, September 2003.

P. C. Trulove, W. H. Awad, J. W. Gilman, C. Davis, R. D. Davis, T. E. Sutto, D. M. Fox, P. H. Maupin, and H. C. De Long, "Application of Trialkylimidazolium Ionic Liquids and Salts to the Preparation of Polymer-Clay Nanocomposites," Symposium on *Ionic Liquids III: Fundamentals, Progress, Challenges, and Opportunities*, 226th National ACS Meeting, New York, NY, September 2003.

D. M. Fox, S. Bellayer, W. H. Awad, M. Murariu, R. D. Davis, J. W. Gilman, P. H. Maupin, H. C. De Long, and P. C. Trulove, "The Use of Imidazolium Based Ionic Liquids for the Preparation of Polymer - Layered Silicate Nanocomposites and Polymer - Carbon Nanotube Nanocomposites," Symposium on *Ionic Liquids in Polymer Systems*, 227th National ACS Meeting, Anaheim, CA, 28 March - 01 April 2004. (invited presentation)

D. M. Fox, S. Bellayer, W. H. Awad, M. Murariu, R. D. Davis, J. W. Gilman, P. H. Maupin, H. C. De Long, and P. C. Trulove, "The Use of Imidazolium Based Ionic Liquids for the Preparation of Polymer - Layered Silicate and Polymer - Carbon Nanotube Nanocomposites," EUCHEM 2004 Molten Salts Conference, Piechowice, Poland, 20 - 25 June 2004. (invited presentation)

P. C. Trulove, D. M. Fox, S. Bellayer, W. H. Awad, M. Murariu, J. W. Gilman, P. H. Maupin, and H. C. De Long, "The Use of Molten Salts for the Preparation of Novel Polymer Nanocomposites," EUCHEM 2004 Molten Salts Conference, Piechowice, Poland, 20 - 25 June 2004. (invited presentation)

D. M. Fox, P. H. Maupin, S. Bellayer, M. Murariu, J. W. Gilman, P. C. Trulove, and H. C. De Long, "The Use of 1,2-Dimethyl-3-(Benzyl Ethyl Iso-butyl-POSS)imidazolium Chloride as an Organic Modifier in Polymer – Layered Silicate Nanocomposites," 206th National ECS Meeting, Honolulu, HI, 3-8 October 2004. (invited presentation)

D. M. Fox, J. W. Gilman, H. C. De Long, and P. C. Trulove, "Decomposition Kinetics of 1-Butyl-2,3-Dimethylimidazolium Tetrafluoroborate and the Effects of Impurities Using TGA," 206th National ECS Meeting, Honolulu, HI, 3-8 October 2004. (invited presentation)

S. Bellayer, J. W. Gilman, N. Eidelman, S. Bourgibot, X. Flambard, D. M. Fox, H. C. De Long, and P. C. Trulove, "Preparation of Homogeneously Dispersed Trialkyl Imidazolium Compatibilized Muti Walled Carbon Nanotube/Polystyrene Nanocomposites Via Melt Extrusion," 206th National ECS Meeting, Honolulu, HI, 3-8 October 2004. (invited presentation)

R. A. Mantz, H. C. De Long, L. F. Drummy, D. G. Conrady, M. O. Stone, R. R. Naik, D. M. Phillips, D. M. Fox, and P. C. Trulove, "Processing of *Bombyx mori* Silk Using Ionic Liquids," 206th National ECS Meeting, Honolulu, HI, 3-8 October 2004. (invited presentation)

J. W. Gilman, R. D. Davis, S. Bellayer, P. H. Maupin, D. Raghavan, J. K. Langat, S. Bourgibot, X. Flambard, D. M. Fox, P. C. Trulove, and H. C. De Long, "Use of Optical Probes and Laser Scanning Confocal Fluorescence Microscopy for High Throughput Characterization of Dispersion in Polymer Layered Silicate Nanocomposites," 229th National ACS Meeting, San Diego, CA, 13-17 March 2005.

D. M. Fox, J. M. Green III, S. Bellayer, J. W. Gilman, D. M. Phillips, R. A. Mantz, P. C. Trulove, and H. C. De Long, "The Preparation of *Bombyx Mori* Silk Nanocomposites Using Room Temperature Ionic Liquids," 231st National ACS Meeting, Atlanta, GA, 26-30 March 2006.

J. M. Green III, D. M. Fox, H. C. De Long, and P. C. Trulove, "Using Well Known Methods in Unprecedented Ways: The Dissolution/Reconstitution of Chitin and Chitosan Using Room Temperature Ionic Liquids," 231st National ACS Meeting, Atlanta, GA, 26-30 March 2006.

J. W. Gilman, D. M. Fox, P. C. Trulove, H. C. De Long, and J. D. Stenger-Smith, "Flammability Properties of Ionic Liquids," 231st National ACS Meeting, Atlanta, GA, 26-30 March 2006.

R. A. Mantz, D. M. Fox, P. A. Fylstra, W. A. Henderson, J. W. Gilman, P. C. Trulove, and H. C. De Long, "Ionic Liquids as Solvents for Biopolymer Processing," EUCHEM 2006 Conference on Molten Salts and Ionic Liquids, Hammamet, Tunisia, 16-22 September 2006.

D. M. Fox, P. A. Fylstra, W. A. Henderson, J. W. Gilman, P. C. Trulove, and H. C. De Long, "The Preparation and Characterization of Bombyx Mori Silk Nanocomposites Using Ionic Liquids," 210th National ECS Meeting, Cancun, Mexico, 29 October – 3 November 2006.

H. C. De Long, J. W. Gilman, J. R. Shields, A. B. Morgan, D. M. Fox, and P. C. Trulove, "Flammability and Thermal Analysis Characterization of Imidazolium Based Ionic Liquids," 210th National ECS Meeting, Cancun, Mexico, 29 October – 3 November 2006.

M. G. Hanley, J. M. Green III, P. A. Fylstra, D. M. Fox, W. A. Henderson, H. C. De Long, and P. C. Trulove, "Amino Acid Based Ionic Liquids: Solvents for Improved Biopolymer Dissolution," 210th National ECS Meeting, Cancun, Mexico, 29 October – 3 November 2006.

Work in Progress:

D. M. Fox, R. H. Harris Jr., J. W. Gilman, M. Y. Gelfer, B. S. Hsaio, P. H. Maupin, P. C. Trulove, and H. C. De Long, "The templating effect of laminar clay in 1,2-dimethyl-3(benzyl ethyl iso-butyl POSS)-montmorillonite/polymer nanocomposites."

P. H. Maupin, A. J. Bur, R. H. Harris Jr., and D. M. Fox, "The Four Regimes of Fluorescence Behavior in Nile Blue A Modified Layered Silicate Polymer Nanocomposites."

D. M. Fox and L. Gonzales, "Preparations of Imidazolium Ionic Liquids via Metathesis: Effects of Solvents and Counter-cations."

L. N'dri, P. H. Maupin, and D. M. Fox, "Organically-Modified Acid-Activated Clay for the Production of Biodiesel."

S. Vempati and D. M. Fox, "Transport and Interfacial Properties of an Ionic Liquid Polymer Gel Electrolyte: 1. The Effects of Different Organically Modified Clays."

RESEARCH

Grants Received:

I. Internal Grants

Fall 2006 Faculty Mellon Fund Competition, "Enhancing Student Experiences in the Chemistry Department Laboratories," funding of \$2000 for Spring Semester 2007 from American University College of Arts and Sciences, 17 October 2006.

Faculty Research Award AY 2007-08, "Thermodynamic and Transport Properties of Room Temperature Ionic Liquid – Electrolyte Solutions," funding of \$7,500 for May 1, 2007 – April 30, 2008 from American University College of Arts and Sciences, 15 March 2007.

Fall 2007 Faculty Mellon Fund Competition, "Empowering Students with Alternative Energy Technology," funding of \$1950 for Spring Semester 2008 from American University College of Arts and Sciences, 8 November 2007.

Summer 2008 Dean's Undergraduate Research Award, "Transport and Interfacial Properties of an Ionic Liquid Polymer Gel Electrolyte," project supervisor for Sriram Vempati, from American University College of Arts and Sciences, 29 April 2008.

II. External Grants

Co-PI with Dr. Richard Colton (NRL, PI) on "Examination of Non-enzymatic Synthesis of Peptides and Polypeptides in Ionic Liquids," funding of \$42,000 for CY03 from Air Force Office of Scientific Research. Funds transferred to the Naval Research Laboratory. Work carried out at the Naval Research Laboratory.

Travel Grants for chairing sessions in the Molten Salts 15 (MS 15) Symposium, funding of \$1750 combined from the National Science Foundation and the Electrochemical Society (ECS) MS 15 Symposium Committee. MS 15 Symposium held at the ECS 2006 Joint International Meeting in Cancun, Mexico, 29 October – 3 November 2006.

PI for Symposium Organizational Grants for Molten Salts and Ionic Liquids 16, funding of \$20,000 from the Air Force Office of Scientific Research and \$5,000 from the Army Research Office. Funds transferred directly to the Electrochemical Society for costs associated with the MSIL 16 Symposium to be held at the ECS 2008 Joint International Meeting in Honolulu, HI, October 12 – 17, 2008.

Proposals Submitted:

PI on "Reduced Polymer Flammability Using POSS-Modified Cellulose", NIST – BFRL Extramural Fire Research Grants Program, part of the 2008 Measurement, Science, and Engineering Research Grants Program, \$265,492 requested, pending.

PI on "Using Layered Silicates to Enhance Ion Conductivity in Ionic Liquid – Polymer Gel Electrolytes: Exploration of Structures and Mechanisms", funding of \$50,000 for AY08-10 requested from Petroleum Research Fund, submitted 30 November 2007, project not funded.

Proposals in Preparation:

U. S. Department of Energy, "Exploration of Structures and Mechanisms in Ionic Liquid – Polymer Gel Electrolytes Containing Layered Silicates", DOE – Basic Research Needs for Electrical Energy Storage. White paper submitted 09 June 2008, full proposal in progress.

National Science Foundation, "Enhancing student laboratory experiences at American University using modern equipment throughout the undergraduate program," funding of ~\$250,000 requested.

EDITORIAL ACTIVITIES

Co-editor of *Molten Salts 15: In Memory of Robert Osteryoung*, R. Mantz, H. De Long, R. Hagiwara, G. Stafford, P. Trulove, and D. Fox, Eds., ECS Transactions, 3(35), 2007.

Manuscript reviewer for Applied Clay Science, Journal of Chemical Thermodynamics, Journal of Polymer Science, and Macromolecules

Proposal reviewer for NIST small grants, CUNY small grants programs, and NSF Experimental Physical Chemistry Division.

TEACHING RESPONSIBILITIES

Courses taught at AU:

CHEM510 – Advanced Physical Chemistry

CHEM511 – Advanced Physical Chemistry Laboratory

CHEM410 – Biophysical Chemistry

CHEM411 – Biophysical Chemistry Laboratory

PHYS440 – Experimental Physics

CHEM110 – General Chemistry I

CHEM490 – Independent Study Project in Chemistry

Internships, Co-ops, and Independent Studies Supervised:

Fall 2006, Joseph Balinas, independent study, “Solvent Effects on the Spectral Characteristics of Dyes and Dyed Clays.”

Spring 2006, Samantha Shterengarts, independent study, “Effects of Hydrophobic Additives on Bioplastic Properties.” (“Preparation and Characterization of Biofiber – Gelatin Nanocomposites Using Hydrophobic Plasticizers.”)

Fall 2007, Leah Gonzales, independent study, “Physicochemical Properties of Environmentally Benign Solutions.”

Spring 2008, Laetitia N’dri, independent study, “Biodiesel Synthesis: Comparison of Catalysts.” (“Biodiesel Synthesis Using Exchanged and Acid Activated Clay Catalysts”)

Spring 2008, Brian Kelleher, independent study, “Optimization of a Homemade Electromagnet.”

Summer 2008, Sriram Vempati, summer undergraduate research project, "Transport and Interfacial Properties of an Ionic Liquid Polymer Gel Electrolyte."

Fall 2008, Laetitia N'dri, independent study, "Biodiesel Synthesis Using Exchanged and Acid Activated Clay Catalysts"

Fall 2008, Seth Reuter, independent study, "Physical Properties of Ethyl Lactate Mixtures"

Supervision of Thesis & Dissertations:

Alyssa Ashley, MS Candidate, Committee Member

Jake Chae, PhD Candidate, Committee Member

CURRICULUM DEVELOPMENT

Fall 2006, CHEM511 – Designed 8 new laboratory experiments to increase hands-on experience of quantum chemistry effects for students taking the course.

Spring 2006, CHEM411 – Designed 6 new laboratory experiments to provide students with hands-on experience with topics relevant to biochemical and environmental applications of physical chemistry.

Spring 2006, PHYS440 – Integrated 7 new laboratory experiments with 3 existing ones to provide students with hands-on experience relevant to advanced physics concepts.

In Progress, HNRS-301 – Developing a course on the "History of Global Warming Science" for the Honors Colloquium in Natural and Mathematical Sciences.

DEPARTMENT AND UNIVERSITY SERVICE

Beeghly Renovation Committee, F06 - present

Environmental Issues Project Team, F06 – present

Environmental Science PhD Program Exploratory Committee, F06 – present

Chemistry Department Chair Search Committee, S07

Chemistry Department Faculty Search Committees, F07 – present

Environmental Science Undergraduate Curriculum Committee, F07 – present

Chemistry Department Representative for Educational Policy Committee, F07 – present

Faculty advisor for Habitat for Humanity student group, F07 – present

Faculty profile in CAS Connections, forthcoming September 2007 issue

Pro bono lecture for CHEM602 on Laboratory Safety and Measurement Techniques (09/04/07)

Chemistry Department Representative at AU Recruiters seminar (01/11/07) and AU Science Graduate Open House (02/19/07)

Developing new Chemistry Department Brochure, S07 - present

Chair of Undergraduate Chemistry Textbook Adoption Committee, S08

Interview with Communications graduate students on “The fate of plastics in the environment”, S08

PROFESSIONAL SERVICE

Professional Organization Memberships:

American Chemical Society

Clay Minerals Society

Electrochemical Society

Sigma Xi

Professional Activities:

Chairman of “Symposium Session I1: Physical and Electrochemistry General Session”, 210th National ECS Meeting, Cancun, Mexico, 29 October – 3 November 2006.

Chairman of “Symposium Session I4: Molten Salt 15, In Memory of Robert Osteryoung”, 210th National ECS Meeting, Cancun, Mexico, 29 October – 3 November 2006.

Co-organizer for “16th International Symposium on Molten Salts and Ionic Liquids,” to be held at the PRiME 2008 Joint International Meeting of the ECS, 12 October – 17 October, 2008.

COMMUNITY AND CIVIC ACTIVITIES

Interview with High School students as a part of National Council for Science and the Environment, EnvironMentors Program, December 2006.