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Elton Z. and Lois G. Huff Associate Professor of Civil/Environmental Engineering

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EDUCATION

- Ph.D. Lehigh University, Bethlehem, PA, 1998, Civil and Environmental Engineering.
(Advisor: Dr. Arup K. SenGupta; GPA: 3.9/4.0)
- M.S. Taiyuan University of Technology, China, 1987, Environmental Engineering.
- B.S. Taiyuan University of Technology, China, 1984, Civil & Environmental Engineering
(Rank: No. 1 of 150 students)

PRIMARY RESEARCH INTERESTS

- Physical and chemical processes (sorption, ion exchange, membrane, and environmental catalysis) for treatment of water/wastewater and for remediation of groundwater, soil and sediment
- Nanomaterials and nanotechnologies for environmental remediation uses; Environmental fate and impacts of man-made nanoparticles
- Physical and biological availabilities of contaminants in soil and sediment
- Treatment of water treatment process waste residuals
- Multi-phase mass transfer and transport modeling of contaminants
- Indoor air quality
- Transportation and the environment

MAJOR EXPERIENCE

- 8/2007-present **E. and L. Huff Associate Professor**, Dept. of Civil Engineering, Auburn University
- 8/2006-present **Associate Professor with Tenure**, Dept. of Civil Engineering, Auburn University
- 7/2001-7/2006 **Assistant Professor**, Department of Civil Engineering, Auburn University
- 3/1999-6/2001 **Postdoctoral Scientist**, Department of Soil & Water, The Connecticut Agricultural Experiment Station, New Haven, CT. (Supervisor: Dr. Joe Pignatello)
- 8/2000-5/2001 **Adjunct Faculty**, Environmental Science and Studies Program, Teikyo Post University, Waterbury, CT 06723, USA.
- 9/1997-2/1999 **Research Associate**, Dept. of Civil and Environ. Eng., Virginia Tech, Blacksburg, VA. (Supervisor: Dr. John C. Little)
- 10/1993-8/1997 **Doctoral Fellow**, Dept. of Civil & Environ. Eng., Lehigh University, PA.
- 6/1992-7/1993 **Visiting Scholar**, Technical University of Munich, Germany.

- modified zerovalent iron nanoparticles in porous media: Experimental studies and numerical modeling” *Environ. Sci & Technol.* 42(3), 896-900.
- [16] Y. Xu, **D. Zhao**, and P. Clement (2008) “Modeling the elution histories of copper and lead from a contaminated soil with Polyamidoamine (PAMAM) dendrimers” *J Environ. Eng. (ASCE)*, 134(4), 238-246.
- [17] J. Liu, F. He, **D. Zhao** and C. Roberts (2008) “Polysugar-stabilized Pd nanoparticles exhibiting high catalytic activities for hydrodechlorination of environmentally deleterious trichloroethylene” *Langmuir*, 24(1), 328-336.
- [18] W. Li, G. Pan, M. Zhang, **D. Zhao**, Y. Yang, H. Chen, G. He. (2008) “EXAFS studies on adsorption irreversibility of Zn(II) on TiO₂: Temperature dependence” *J. Colloid and Interface Sci.* 319(2), 385-391.
- [19] SH Joo and **D. Zhao** (2008) “Destruction of lindane and atrazine using stabilized iron nanoparticles under aerobic and anaerobic conditions: Effects of catalysts and stabilizer” *Chemosphere.* 70(3), 418-425.
- [20] Z. Xiong, **D. Zhao** and W. Harper (2007) “Sorption and desorption of perchlorate with various ion exchangers: a comparative study” *Ind. Eng. Chem. Res.* 46, 9213-9222.
- [21] R. Liu and **D. Zhao** (2007) “In situ immobilization of Cu(II) in soils using a new class of iron phosphate nanoparticles” *Chemosphere*, 68, 1867-1876.
- [22] R. Liu and **D. Zhao** (2007) “The leachability, bioaccessibility, and speciation of Cu in the sediment of channel catfish ponds” *Environmental Pollution* 147(3), 593-603.
- [23] F. He and **D. Zhao** (2007) “Manipulating the size and dispersibility of zero-valent iron nanoparticles by use of carboxymethyl cellulose stabilizers” *Environ. Sci & Technol.* 41(17), 6216-6221.
- [24] R. Liu and **D. Zhao** (2007) “Reducing leachability and bioaccessibility of lead from soils using a new class of stabilized iron phosphate nanoparticles” *Water Research*, (41), 2491-2502.
- [25] Z. Xiong, **D. Zhao** and G. Pan (2007) “Complete destruction of perchlorate in water and ion exchange brine using stabilized iron nanoparticles” *Water Research*, (41), 3497-3505.
- [26] F. He, **D. Zhao**, J. Liu and C. Roberts (2007) “Stabilization of Fe-Pd bimetallic nanoparticles with sodium carboxymethyl cellulose for enhanced degradation of TCE in water” *Ind. Eng. Chem. Res.* 46, 29-34.
- [27] Y. Xu and **D. Zhao** (2007) “Reductive immobilization of chromate in soils and groundwater by stabilized zero-valent iron nanoparticles” *Water Research*, (41), 2101-2108.
- [28] J. Snelling, M. O. Barnett, **D. Zhao**, and J. S. Arey (2007) “Methyl tertiary hexyl ether and methyl tertiary octyl ether as gasoline oxygenates: Anticipating widespread risks to community water supply wells” *Environmental Toxicology and Chemistry* 26(11), 2253-2259.
- [29] Y. Xu and **D. Zhao** (2006) “A revised method for determination of apparent stability constant of metal-dendrimer complexes” *Ind. Eng. Chem. Res.* 45: 7380-7387.
- [30] J. Snelling, M.O. Barnett, **D. Zhao**, and J.S. Arey (2006) “Methyl tertiary hexyl ether and methyl tertiary octyl ether as gasoline oxygenates: Assessing risks from atmospheric dispersion and deposition” *J. Air & Waste Manage. Assoc.* 56: 1484-1492.
- [31] R. Liu, **D. Zhao**, and M. O. Barnett (2006) “Fate and Transport of Copper Applied in Channel Catfish Ponds: A Pilot Study” *Water, Air & Soil Pollution*, 176 (1-4): 139-162.
- [32] Z. Xiong, P. Dimick, **D. Zhao**, A. Kney, and J. Tavakoli (2006) “Removal of Perchlorate from Contaminated Water Using a Regenerable Polymeric Ligand Exchanger” *Separation Sci. & Technol.* 41 (11): 2555-2574.
- [33] Y. Xu and **D. Zhao** (2006) “Removal of lead from contaminated soils using poly(amidoamine) dendrimers” *Ind. Eng. Chem. Res.* 45, 1758-1765.
- [34] Y. Xu and **D. Zhao** (2005) “Removal of copper from contaminated soil by use of

- poly(amidoamine) dendrimers” *Environ. Sci & Technol.* 39, 2369-2375.
- [35] F. He and **D. Zhao** (2005) “Preparation and characterization of a new class of starch-stabilized bimetallic nanoparticles for degradation of chlorinated hydrocarbons in water” *Environ. Sci & Technol.* 39, 3314-3320.
- [36] B. An, T. Steinwinder, and **D. Zhao** (2005) “Selective removal of arsenate from drinking water using a polymeric ligand exchanger” *Water Research* 39, 4993-5004.
- [37] AD Kney and **D. Zhao** (2004) “A Pilot Study on Phosphate and Nitrate Removal from Secondary Wastewater using a Selective Ion Exchange Process” *Environ. Technol.*, 25(5), 533-542.
- [38] WD Henry, **D. Zhao**, C. Lange, and A. K. SenGupta (2004) “Preparation and Characterization of a New Class of Polymeric Ligand Exchangers for Selective Removal of Trace Contaminants from Water” *Reactive and Functional Polymer*, 60:109-120.
- [39] **D. Zhao** and J. Pignatello (2004) “Model-Aided Characterization of Tenax Resins for Sorption of Aromatic Compounds from Water” *Environ. Toxic. Chem.* 23(7), 1592-1599.
- [40] **D. Zhao**, J. Little and S. Cox (2004) “Characterization Polyurethane Foam as a Source for or Sink of VOCs in Indoor Air” *J. Environ. Eng.*, ASCE 130(9), 983-989.
- [41] R. Liu, **D. Zhao**, M. O. Barnett, and C. Boyd (2003) “Fate and transport of copper in copper-sulfate treated fish ponds” *J. Environ. Monitoring and Restoration*, Special Issue based on the 2003 International Conference on Safe Water, Ibeanusi V.M., Editor, 1-8.
- [42] W. Braida, J. White, **D. Zhao** and J. Pignatello (2002) “Concentration-Dependent Kinetics of Pollutant Desorption from Soils” *Environ. Toxic. Chem.*, 21(12), 2573-2580.
- [43] **D. Zhao**, J. Pignatello, M. Hunter, and J. White (2002) “Application of the Dual-Mode Model for Predicting Competitive Sorption Equilibria and Rates of Polycyclic Aromatic Hydrocarbons in Estuarine Sediment Suspensions” *Environ. Toxic. Chem.*, 21(11), 2276-2282.
- [44] **D. Zhao**, J. C. Little, and A. Hodgson (2002) “Modeling Sink Effects of Building Materials in Response to Transient Contaminant Sources” *Indoor Air*, 12, 184-190.
- [45] **D. Zhao**, J. Pignatello, J. White, and M. Hunter (2001) “Dual-Mode Modeling of Competitive and Concentration-Dependent Sorption and Desorption Kinetics of Hydrophobic Contaminants in Soils” *Water Resources Res.*, 37, 2205-2212.
- [46] S. Cox, **D. Zhao**, and J. C. Little (2001) “Measuring Partition and Diffusion Coefficients for Volatile Organic Compounds in Vinyl Flooring” *Atmospheric Environ.* 35, 3823-3830.
- [47] **D. Zhao** and A. K. SenGupta (2000) “Ligand Separation with a Cu(II)-Loaded Polymeric Ligand Exchanger” *Ind. & Eng. Chem. Res.* No. 2, Vol. 39, 455-462.
- [48] **D. Zhao**, A. K. SenGupta, and L. Stewart (1998) “Selective Removal of Cr(VI) Oxyanions with a New Anion Exchanger” *Ind. & Eng. Chem. Res.*, Vol. 37, No. 11, 4383-4387.
- [49] **D. Zhao** and A. K. SenGupta (1998) "Ultimate Removal and Recovery of Phosphate from Wastewater Using A New Class of Polymeric Exchangers" *Water Res.*, No. 5, Vol. 32, 1613-1625.
- [50] **D. Zhao** and A. K. SenGupta (1996) "Selective Removal and Recovery of Phosphate in a Novel Fixed-Bed Process" *Wat. Sci. & Tech.*, Vol. 33, No. 10-11, 139-147.
- [51] A. K. SenGupta and **D. Zhao** (1996) "Book Review: Ion Exchanger and Solvent Extraction, Vol. 12, by Marinsky and Marcus" *J. Environ. Progress.*, Vol. 15, No. 4, w9-w10.
- [52] **D. Zhao**, A. K. SenGupta, and Y. Zhu (1995) "Trace Contaminants Sorption through Polymeric Ligand Exchange" *Ind. & Eng. Chem. Res.*, Vol. 34, No. 8, 2676-2684.

Book Chapters

- [1].F. He, **D. Zhao** and C. Roberts (2009) “Stabilization of Zero-Valent Iron Nanoparticles for Enhanced in situ Destruction of Chlorinated Solvents in Soils and Groundwater” in

Nanotechnology Applications for Clean Water, Eds. Savage N; Diallo M; Duncan J, Street A; Sustich R. William Andrew Publishing, pp 281-292.

- [2]. Y. Xu, R. Liu, and **D. Zhao** (2009) "Reducing Leachability and Bioaccessibility of Toxic Metals in Soils, Sediments and Solid/Hazardous Wastes Using Stabilized Nanoparticles" in *Nanotechnology Applications for Clean Water*, Eds. Savage N; Diallo M; Duncan J, Street A; Sustich R. William Andrew Publishing, pp 365-374.

U.S. Patents

- [1]. A. K. SenGupta and **D. Zhao** (2000) "Selective Removal of Phosphate and Chromate by Ion Exchangers" U.S. Patent No. 6,136,199.
- [2]. **D. Zhao** and F. He (2004) "Preparation and application of a new class of polysaccharide-stabilized bimetallic nanoparticles for dechlorination of chlorinated hydrocarbons in soils and water" U.S. Patent Application #60/584,063.
- [3]. **D. Zhao** and B. An (2005) "Selective removal of arsenate using polymeric ligand exchangers" U.S. Patent Application #60/687,611.
- [4]. **D. Zhao**, Z. Xiong, M.O. Barnett, and W. Harper (2006) "In situ immobilization/containment of mercury in soils and sediments using a new class of metal sulfide nanoparticles" U.S. Provisional Patent #60/777,309.
- [5]. **D. Zhao** and Z. Xiong (2006) "Complete destruction of perchlorate and nitrate in water and brine using stabilized iron-based nanoparticles" U.S. Provisional Patent # 60/787,626.
- [6]. **D. Zhao** and R. Liu (2006) "In situ immobilization of heavy metals using a new class of stabilized nanoparticles" U.S. Provisional Patent #60/860,305.
- [7]. **D. Zhao** and Y. Xu (2006) "Reductive immobilization of chromate in soils/solid wastes using a new class of stabilized iron nanoparticles" U.S. Provisional Patent #US60/872,616.

Full Papers in Proceedings

- [1] T. R. Steinwinder, **D. Zhao**, J. Mullen (2007) "Minimizing arsenic leaching from water treatment process residuals" in Proceedings of 2007 WEFTEC (Water Environment Federation Technical Exhibition and Conference), Chicago, IL, October 19-22.
- [2] **D. Zhao**, J.C. Little, and S. Cox (2003) "Sorption/Desorption Behavior of Polyurethane Foam" *The 4th International Symp. on HVAC*, Beijing, China, Oct. 9-11.
- [3] **D. Zhao** and J. C. Little: "Modeling and experimental investigation of source/sink effects of polyurethane foam on indoor VOC concentrations", Healthy Buildings, 7th International Conference *Energy-Efficient Healthy Buildings* Singapore, December 7-11, 2003, Singapore.
- [4] Kney, A. D., B. Dreibelbis, **D. Zhao**, and A. K. SenGupta (2002) "A Pilot Study-Phosphate and Nitrate Removal from Treated Domestic Wastewater using a Unique Enhanced Ion Exchange Process" CSCE/EWRI of ASCE Environmental Engineering Conference Proceeding, Niagara Fall, NY, July 2002.
- [5] **D. Zhao**, S. S. Cox, and J. C. Little (1999) "Source/Sink Characterization of Diffusion-Controlled Building Materials" *Proc. of 8th International Conf. on IAQ&C*, Vol 1, 408-413. International Academy of Indoor Air Sciences, Edinburgh, Scotland, 8-13 August, 1999.
- [6] **D. Zhao**, J. Rocques, J. C. Little, and A. Hodgson (1999) "Effect of Reversible, Diffusion-Controlled Sinks on VOC Concentrations in Buildings" *Proc. of 8th International Conf. On IAQ&C*, Vol 5, 264-269. International Academy of Indoor Air Sciences, Edinburgh, Scotland, 8-13 August, 1999.
- [7] **D. Zhao**, A. K. SenGupta, and L. Stewart (1998) "A New Ion Exchange Process for Chromate

- Removal" *Proc. of 30th Mid-Atlantic Ind. Haz. Waste Conf.*, Philadelphia, PA, July, 1998. R. P. S. Suri and G. L. Christensen, Eds., Technomic Publishing Co., 709-716.
- [8] **D. Zhao** and A. K. SenGupta (1997) "Selective Removals of Arsenate, Chromate, and Phosphate through Ion Exchangers" *Proc. of 58th Intern. Water Conf. (IWC)*, Pittsburgh, Nov 3-5. 1997, 564-570.
- [9] **D. Zhao** and A. K. SenGupta (1996) "Enhanced Removal and Recovery of Trace Contaminants through Polymeric Ligand Exchange" *Proc. of 28th Mid-Atlantic Ind. Haz. Waste Conf.*, Buffalo, NY, July, 1996. A. S. Weber, Ed., Technomic Publishing Co., 63-70.
- [10] **D. Zhao** and A. K. SenGupta (1995) "Toward Ultimate Removal and Recovery of Phosphate from Municipal and Industrial Wastewater" *Innov. Tech. for Site Remed. and Haz. Waste Mgmt., Proc. of The Natnl. Conf.*, R. D. Vidic and F. G. Pohland (Eds.), American Society of Civil Engineers, 149-156.
- [11] **D. Zhao** and A. K. SenGupta (1995) "Selective Removal and Recovery of Phosphate from Wastewater" in *the 2nd Internat. Symp. on Wastewater Rec. and Reuse, Book I*, 211-219, IAWQ, Iraklio, Greece, Oct., 1995.

INVITED PRESENTATIONS

- [1] D. Zhao, F. He, Y. Xu, and CB Roberts (2008) "In-situ reductive transformation of chlorinated solvents and immobilization of chromium in soils using polysaccharide-stabilized iron nanoparticles" Invited Presentation and abstract published, 2008 AIChE Annual Meeting and Centennial celebration, Philadelphia, PA, November 16-21, 2008.
- [2] F. He, J. Liu, C. Roberts, and D. Zhao (2008) "Synthesis and application of a new class of carboxymethyl cellulose stabilized Pd nanoparticles for catalytic hydrodechlorination of trichloroethylene" Invited presentation for the best graduate student paper to Feng He, the 236th ACS National Meeting, Philadelphia, PA, August 19, 2008.
- [3] Luo, C., J. Zhuang, D. Zhao and M. O. Barnett (2008) "Pilot-scale Demonstration of a Selective Ion Exchange Process for the Removal of Arsenic from Groundwater" Invited presentation at the Alabama-Mississippi Section, American Water Works Association, 61st Annual Conference, October 5-7, Montgomery, AL.
- [4] Barnett, M. O., K. Hartzog, D. Kilgour, C. Luo, R. Moseley, T. Radu, J. L. Subacz, J. K. Yang and D. Zhao (2008) "Arsenic Research at Auburn University" Invited presentation at the Electric Power Research Institute Arsenic Workshop, July 22, Pensacola, FL.
- [5] Zhao D., Xu, Y., Liu R., Xiong Z. and He F. (2008) "In situ immobilization of toxic metals in soils and solid wastes using stabilized mineral nanoparticles" Invited keynote speeches and abstract published (delivered three keynote lectures on the subject) at the Third International Congress on Environmental Technologies, Polytechnic University of Army, Quito, Ecuador, June 4-6, 2008.
- [6] Zhao D. and He F. (2008) "In situ destruction of chlorinated solvents in soils and groundwater using a new class of cellulose-stabilized iron nanoparticles" Invited keynote speeches and abstract published (delivered two keynote lectures on the subject) at the Third International Congress on Environmental Technologies, Polytechnic University of Army, Quito, Ecuador, June 4-6, 2008.
- [7] Zhao D. and Xiong Z. (2008) "Rapid destruction of perchlorate and nitrate in water and ion exchange brine using stabilized iron nanoparticles" Invited keynote speech and abstract published (delivered one keynote lecture on the subject) at the Third International Congress on Environmental Technologies, Polytechnic University of Army, Quito, Ecuador, June 4-6, 2008.
- [8] D. Zhao (2007) "Preparation and application of stabilized nano-scale minerals for in situ immobilization of toxic metals in soils, sediments and solid wastes" Invited seminar, Stevens Institute of Technology, Center for Environmental Systems, Hoboken, NJ, Oct. 23, 2008.

- [9] D. Zhao (2008) "Nanotechnologies for remediation of persistent organic pollutants in sediments and groundwater" Invited Panelist, the Geocongress 2008 conference, New Orleans during March 9-12, 2008. Abstract published.
- [10] D. Zhao (2007) "Application of novel nanoparticles for degradation of organic pollutants in water and soil" Invited seminar, State Key Laboratory of Organic Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Wushan, Guangzhou, China, April 10, 2007.
- [11] D. Zhao (2007) "Nanotechnologies for environmental remediation uses: History, Current State of technology and Prospects of Future Development" Invited seminar, Center for Eco-environmental Sciences, Chinese Academy of Sciences, Beijing, China, April 20, 2007.
- [12] D. Zhao (2007) "Nanotechnologies for environmental remediation uses: an overview" Invited seminar, Xi'an Jiao Tong University, Xi'an, Shanxi, China, April 7, 2007.
- [13] D. Zhao (2007) "Nanomaterials and nanotechnologies: Opportunities and Challenges for Environmental Engineering Professionals" Invited Seminar, Tsinghua University, Beijing, China, April 23, 2007.
- [14] D. Zhao (2007) "Zero-valent iron nanoparticles for in situ water treatment and soil remediation" Invited Seminar, Texas Tech University, Lubbock, September 22, 2006.
- [15] Feng He, Yinhui Xu, R. Liu, and Dongye Zhao (2006) "Preparation and application of stabilized nanomaterials for environmental clean-up applications" July 2006, Invited Seminar, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China.
- [16] D. Zhao (2006) "Emerging technologies for removal of trace contaminants from water and for soil remediation" Invited seminar, Texas Tech University, Lubbock, TX, September 22, 2006.
- [17] D. Zhao, Z. Xiong, M.O. Barnett and W. Harper (2006) "*In-situ* immobilization/containment of mercury in soils and sediments using a new class of stabilized metal sulfide nanoparticles", invited seminar, EPA Region 4 Symposium on New Technologies for Site Remediation, February 28, 2006.
- [18] M.O. Barnett, D. Zhao, Z. Xiong, J. Bower and W. Harper (2006) "Immobilization of mercury in soils and sediments using metal sulfide minerals", invited seminar, EPA Region 4 Symposium on New Technologies for Site Remediation, February 28, 2006.
- [19] Barnett, M. O., D. Zhao, W. F. Harper, J. Bower, Z. Xiong, W. P. Hamilton, K. Savage and R. R. Turner (2006) "Interactions of mercury with sulfur and its implications to mercury cycling", Invited presentation at U.S. Corps of Engineer's Engineer Research Development Center, Vicksburg, MS, April 24.
- [20] D. Zhao (2002) "Mass transfer modeling of bioavailability, fate and transport of polycyclic aromatic hydrocarbons in soils and sediments", invited seminar, Georgia Tech, October 23, 2002.
- [21] D. Zhao (2002) "Sorption and Bioavailability of Organic Contaminants in Soils", invited seminar, Department of Soil and Agronomy, Auburn University. April 15, 2002.
- [22] D. Zhao (2001) "Competitive sorption and desorption of polycyclic aromatic hydrocarbons in estuarine sediments", invited oral presentation at the 22nd Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Baltimore, MD, Nov. 11-15, 2001.
- [23] D. Zhao and J. Pignatello (2001) "Model-aided characterization of Tenax resins for sorption of aromatics from water", invited poster presentation at the 22nd Society of Environmental Toxicology and Chemistry (SETAC) Annual Meeting, Baltimore, MD, Nov. 11-15, 2001.
- [24] D. Zhao and J. Pignatello (2001) "Dual-mode modeling of Competitive sorption and desorption of polycyclic aromatic hydrocarbons in soils and sediments", invited seminar, Department of Chemical Engineering, Auburn University, Nov. 2, 2001.
- [25] D. Zhao (1999) "Impact of building materials on indoor air quality", invited Speaker at the Quadrangle Conference, Virginia Tech, Blacksburg, VA, Feb. 1999.

- [26] D. Zhao and A.K. SenGupta (1997) “States of water molecules in polymeric sorbents and their roles in mass transfer kinetics”, invited poster presentation at the Gordon Research Conferences (Division of Adsorption and Reactive Polymers), Plymouth, NH, July, 1997.
- [27] D. Zhao (1997) “Mitigating the eutrophication problems using new ion exchange technologies”, invited co-speaker at the drinking water reservoir management workshop sponsored by the State of New York, Albany, NY, Jan. 1997
- [28] A.K. SenGupta and D. Zhao (1995) “Separation of trace contaminants through ligand exchange”, invited Presentation at the Gordon Research Conferences (Division of adsorption and Reactive Polymers), Newport, RI, July, 1995.

Extended Abstracts, Abstracts, and Other Presentations Since 2000

- [1] Freeland, K., Q. Liang, Y. Feng, and D. Zhao (2009) “Soil transport and microbial impact of magnetite nanoparticles” Presentation and abstract accepted, 237th ACS National Meeting & Exposition, March 22-26, 2009, Salt Lake City, UT.
- [2] F. He, D. Zhao, J. Paul (2009) “Pilot-testing carboxymethyl cellulose stabilized nanoiron technology for in-situ destruction of chlorinated solvents at an Alabama Site” Presentation and abstract accepted, the International Conference on the Environmental Implications and Applications of Nanotechnology, June 9-10, 2009. Amherst, MA.
- [3] F. He, M. Zhang, and D. Zhao (2009) “Application of Carboxymethyl Cellulose Stabilized Iron Nanoparticles for Destruction of Chlorinated Hydrocarbons in Soil” Presentation and abstract accepted, 237th ACS National Meeting & Exposition, March 22-26, 2009, Salt Lake City, UT.
- [4] F. He, J. Liu, CB Roberts, and D. Zhao (2009) “One step “green” synthesis of Pd nanoparticles of controlled size and their catalytic activity for trichloroethene hydrodechlorination” Presentation and abstract accepted, 237th ACS National Meeting & Exposition, March 22-26, 2009, Salt Lake City, UT.
- [5] Freeland, K., Y. Feng, and D. Zhao (2009) “Effects of nanoscale iron oxides on bacterial growth” Presentation and abstract accepted, the International Conference on the Environmental Implications and Applications of Nanotechnology, June 9-10, 2009. Amherst, MA.
- [6] Liang Q, Freeland K, Zhao D and Feng Y (2008) “Reducing arsenic leachability from soil and poultry litter using a new class of iron oxide nanoparticles” Presentation and abstract published at the 22nd Annual Alabama Water Resources Conference, Perdido Beach Resort Hotel and Convention Center, Orange Beach, Alabama, Sept. 4-5, 2008.
- [7] Xiong Z. and Zhao D. (2008) “Rapid Reduction of Concentrated Perchlorate and Nitrate in Water and Ion-Exchange Brine by Stabilized Iron Nanoparticles” The 2008 American Water Works Association Inorganic Contaminants Workshop, Albuquerque, NM, Jan. 27-29, 2008. Presentation and extended abstract published.
- [8] Kanel, S. R.; Goswami, R. R.; Clement, T. P.; Barnett, M. O.; Zhao, D. (2008) “Transport of surface stabilized zero-valent iron nano particles in two-dimensional flow container packed with porous media” Preprints of Extended Abstracts presented at the ACS National Meeting, American Chemical Society, Division of Environmental Chemistry (2008), 48(1), 257.
- [9] M. Zhang, F. He and D. Zhao (2008) “Surfactant-enhanced in situ desorption and degradation of trichloroethylene by cellulose-stabilized Zero-valent Iron nanoparticles” Presentation and abstract published at the 22nd Annual Alabama Water Resources Conference, Perdido Beach Resort Hotel and Convention Center, Orange Beach, Alabama, Sept. 4-5, 2008.
- [10] C. Luo, D. Zhao, J. Balliew and MO Barnett (2008) “Pilot-scale Demonstration of A Regenerable Ligand Exchange Process for Removal of Arsenate from Drinking Water” Poster presentation and abstract published, June 8-12, 2008, Georgia World Congress Center, Atlanta,

Georgia

- [11] TP Clement, S. Kanel, R. Goswami, F. He, D. Zhao, MO Barnett (2008) "Two dimensional transport characteristics of iron nano-particles in porous media" Platform presentation and abstract published, the MODFLOW 2008 conference, May 19th to 21st, 2008, Colorado School of Mines, Golden, Colorado.
- [12] D. Zhao, F. He, M. Zhang and CB Roberts (2008) "In Situ degradation of chlorinated solvents in soil" Presentation delivered and abstract published, the 2008 Interagency Environmental Nanotechnology Grantees Workshop, November 19-21, Tampa, Florida.
- [13] Joo, S.H. and Zhao, D. (2007) "*In-situ* remediation of trichloroethylene in soil using stabilized Fe-Pd nanoparticles" 233rd American Chemical Society National Meeting *Chicago, IL, 25th-29th March, 2007*. Poster Presentation and abstract published.
- [14] He, F. and Zhao, D. (2007) "An Innovative Remediation Technology for in situ Destruction of Chlorinated Solvents in Soils and Groundwater Using a New Class of Soil-Dispersible Iron Nanoparticles" Poster Presentation and abstract published, 2007 Water Resources Conference, Auburn University, June 13-15, 2007.
- [15] Xiong, Z., He, F., Zhao, D., Harper W. and Barnett, M.O. (2007) "In-situ Immobilization of Mercury in Sediment and Soil by A New Class of Stabilized Iron Sulfide Nanoparticles" Poster Presentation, 2007 Water Resources Conference, Auburn University, June 13-15, 2007.
- [16] Xiong, Z., He, F., Zhao D. (2007) "In-situ Mercury Immobilization in Soils and Sediment by Stabilized Iron Sulfide Nanoparticles" Poster presentation and abstract published, 21st Annual Alabama Water Resources Conference, September 5-7, 2007, Perdido Beach, AL.
- [17] He, F. and Zhao, D. (2007) "In situ destruction of chlorinated solvents in soils and groundwater using stabilized iron nanoparticles" Oral presentation and abstract published, 21st Annual Alabama Water Resources Conference, September 5-7, 2007, Perdido Beach, AL.
- [18] A.D. Kney, P.S. Dimick, J. Tavakoli, S.E. Mylon, D. Zhao (2007) "A Comparison of Metal-Loaded DOW3N Ion Exchangers for Removal of Perchlorate from Water" 15th Symposium on Separation Science and Technology for Energy Applications, Gatlinburg, TN, Oct. 21-25, 2007. Paper published and oral presentation delivered.
- [19] D. Zhao, F. He, and C. Roberts (2007) "Stabilized zero-valent nanoparticles for rapid destruction of chlorinated hydrocarbons" Abstract published and oral presentation delivered, Interagency Workshop on the Environmental Implications, USEPA, Washington D.C., September 5-7, 2007.
- [20] Y. Xu, R. Liu, Z. Xiong, and D. Zhao (2007) "Synthesis and application of controllable nanoparticles for in situ immobilization of mercury, chromate and lead in soils, sediments and groundwater" Oral presentation and abstract published, AEESP Conference-Interactions at the Interface, Virginia Tech, July 28 - August 1, 2007.
- [21] J. Liu, F. He, D. Zhao and C. Roberts (2007) "synthesis of Pd nanoparticles exhibiting high catalytic activities for the hydrodechlorination of environmentally deleterious trichloroethylene" Oral presentation and abstract published, 11th Annual Green Chemistry and Engineering Conference, American Chemical Society, Washington D.C., June 26-29, 2007.
- [22] J. Liu, F. He, D. Zhao and C. Roberts (2007) "Green Synthesis Of Pd Nanoparticles For Catalytic Hydrodechlorination Of Environmentally Deleterious Trichloroethylene" AIChE's 2007 Annual Meeting, Salt Lake City Utah, Nov. 4-9. Extended Abstract published and Oral Presentation delivered.
- [23] F. He and D. Zhao (2006) "Stabilization of Fe-Pd Nanoparticles with Polysaccharides for Enhanced Dechlorination of Trichloroethylene and Soil Transportability" Poster Presentation and abstract published, the 20th Annual Alabama Water Resources Conference, Orange Beach, AL, Sept. 6-8, 2006.

- [24] R. Liu and D. Zhao (2006) "In situ immobilization of lead in soils and groundwater by a new class of stabilized nano-particles" Poster Presentation and abstract published, the 20th Annual Alabama Water Resources Conference, Orange Beach, AL, Sept. 6-8, 2006.
- [25] Z. Xiong and D. Zhao (2006) "In situ immobilization of mercury in soils and sediments using a new class of iron sulfide nanoparticles" Poster Presentation and abstract published, the 20th Annual Alabama Water Resources Conference, Orange Beach, AL, Sept. 6-8, 2006.
- [26] Peter J. Bennett, Lester Feldman, Feng He and Dongye Zhao (2006) "Field Preparation and Testing of "Stabilized" Reactive Bi-Metallic Nanoparticles Composed of Iron and Palladium" Oral presentation and abstract published, The 16th Annual AEHS Meeting & West Coast Conference on Soils, Sediments and Water, 13 - 16 March, 2006.
- [27] S.H. Joo and D. Zhao (2006) "Degradation of Chlorinated Pesticides Using Stabilized Nanoscale Zero-Valent Iron Nanoparticles under Aerobic and Anaerobic Conditions" Oral presentation and abstract published, the 22nd Annual AEHS Conference on Soils, Sediments and Water at UMass, Amherst, October 16-19, 2006.
- [28] F. He and D. Zhao (2006) "Effects of Stabilizers and Synthesizing Conditions on the Reactivity and Transportability of Fe-Pd Nanoparticles for Enhanced Dechlorination of Trichloroethene in Water" Oral presentation and extended abstract published, 232th ACS National Meeting, San Francisco, CA, Sept 10-14, 2006.
- [29] Z. Xiong and D. Zhao (2006) "In situ immobilization mercury in soils using stabilized FeS Nanoparticles" Oral presentation and extended abstract published, 232th ACS National Meeting, San Francisco, CA, Sept 10-14, 2006.
- [30] Y. Xu and D. Zhao (2006) "Removal of lead from contaminated soil using polyamidoamine (PAMAM) dendrimers: column experiments and modeling" Oral presentation and extended abstract published, 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006.
- [31] T. Steinwinder, B. An, D. Zhao, and M. O. Barnett (2006) "Stabilizing arsenic-laden residuals from ion exchange processes" Oral presentation and extended abstract published, 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006.
- [32] R. Liu, D. Zhao, and M. O. Barnett (2006) "Influence of various soil compositions on the sorption of Cu(II) to soils and their effects on Cu(II) leachability and bioaccessibility" Poster presentation and extended abstract published, 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006.
- [33] Z. Xiong and D. Zhao (2006) "Destruction of perchlorate in water and brine using stabilized zero-valent iron nanoparticles" Oral presentation and extended abstract published, 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006.
- [34] F. He and D. Zhao (2006) "Application of a new class of polysaccharide-stabilized Fe-Pd nanoparticles for rapid destruction of chlorinated hydrocarbons in water" Oral presentation and abstract published, IWA World Water Congress and Exhibition, Beijing, 2006.
- [35] B. An, T. Steinwinder and D. Zhao (2006) "Selective removal of arsenate from drinking water using polymeric ligand exchangers" Oral presentation, IWA World Water Congress and Exhibition, Beijing, 2006.
- [36] T. Steinwinder and D. Zhao (2006) "Stabilization of As-laden waste residuals from ion exchange processes" Oral presentation, IWA World Water Congress and Exhibition, Beijing, 2006.
- [37] J.S. Arey, J. Snelling, M.O. Barnett, D. Zhao, K. Kawamoto, and P. M. Gschwend (2005) "Decision-making tools for anticipating the impacts of fuel blends on air and water: lessons from MTBE" Poster presentation with abstract published in proceedings, the 26th annual meeting of the Society of Environmental Toxicology and Chemistry, Baltimore, Maryland, November 13-17, 2005.
- [38] T. Steinwinder, B. An, D. Zhao, M. Barnett, and T. Kramer (2005) "Engineered Treatment of

- As*-laden Regeneration Brine for Enhanced Stability of Process Waste Residuals” Poster Presentation and abstract published, the 19th Annual Alabama Water Resources Conference, Orange Beach, AL, Sept. 8-9, 2005.
- [39] Z. Xiong, F. He and D. Zhao (2005) “Complete Destruction of Perchlorate in Spent Regenerant Brine Using a New Class of Nanoscale Zero Valent Iron Particles” Poster Presentation and abstract published, the 19th Annual Alabama Water Resources Conference, Orange Beach, AL, Sept. 8-9, 2005.
- [40] F. He and D. Zhao “Development and Application of Novel Nano-materials and Nanotechnologies for Remediation of Contaminated Water, Soils and Sediments” Oral Presentation and abstract published, First AEESP Biennial Research and Education Conference, Clarkson University, Potsdam, NY, July 23-27, 2005.
- [41] P. Dimick, Z. Xiong, D. Zhao, A. Kney, J. Tavakoli (2005) “Sorption and Desorption of Perchlorate with a New Class of Polymeric Ligand Exchangers” 14th Symposium on Separation Sci. & Technol. for Energy Applications, Gatlinburg, TN, October 23-27, 2005.
- [42] B. An, T. Steinwinder, and D. Zhao (2005) “Selective Removal of Arsenate from Drinking Water Using a Polymeric Ligand Exchanger” Extended Abstract and Presentation, 230th ACS National Meeting, Aug 28-Sept 1, 2005, Washington, DC.
- [43] F. He and D. Zhao “Application of novel stabilizers for enhanced mobility and reactivity of iron-based nanoparticles for in-situ destruction of chlorinated hydrocarbons in soils” Extended Abstract and Presentation, 230th ACS National Meeting, Aug 28-Sept 1, 2005, Washington, DC.
- [44] T. Steinwinder, B. An, and D. Zhao (2005) “A Novel Ion exchange Process for Arsenic Removal from Drinking Water” 124th Annual Conference and Exposition, June 12–16, 2005, San Francisco, CA.
- [45] P. Dimick, D. Zhao, A. Kney, J. Tavakoli (2005) “Regeneration of a perchlorate loaded polymeric ligand exchanger, DOW 3N-Cu” AIChE 2005 Spring National Meeting, Atlanta, GA, April 10-14, 2005.
- [46] B. An and D. Zhao (2004) “Selective Removal of Arsenic from Drinking Water Using a New Class of Ion Exchangers” 2004 Alabama Water Resources Conference, Sept 8-10, 2004, Orange Beach, AL.
- [47] Z. Xiong and D. Zhao (2004) “Removal of Perchlorate from Drinking Water Using a New Class of Ion Exchangers” 2004 Alabama Water Resources Conference, Sept 8-10, 2004, Orange Beach, AL.
- [48] F. He and D. Zhao (2004) “Destruction of TCE and PCBs from groundwater and contaminated soils using a new class of highly reactive nanoscale particles” The 27th Annual Conference of Alabama’s Water Environment Association, Perdido Beach, AL, April 25-28, 2004. (Oral)
- [49] F. He and D. Zhao (2004) “A novel remediation process for remediation of major Alabama sites contaminated with TCE and PCBs” Annual Alabama Groundwater Conference, Montgomery, AL, June 3, 2004.
- [50] Bevis, R. A., J. L. Subacz, J. Zhuang, M. O. Barnett, D. Zhao, M. A. Stewart and P. M. Jardine (2004). Reducing the bioavailability of Pb in soil. 20th International Conference on Soils, Sediments, and Water, October 18-21, Amherst, MA.
- [51] D. Zhao and J. C. Little (2003) “Modeling and experimental investigation of source/sink effects of polyurethane foam on indoor VOC concentrations”, Healthy Buildings, 7th International Conference *Energy-Efficient Healthy Buildings* Singapore, December 7-11, 2003, Singapore (Oral)
- [52] R. Liu and D. Zhao (2003) “Fate and dynamics of copper applied to channel catfish ponds” Safe Water 2003, Atlanta, Oct 30-Nov 1, 2003. (Oral)
- [53] D. Zhao, J.C. Little, and S. Cox (2003) “Sorption/Desorption Behavior of Polyurethane Foam” The 4th International Symp. on HVAC, Beijing, China, Oct. 9-11 (Oral).

- [54] R. Liu and D. Zhao (2003) "Fate and speciation of copper in aquaculture ponds treated with copper sulfate" Annual Alabama Water Resources Research Conference, Orange Beach, AL, Sept. 3-5, 2003. (Oral)
- [55] Y. Xu and D. Zhao "Removal and recovery of heavy metals from contaminated soils using a new class of nano-scale sorbents" Annual Alabama Water Resources Research Conference, Orange Beach, AL, Sept. 3-5, 2003. (Oral)
- [56] E. D. Desormeaux and D. Zhao (2003) "Removal of atrazine using carbonaceous and polymeric sorbents: A comparative and mechanistic study" *Preprints of Extended Abstract*, American Chemical Society, Vol 43, No 2, 2003.
- [57] Y. Xu and D. Zhao (2003) "Remediation of metal-contaminated soils using a new class of nano-scale ion exchangers" *Preprints of Extended Abstract*, American Chemical Society, Vol 43, No 2, 2003.
- [58] D. Zhao and J. Pignatello (2003) "Model-aided characterization of Tenax for removal of aromatic compounds from water" American Chemical Society 225th National Meeting, New Orleans, LA, March 22-27, 2003.
- [59] D. Zhao (2003) "The environmental engineering program and its role in environmental protection" Poster presentation at the first annual Earth Day meeting, Auburn University Environmental Institute, April 21, 2003.
- [60] Kney, A.D. and D. Zhao (2002) "A Pilot Study-Phosphate and Nitrate Removal from Treated Domestic Wastewater using a Unique Enhanced Ion Exchange Process" CSCE/EWRI of ASCE Environmental Engineering Conference Proceeding, Niagara Fall, NY, July 2002.
- [61] D. Zhao (2002) "Enhanced removal and recovery of phosphate from water using a new ion exchanger" 25th Annual Conference of Alabama Water Environment Association, Orange Beach, AL. April 27-30, 2002.
- [62] D. Zhao (2001) "A new strategy for characterizing VOC emissions form building materials", the 2nd International Conference on Thermal Desorption, Birmingham, AL. Oct. 9-10, 2001.
- [63] A. K. SenGupta and D. Zhao (2001) "Synthesis and Characterization of Polymer-Anchored Copper(II) as a Reusable Selective Sorbent" AIChE Annual Meeting, Reno, Nevada, November 4-9, 2001.
- [64] D. Zhao, Pignatello JJ, White J (2000) "A Dual-mode diffusion model for non-linear sorption and desorption of hydrophobic contaminants in soils" *Extended ABSTRACTS OF PAPERS OF THE ACS*, 220: 111-ENVR Part 1. Oral presentation at the 220th ACS National Meeting, Washington D.C., 2000.
- [65] D. Zhao, J. Pignatello, J. White, M. Hunter (2000) "Dual-Mode Modeling of Competitive Sorption/Desorption of Polycyclic Aromatic Hydrocarbons in Soils and Sediments" presented at the 74th ACS Colloid and Surface Science Symposium, Lehigh University, Bethlehem, PA. June 19-21, 2000.
- [66] D. Zhao, J. White, M. Hunter, J. Pignatello (2000) "Influence of Bisolute Competition on the Physical and Biological Availability of PAHs in Natural Solids" Third SETAC World Congress & Tenth SETAC Europe Annual Meeting in Brighton, U.K, May 20-25, 2000.

Selected Reviewed Project Reports (Total 10)

- [1] D. Zhao, C. Luo, J. Zhuang, MO Barnett (2009) "Pilot-testing a selective ion exchange process for arsenate removal from groundwater and an engineered process for treatment of arsenic-laden process waste residual" Final project report, under review and to be published by the American Water Works Association Research Foundation, Denver, CO, and will be sold nationwide.

- [2] D. Zhao, B. An and T. Steinwinder (2006) A novel ion exchange process for selective removal of As(V) and for enhanced stability of process residuals, EPA Final Project Report, published and available nationwide.
- [3] D. Zhao, T. Steinwinder, B. An, M. Barnett, and T Kramer (2005) “Developing a new class of ion exchangers for selective removal of arsenic and exploring an engineered approach for treatment and reuse of spent regenerant” Final project report published by the American Water Works Association Research Foundation, Denver, CO, sold nationwide.
- [4] D. Zhao and R. Liu (2005) Design Guidelines for Territorial wildlife and Fish Passage, Project Report to Highway Research Center, 98p.
- [5] D. Zhao and Y. Xu (2005) Evaluation of Best Management Practices for Controlling Runoff and Erosion at Transportation Construction Sites. Project report to Highway Research Center, 65p.

HONORS AND AWARDS

- **Elton Z. and Lois G. Huff Associate Professorship**, Department of Civil Engineering, Fall 2007-present
- **Engineering Alumni Council Junior Faculty Research Award**, Auburn University, 2004.
- **Postdoctoral Research Fellowship Award**. Center for Indoor Air Research (CIAR), 1998.
- **ACS Graduate Student Award**. American Chemical Society (ACS), 1996.
- **Student Research Paper Award**. Pennsylvania Water Environment Ass. (PWEA), 1996.
- **Dean’s Graduate Fellowship Award**. Lehigh University, 1994.
- **Study Abroad Scholarship Award**. No. 1 in Taiyuan University of Technology, China, 1990.
- **Research featured in the following news media:** *Auburn Plainsman* (July 17, 2008); *AUDaily* (June 27, 2008); *College of Engineering Spring Magazine and Cupola Report* (2008); *AUDaily* (May 1, 2008); *AU College of Engineering Annual Report* (2006); *Research picture featured on the AU College of Engineering cover webpage* (2006); *AU Research News* (1/06); *Auburn University News* (1/27/06); *U.S. Water News* (3/8/04); *Columbus Ledger-Enquirer* (2/15/06); *Auburn University News* (2/13/04); *Mobile Register* (5//2003); *Montgomery Advertiser* (6/1/03).

Awards received by/with his students/postdocs:

Feng He	2008 C. Ellen Gonter Environmental Chemistry Best Paper Award, American Chemical Society (highest honor for junior authors)
Sung Hee Joo	2007 ACS Young Chemist Award (highest honor for junior chemists), American Chemical Society
Zhong Xiong	2007 Outstanding Graduate Student Award in Environmental Chemistry, American Chemical Society
Feng He	2007 AWWA AL-MS Outstanding Graduate Student Scholarship Award
Feng He	2006 WEF-AL Branch Best Poster Award, 2 nd Place
Lucida Xu	2006 ACS Outstanding Paper Award of 231 st National Meeting, Division of Geochemistry
Lucida Xu	2006 Auburn Univeristy Outstanding International Graduate Student Award
Lucida Xu	2006 AWEA Outstanding Graduate Student Scholarship Award
Lucida Xu	2006 AWWA AL-MS Outstanding Graduate Student Scholarship Award
Thomas R. Steinwinder	2006 AU Top Ten Outstanding M.S. Students Award, Auburn University
Feng He	2006 Outstanding Graduate Student Award in Environmental Chemistry, American Chemical Society
Zhong Xiong	2006 Auburn-CH2M Hill Outstanding Ph.D. Student Award

Zhong Xiong Third Place Poster Presentation Award, Alabama Water Resources Research Conference, Orange Beach, AL, September 2005

Feng He 2005 Auburn-CH2M Hill Outstanding Ph.D. Student Award

Lucida Xu 2004 Auburn-CH2M Hill Outstanding Ph.D. Student Award

Byungryl An 2004 Albert and Julia Smith Graduate Scholarship Award

STUDENT ADVISING

As Major Advisor Graduated 4 Ph.D. students and 6 M.S. students; Supervised 3 Postdocs; Hosted three/times undergraduate students; Hosted one visiting professor; Cost-shared and co-supervised one lab technician since 2003; Currently advising 4 Ph.D. students.

As Committee Member Total: 10 Ph.D. students; 15 M.S. students.

ACADEMIC AND PROFESSIONAL ACTIVITIES

- **Journal Editorial Board:**
The Open Environmental Pollution & Toxicology Journal (Since July, 2008)
- **Journal and Book Reviewer:**
Applied Catalysis B, Environmental; Environ. Pollution; Water, Air and Soil Pollution; ES&T; Ind. & Eng. Chem. Res.; React. & Functional Polymer; Colloid & Surfaces; J Colloid & Interface Science; Chemosphere; Water Res.; J ZUSA; Current Anal Chem; J AWWA; JEE; JEQ; JEM; Ach. Environ. Contam. Tox.; Int. J. of Heat Mass Trans; WER; Separation Sci. and Technolo.; Book reviewer for Prentice Hall; Reviewer for William Andrew.
- **Proposal Reviewer/panel:**
NSF; US DOE; SERDP; ACS Petroleum Res. Fund; U.S. Civilian R&D Foundation (CRDF) Panel.
- **Session Chair:** Trace Contaminants in Water: Genesis, Rapid Detection and Sustainable Removal Processes, 2008 AIChE Annual National Meeting and Centennial Celebration, Philadelphia, PA, November 16-21, 2008.
- **Session chair** at 25th Annual Conference of Alabama Water Environment Association, Orange Beach, AL. April 27-30, 2002.
- **Session chair** at the International Conference "Safe Water 2003, Atlanta, Oct 30-Nov 1, 2003.
- Serving on the **Publication Committee** for the Association of Environmental Engineering and Science Professors (AEESP) since July, 2006.
- Serving on the Auburn University Graduation Committee, Summer 2008-present.
- Coordinator (nominated by AU VPR's Office) for the International Exchange Program between AU and Taiyuan University of Technology (TYUST), 2006 - present.
- Coordinator (nominated by AU VPR's Office) for the International Cooperation on Wave Energy research between AU and Shen Energy Inc., 2008.
- Initiated and coordinating an international joint research and educational program between Auburn and Ecuador Polytechnic University.
- Serving as the Graduate Student Coordinator for the Environmental Program, AU, since 2002.
- Lead Initiation of a 12-month MCE program in environmental engineering at AU.
- Served on the Departmental Committee on FE exam and CE curriculum.
- Served on faculty search committees: Environmental Committee 2007-2008; Hydraulics Committee 2008-2009.
- Co-organized Environmental Engineering Seminar Series (2004-2007): Invited/hosted 5 nationally recognized distinguished speakers and three other speakers; Volunteered three graduate students to

serve as the seminar coordinator for three years; Delivered five seminars.

- Co-applied, coordinated and co-hosted (with Georgia Tech and Clemson University) three nationally competitive distinguished speakers (Association of Environmental Engineering and Science Professors Distinguished Lectures 2007, 2008; American Academy of Environmental Engineers Kappe Lecture 2009).

OTHER SERVICES

- Served as President of the AU Chinese Professionals Association, 2007-2008.
- Served as Treasurer of the AU Chinese Professionals Association, 2006-2007.

COURSES TAUGHT

- Initiated a new class CIVL7970 Environmental Nanotechnology being taught starting spring 2009, AU.
- CIVL3230: Introduction to Environmental Engineering (Undergraduate, 4 credit hrs with one lab), AU.
- CIVL7220/7226: Water & Wastewater I (Reaction Kinetics, Reactor Analysis, Modeling Principles) (Graduate, 3 credit hrs), AU.
- CIVL7220/7226: Water & Wastewater II (Physical chemical processes for water and wastewater treatment) (Graduate, 3 credit hrs), AU.
- CIVL3210: Environmental Engineering I (Water Treatment) (Undergraduate, 3 credit hrs), AU.
- CEE5794: Environmental Engineering Principles (Graduate, with Dr. Little), Virginia Tech., Fall 1998.
- ChEM206, Environmental Organic Chemistry, Teikyo Post University, Waterbury, CT. (Undergraduate, 3 hrs), Fall 2000.

RESEARCH PROJECTS GRANTED

Total \$2.3 million from EPA, DOE, AWWARF, USGS, AWRRI, DoD-SERDP, ALDOT