

Leslie McCabe Shor

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EDUCATION

- 2002 Ph.D. Chemical and Biochemical Engineering, Rutgers, The State University of New Jersey, New Brunswick NJ. *NIH Biotechnology Training Fellowship* (3 yrs).
- 1999 M.S. Chemical and Biochemical Engineering, Rutgers, The State University of New Jersey, New Brunswick NJ.
- 1996 B.A. *with high distinction*, Chemistry and Environmental Sciences (double major), University of Virginia, Charlottesville VA.

ACADEMIC APPOINTMENTS

- 2009-present Northeast Utilities Assistant Professor in Environmental Engineering Education, Department of Chemical, Materials and Biomolecular Engineering, University of Connecticut, Storrs CT.
Graduate Faculty: Environmental Engineering
Center Faculty: Center for Environmental Science and Engineering
Affiliated Faculty: Institute for Materials Science
- 2005-2009 Research Assistant Professor, Department of Civil & Environmental Engineering, Vanderbilt University.
Affiliated Faculty, Vanderbilt Institute for Integrative Biosystems Research and Education (VIIBRE), Vanderbilt University, Nashville TN.
- 2002-2004 Post-Doctoral Research Associate, Department of Civil & Environmental Engineering, Vanderbilt University. Supervisor: Eugene J. LeBoeuf.

RESEARCH INTERESTS

- Environmental Biotechnology. Systematic replication of micro-structured microbial habitats and micro-analysis of biological responses to controlled extracellular habitat conditions.
- Contaminant Fate & Transport. Fate and transport of hydrophobic organic contaminants, especially PAHs, spanning micro-scale interfacial processes to regional modeling. Environmental impacts of nanoparticles in estuaries: bioavailability, toxicity, risk assessment.

GRANTS

Federal Awards - Active

- NSF "ASCCEND: Addressing Social Challenges through Creativity Engineering, Nanotechnology, and Diversity," PI: L.M. Shor, Co-PI A. Agrios, B. Huey, N. Madjar, H. Silva, . NSF Nanotechnology Undergraduate Education Program, NSF #12xxxxx. \$199,999,000. 09/01/12-08/31/14.
- USDA "Pore Scale Effects of Soil Structure and Microbial Interactions on Soil Water Retention." PI: L.M. Shor; Co-PI: D. Gage. National Institute for Food and Agriculture (NIFA) Agriculture and Food Research Initiative (AFRI) program, USDA NIFA-AFRI 2012-67020-19380. \$150,000. 3/15/12-3/14/14.
- USDA "Microfluidic studies of signaling between rhizosphere bacteria and their predators." PI: D. Gage; Co-PI: L.M. Shor. National Institute for Food and Agriculture (NIFA) Agriculture and Food Research Initiative (AFRI) program, USDA NIFA-AFRI 2012-67014-30232. \$150,000. 2/15/12-2/14/14.
- NSF "EFRI-MIKS: Creation and Manipulation of an Artificial Termite Gut Through Control of the Microenvironment," PI: R. Srivastava; Co-PIs: D. Gage, J. Graf, W. Mustain, L.M. Shor. NSF

Emerging Frontiers in Research and Innovation (EFRI) program, NSF #1137249. \$2,000,000 (Shor portion: \$409,233), 09/01/11-08/31/15.

NSF "EAGER: Field-deployed Microfluidic Trap Array for Discovery and Observation of Microbial Eukaryotes," PI: L.M. Shor. DBI Instrument Development for Biological Research (IDBR) program, NSF #1027125. \$160,000, 5/1/10-4/30/13.

Federal Awards - Completed

NSF "EcoChip: A Micro-structured Microbial Habitat Array," PI: L.M. Shor. Co-PIs E.J. LeBoeuf, G.L. Taghon, L.Y. Young. DBI Instrument Development for Biological Research (IDBR) program, NSF #0649883. \$397,910, 5/1/07-4/30/10.

NSF "REU: EcoChip: A Micro-structured Microbial Habitat Array." PI: L.M. Shor. NSF #0749018. \$30,150, 5/1/07-4/30/10. (*Research co-op program with local community college.*)

Other Competitive Awards

"Innovations in Emerging Frontiers: Stroboscopy for 3-D Rheology of Bio-Engineering Solutions (STROBES)," PI B. Huey (PI); Co-PIs Y Khan, D. Knecht, L.M. Shor, M. Wei. UConn School of Engineering. \$30,000, 7/1/11-6/30/12

"High-Throughput Assay to Measure Innate and Induced Antibiotic Resistance in Biofilms," PI Leslie M. Shor, UConn Large Faculty Grant. \$24,000, 1/1/2011-12/31/2011.

"Pore Scale Effects of Soil Structure and Microbial Interactions on Soil Water Retention," PI Leslie M. Shor, UConn Center for Environmental Science & Engineering, Graduate Student Research Assistantship Program. (*Provides 1 semester GA, spring 2011*)

"A Microfluidic Infection Thread Assay to Study Initiation of Symbiotic Nitrogen Fixation," PI Leslie M. Shor, Co-PI Daniel Gage. UConn Center for Environmental Science & Engineering, Graduate Student Research Assistantship Program. (*Provides 1 semester GA, spring 2010*)

"Leachate test methods for the evaluation of the effectiveness of in-situ stabilization of soil material at former MGP sites." PI: Andrew Garrabrants; Co-PI: Leslie Shor. Electric Power Research Institute (EPRI). \$166,250. 2/15/06-12/30/08.

INTELLECTUAL PROPERTY

US Patent

L.M. Shor, A.C. Garrabrants, D.S. Kosson. "Device for Leaching Extraction and Assessment" US. Patent No. 7,930,948, Serial No. 12/185,799.

PUBLICATIONS

Peer Reviewed Journal Articles

Markov DA, PC Samson, DK Schaffer, A Dhummakupt, JP Wikswo, LM Shor. 2010. Window on a Microworld: Simple Microfluidic Systems for Studying Microbial Transport in Porous Media. *Journal of Visualized Experiments (JoVE)*. 39.

Markov, D.A., S. Manuel, L.M. Shor, S. Opalenik, J.P. Wikswo, and P. Samson. 2010. Tape-underlayment, rotary-node (TURN) valves for simple on-chip microfluidic flow control. *Biomedical Microdevices*. 12(1):135-44.

Rodenburg, L.A., S.N. Valle, M.A. Panero, G.R. Muñoz, and L.M. Shor. 2010. Mass Balances on Selected Polycyclic Aromatic Hydrocarbons (PAHs) in the NY/NJ Harbor. *Journal of Environmental Quality*. 39:642-653.

Wang, W., L.M. Shor, E.J. LeBoeuf, J.P. Wikswo, G.L. Taghon and D.S. Kosson. 2008. Protozoa migration in bent microfluidic channels. *Applied and Environmental Microbiology*, 74(6) 1945-1949.

- Wang, W., L.M. Shor, E.J. LeBoeuf, J.P. Wiksw, and D.S. Kosson. 2005. Mobility of protozoa through narrow channels. *Applied and Environmental Microbiology*, 71(8) 4628-4637.
- Shor, L.M., K.J. Rockne, L. Y. Young, G.L. Taghon, and D.S. Kosson. 2004. Combined effects of contaminant desorption and toxicity on risk from PAH contaminated sediments. *Risk Analysis: An International Journal*, 24(5) 1109-1120.
- Shor, L.M., W. Liang, K.J. Rockne, G.L. Taghon, L. Y. Young, and D.S. Kosson. 2003. Intra-aggregate mass transport-limited bioavailability of polycyclic aromatic hydrocarbons to *Mycobacterium* strain PC01. *Environmental Science & Technology*, 37(8) 1545-1552.
- Shor, L.M., K.J. Rockne, L. Y. Young, G.L. Taghon, and D.S. Kosson. 2003. Desorption kinetics for field-aged polycyclic aromatic hydrocarbons from sediments. *Environmental Science & Technology*, 37(8) 1535-1544.
- Rockne, K.J., L.M. Shor, L. Y. Young, G.L. Taghon and D.S. Kosson. 2002. Distributed sequestration and release of PAHs in weathered sediment: The role of sediment structure and organic carbon properties. *Environmental Science & Technology*, 36(12) 2636-2644.

Refereed Reports

- Garrabrants, A.C., L.M. Shor, D.S. Kosson, R.N.J. Comans, A. van Zomeren, H.A. van der Sloot, O. Hjelm, E.A. Hansen, and A. Coleman. 2007. "Leaching Assessment Methods for the Evaluation of the Effectiveness of In-Situ Stabilization of Soil Materials at Manufactured Gas Plant Sites" Electric Power Research Institute (EPRI), Palo Alto, CA. 1014062.
- Valle, S.N., M.A. Panero, and L. M. Shor. 2007. "Pollution prevention and management strategies for polycyclic aromatic hydrocarbons in the New York/New Jersey Harbor." New York Academy of Sciences, Harbor Consortium. New York, N.Y.
- Comans, R.N. J., G. Roskam, A. Oosterhoff, L.M. Shor, M. Wahlstrom, J. Laine-Ylijoki, M. Pihlajaniemi, M. Ojala, K. Brokholm, K. Vilholth, O. Hjelm, P. Daly, R. Woodhead, J. Higgins, T. Heimovaara, J. Keijzer, and H. Keijzer. 2001. Development of standard leaching tests for organic pollutants in soils, sediments, and granular waste materials. European Commission, Brussels, Belgium.

Book Chapters

- Bossert, I.D., L.M. Shor, and D.S. Kosson. 2001. "Methods for measuring hydrocarbon biodegradation in soils," in C.J. Hurst, R.L. Crawford, G.R. Knudsen, M.J. McInerney, and L.D. Stetzenbach (eds.) *Manual of Environmental Microbiology*, 2nd Ed. ASM Press, Washington D.C. pp. 934-943.
- Shor, L.M. and D.S. Kosson. 2000. "Bioavailability of organic contaminants in soils," in J.J. Valdes (ed.) *Bioremediation*. Kluwer Academic Publishers, Dordrecht pp.15-43.

Conference Proceedings

- Shor, L.M. 2009. "Towards Predicting Impacts of Nanomaterials in the Environment." Proc. of American Institute of Chemical Engineers (AIChE) National Meeting. Nashville TN.
- Shor, L.M. Rodenburg, L.A., S.N. Valle, M.A. Panero, G.R. Muñoz. 2009. "Challenges to Water Quality Sustainability From Chronic PAH Pollution in An Urban Estuary." Proc. of AIChE National meeting, Nashville TN.
- Young, L.Y., W. Liang, L.M. Shor, D.S. Kosson, K.J. Rockne, and G.L. Taghon. 2002. Bioavailability of PAHs to bacteria in estuarine sediment. *Soil and Sediment Contamination*. 11(3) 488.
- Kosson, D.S., L.M. Shor, K.J. Rockne, W. Liang, G.L. Taghon, and L.Y. Young. 2000. Mass transfer limitations on bioavailability of PAHs from contaminated estuarine sediments." *American Chemical Society, Division of Environmental Chemistry*, 40 (2), 202-204.

Dissertation

- L.M. Shor. 2002. "Bioavailability of Polycyclic Aromatic Hydrocarbons in Two Estuarine Sediments: Decoupling Biological, Physical and Chemical Processes." Rutgers, The State University of New Jersey. Committee Members D.S. Kosson (Chair), B. Narasimhan, H. Pedersen, K.J. Rockne, G.L. Taghon, L.Y. Young.

PRESENTATIONS

Invited Presentations (22 Total)

- “Microfluidic Devices as Engineered Habitats for Microbes.” University of Connecticut, Department of Marine Sciences, March 5 2010, Groton Point CT.
- “Microfluidic Devices as Engineered Habitats for Microbes.” University of Connecticut, Environmental Engineering Program, March 26 2010, Storrs CT.
- “Microfluidic Devices as Micro-structured Microbial Habitat Arrays.” Instituto Tecnológico y de Estudios Superiores de Monterrey, Department of Chemical Engineering, January 19 2010, Monterrey Mexico.
- “Microfluidic Devices as Instrumented, Micro-structured Microbial Habitat Arrays.” University of Notre Dame, Department of Civil Engineering and Geological Science, March 24 2009, Notre Dame IN.
- “Microfluidic Devices as Instrumented, Micro-structured Microbial Habitat Arrays.” The Ohio State University, Department of Civil & Environmental Engineering, March 16, 2009, Columbus OH.
- “Micro-structured Microbial Habitat Arrays for Enhanced Bioengineering, Drug Discovery, and Sustainability.” University of Wyoming, Department of Chemical and Petroleum Engineering, February 23 2009 Laramie WY.
- “Microfluidic Devices as Instrumented, Micro-structured Microbial Habitat Arrays.” Temple University, Department of Civil & Environmental Engineering, February 18 2009, Philadelphia PA.
- “Microfluidic Devices as Instrumented, Micro-structured Microbial Habitat Arrays.” Villanova University, Department of Civil & Environmental Engineering, February 17 2009, Philadelphia PA.
- “Micro-structured Microbial Habitat Arrays for Enhanced Bioengineering, Drug Discovery, and Sustainability.” University of Massachusetts Amherst, Department of Chemical Engineering, February 12 2009, Amherst MA.
- “Microfluidic Devices as Instrumented, Micro-structured Microbial Habitat Arrays.” University of Texas at Arlington, Department of Civil Engineering, February 9 2009, Arlington TX.
- “Microfluidic Devices as Instrumented, Micro-structured Microbial Habitat Arrays.” University of Connecticut, Department of Chemical, Materials, and Biomolecular Engineering, January 29 2009, Storrs CT.
- “Toward Bioengineering the Single Cell: Microfluidic Micro-structured Microbial Habitat Arrays.” West Virginia University, Department of Chemical Engineering, January 23 2009 Morgantown WV.
- “Microfluidic Devices as Micro-Structured Microbial Habitat Arrays.” Colorado State University, Department of Civil & Environmental Engineering, December 12 2008, Fort Collins CO.
- “Undergrads in Instrument Labs: Strategies for Constructive Involvement of Undergraduate Researchers in Instrument Development Projects.” NSF Critical Needs in Instrument Development for Biological Research Workshop, September 19-21, 2008, Arlington VA.
- Microfluidic Devices for Systematic Understanding of Microbial Interactions in Microstructured Habitats. Rutgers, The State University of New Jersey, Department of Civil & Environmental Engineering, August 18 2008, New Brunswick NJ.
- “Pollution Prevention and Management Strategies for Polycyclic Aromatic Hydrocarbons in the New York/New Jersey Harbor.” New York Academy of Sciences (NYAS) Harbor Consortium. June 8, 2005, November 18, 2005, April 6, 2006, December 1, 2006, June 7, 2007, New York N.Y.
- “Lessons from Athena: Women in Academic Careers.” Women in Academic Careers Track, Society of Women Engineers (SWE) National Conference, October 24-26, 2007, Nashville TN.
- “How to Prepare For, Obtain, and Succeed In a Career in Research.” Society of Women Engineers (SWE) National Conference, October 24-26, 2007, Nashville TN.

Other Oral Presentations

- Shor, L.M., G.M. Bouchillon, A. Dhummakupt, J.F. Chau. “Spatial and Temporal Patterns of Protozoa Migration within Micro-structured Landscapes.” General Meeting of the American Society for Microbiology (ASM), May 21-24 2011, New Orleans LA. (Selected for “Young Investigator” presentation.)

- Shor, L.M. "Towards Predicting Impacts of Nanomaterials in the Environment." American Institute of Chemical Engineers (AIChE) National Meeting, November 2009, Nashville TN.
- Shor, L.M. Rodenburg, L.A., S.N. Valle, M.A. Panero, G.R. Muñoz. "Challenges to Water Quality Sustainability From Chronic PAH Pollution in An Urban Estuary." AIChE National meeting, November 2009, Nashville TN.
- Shor, L.M., Y. Li, P. Samson, D. Markov, and E.J. Leboeuf. "Microbial Transport in Porous Media Using Microfluidic Flow Cell Arrays." 1st International Conference on Microbial Transport and Survival in Porous Media, May 2009, Niagra-on-the-Lake, ON.
- Shor, L.M. "Screening Impacts of Nanomaterials in the Environment." American Institute of Chemical Engineers (AIChE) Spring Meeting, April 2009, Tampa FL.
- Shor, L.M., Vanessa Allwardt, and P. Samson. "Microfluidic Devices as Micro-structured Microbial Habitat Arrays." American Society for Microbiology (ASM) KY-TN Meeting, October 2008, Henderson TN.
- Shor, L.M., W. Wang, E.J. LeBoeuf, and D.S. Kosson, "Mobility of Protozoa through Narrow Channels." 7th Biennial Symposium of the International Society of Environmental Biotechnology, June 2004, Chicago IL.
- Shor, L.M., D.S. Kosson, K.J. Rockne, L.Y. Young, and G.L. Taghon, "Synergistic Effects of Contaminant Desorption and Toxicity: Implications for Environmental Risk Assessment." *Society for Risk Analysis Annual Meeting*, December 2002, New Orleans LA.
- Shor, L.M., K.J. Rockne, D.S. Kosson, and S. Erdal, "Assessment of Cancer Risks for Recreational Populations Exposed to PAH-Contaminated Sediments and Biota in the New York/New Jersey Harbor Estuary: A Probabilistic Approach." *Society for Risk Analysis Annual Meeting*, December 2000, Arlington VA.
- Shor, L.M., K.J. Rockne, W. Liang, G.L. Taghon, D.S. Kosson, and L.Y. Young, "Mass Transfer Limited Biodegradation and Long-Term Release of PAHs from Contaminated Sediments." *Society of Environmental Toxicology and Chemistry 21st Annual Meeting*, November 2000, Nashville TN.
- Shor, L.M., K.J. Rockne, W. Liang, D.S. Kosson, L. Y. Young, and G.L. Taghon, "Factors Controlling Desorption and Bioavailability of PAHs in Size- and Density-Fractionated Field-Aged Contaminated Estuarine Sediments." *17th Annual International Conference on Contaminated Soils, Sediments and Water*, October 2000, Amherst MA.

Other Selected Presentations (2008-present)

- Deng, J., and L.M. Shor. "High Throughput Screening the Effects of Antibiotic Delivery Rates On Biofilm Antibiotic Resistance." American Institute for Chemical Engineers (AIChE) Annual Meeting, October 28th - November 2nd, 2012, Pittsburgh, PA
- Kadilak, A. L., A. Card, T. Kelly, L.M. Shor. "Hydrogel-filled capillaries as in-plane barriers in microfluidic devices." American Institute for Chemical Engineers (AIChE) Annual Meeting, October 28th - November 2nd, 2012, Pittsburgh, PA
- Schröfel, Adam and L. M Shor. "Biosynthesis of noble metal nanoparticles by diatoms and their catalytic and antimicrobial properties." American Chemical Society (ACS) 244th ACS National Meeting, August 19-23, 2012, Philadelphia, PA.
- Deng, Jinzi and L. M Shor. "Time-dependent emergence of penicillin resistance in *Staphylococcus aureus* biofilms." American Chemical Society (ACS) 244th ACS National Meeting, August 19-23, 2012, Philadelphia, PA.
- Kadilak, A. L., E.M. Anderson, J.F. Chau, L.M. Shor." Pore-scale effects of microbial hydrogels on soil water retention." American Chemical Society (ACS) 244th ACS National Meeting, August 19-23, 2012, Philadelphia, PA.
- Kadilak, A. L., A. Card, T. Kelly, L.M. Shor. "Hydrogel-filled capillaries as in-plane barriers in microfluidic devices." American Chemical Society (ACS) 244th ACS National Meeting, August 19-23, 2012, Philadelphia, PA.
- Chau, J.F., G.M. Bouchillon, L.M. Shor. "Microfluidic Trap Arrays to Study Protozoan Biogeography in Natural and Engineered Habitats" American Society for Microbiology (ASM) 46th Annual Region I Meeting, October 26-27, 2011, Randolph MA.

- Villegas, L. **, J. Deng, and L. M. Shor. "Determining the Effect of Spacing in Protection of *Staphylococcus aureus* by *Pseudomonas aeruginosa*." American Institute of Chemical Engineers (AIChE). October 16-21, 2011, Minneapolis MN. (1st Place, Student Competition, Food Pharmaceuticals and Bioengineering Division).
- Kadilak, A.L, E Anderson** and L.M. Shor. "Pore Scale Effects of Soil Structure and Microbial Hydrogels on Soil Water Retention." American Institute of Chemical Engineers (AIChE). October 16-21 2011, Minneapolis MN. (2nd Place, Student Competition, Environmental Graduate Division).
- Deng, J., A. Dhummakupt, P.C. Samson, J.P. Wikswow, and L. M. Shor. "Microfluidic assay relating antimicrobial resistance of *Staphylococcus aureus* biofilms to changing micro-chemical conditions." American Institute of Chemical Engineers (AIChE). October 16-21 2011, Minneapolis MN. (Deng oral presentation.)
- Chau, J.F., G.M. Bouchillon, L.M. Shor. "Linking Form, Function, and Molecular Taxonomy: Microfluidic Trap Arrays to Study Protozoan Biogeography." General Meeting of the American Society for Microbiology (ASM), May 21-24 2011, New Orleans LA. (J.F. Chau selected for "Young Investigator" oral presentation.)
- Chau, J.F., G.M. Bouchillon, L.M. Shor. "Microbial trap array for in situ determination of natural carbon cycling." American Chemical Society (ACS) National Meeting, Anaheim CA March 27-31 2011.
- Shor, L.M. "Micro-structured Microbial Habitats." Microenvironments Modulating Biological Interactions in the Ocean symposium, January 16-21, 2011, Aspen CO.
- Chau, J.F., G.M. Bouchillon, L.M. Shor. "Linking Form, Function, and Molecular Taxonomy: Microfluidic Trap Arrays for Microbial Eukaryotes." The 8th Annual Ecological Genomics Symposium, November 5 - 7, 2010, Kansas City MO
- Dhummakupt, A.**, P.C. Samson, D. Markov, J.P. Wikswow, and L.M. Shor, Measuring Oxygen Concentration Under *Staphylococcus aureus* Biofilms in Response to Chemical Gradients in a Microfluidic Device, in Biomedical Engineering Society Annual Meeting, October 2010, Austin, TX. (Dhummakupt oral presentation.)
- Markov, D.A., P.C. Samson, D.K. Schaffer, A. Dhummakupt, J.P. Wikswow, and L.M. Shor, Window into a Microworld: microfluidic system for studying microbial growth in porous media, in Biomedical Engineering Society Annual Meeting, October 2010, Austin, TX.
- McNew, C.P., Eugene J. LeBoeuf, Yusong Li, Leslie M. Shor, Dmitry A. Markov. "Examination of NOM Physicochemical Properties on Nanomaterial Transport." American Chemical Society (ACS) March 2010, San Francisco CA.
- Greene, J.L.** and L.M. Shor. "Sorption and Diffusion of Antibacterial Compounds into PDMS." American Institute of Chemical Engineers (AIChE). November 2009, Nashville TN (3rd Place, Student Competition, Materials Division).
- Dhummakupt, A.**, J.L. Greene**, P.C. Samson, J.P. Wikswow, L. M. Shor. "Creating Patterned Biofilms of *Staphylococcus aureus* for Use in an Oxygen-Sensing Microfluidic Device." American Institute of Chemical Engineers (AIChE). November 2009, Nashville TN.
- Dhummakupt, A.**, J.L. Greene**, P.C. Samson, J.P. Wikswow, L. M. Shor. "Creating Patterned Biofilms of *Staphylococcus aureus* for Use in an Oxygen-Sensing Microfluidic Device." Biomedical Engineering Society (BMES) Annual Meeting. October 2009, Pittsburgh, PA.
- Tuorto, S.J., G.L. Taghon, and L.M. Shor. "Demonstrating Spatial and Conditional Resource Differentiation by Marine Bacterivorous Protozoa Using Simulated Microhabitats." 109th General Meeting of the American Society for Microbiology. May 2009, Philadelphia PA.
- Greene, J.L.** and L.M. Shor. "Diffusion and Partitioning of Organic Compounds into Polydimethyl Siloxane (PDMS)." Tennessee Academy of Sciences. March 2009, Nashville TN (1st Place, Student Competition, Chemistry Division).
- Dhummakupt, A.**, and L.M. Shor. "Information Cascades in a Protozoan Population Caused by Sequential Choices of Individuals." Tennessee Academy of Sciences. March 2009, Nashville TN (2nd Place, Student Competition, Biology Division).

Allwardt, V. **, P. Samson, D. Markov, J.W. Dolan, J.P. Wikswo, and L.M. Shor. "Microfluidic Approach to Measure Bacterial Responses to Micro-chemical Gradients." American Society for Microbiology (ASM) KY-TN Meeting, October 2008, Henderson TN (*Winner: best student paper*).

Shor, L.M., W. Wang, G.L. Taghon, J.P. Wikswo, E.J. LeBoeuf, and D.S. Kosson, "Protozoan Predation Behavior in Microfluidic Habitat Networks." *108th General Meeting of the American Society of Microbiology*, June 2008, Boston, MA.

**denotes undergraduate student author.

HONORS & AWARDS

- Finalist, Women of Innovation® for 2012 in the Academic Innovation and Leadership category
- Attendee, National Academy of Engineering Frontiers of Engineering Education Symposium, 2011
- Vanderbilt SWE Faculty Appreciation Award, 2007
- Fellow, National Institutes of Health Biotechnology Training Program, 1996-1999
- High Distinction, Distinguished Majors Program, Dept. of Environmental Sciences, University of Virginia, 1996
- Hydrology Award, Department of Environmental Sciences, University of Virginia, 1996

TEACHING

University of Connecticut

- 2012, 2011, 2009 Principles and Applications of Microfluidic Devices (Chemical Engineering technical elective, advanced undergrad/graduate level, co-listed as Biomedical Engineering technical elective. Average enrollment: 20).
- 2011, 2012 Transport Phenomena I (Junior core course, Chemical Engineering program, enrollment 60)
- 2010 Introduction to Chemical Engineering (Sophomore core course, Chemical Engineering program, enrollment 90)

Vanderbilt University, Nashville TN

- 2001-2002, 2007 Fluid Mechanics (Core Engineering Course, Junior Level, Departments of Civil & Environmental Engineering and Mechanical Engineering)
- 2007 Fluid Mechanics Laboratory, Fall 2007
- 2006-2008 Vanderbilt Visions (Full-year Freshman Orientation Course)

ADVISING

Post-doctoral Research Associates (as primary advisor)

- 2010-2011 Jessica Chau, University of Connecticut, Chemical Engineering . Current employment: Assistant Professor, Benedict College, Columbia SC.
- 2011-pres Adam Schröfel, Fulbright Scholar, University of Connecticut, Chemical Engineering

Graduate Students – PhD (as primary advisor)

- 2012-pres Rebecca Rubinstein, University of Connecticut, Chemical Engineering, Ph.D.
- 2010-pres Grant M. Bouchillon, University of Connecticut, Environmental Engineering, Ph.D.
- 2009-pres Jinzi Deng, University of Connecticut, Chemical Engineering, Ph.D.
- 2010-pres Andrea M. Kadilak, University of Connecticut, Chemical Engineering, Ph.D.

Graduate Students – PhD (as committee member)

- 2012 Yanfang Fan, University of Connecticut, Chemical Engineering, Ph.D.
- 2010-pres Joanne Elmoznino, University of Connecticut, Marine Sciences, Ph.D.
- 2009-pres Liwei Huang, University of Connecticut, Chemical Engineering, Ph.D.
- 2009-pres Seetha Manickam, University of Connecticut, Chemical Engineering, Ph.D.

2002-2006 Wei Wang, Vanderbilt University, Environmental Engineering, Ph.D. *"The Effects of Micro-scale Heterogeneity on Protozoan Movement in Porous Media."*

Graduate Students - MS

2010-2012 Yasemin Kutes, University of Connecticut, MSE, MS

2009-2011 Neha Ghaisas, University of Connecticut, Environmental Engineering, MS

2009-2010 Robert Yau*, University of Connecticut, Chemical Engineering, MS. *"Characterization of Naturally-derived Hydrogels for Microfluidics and Environmental Management"* (B)

2008-2010 Geeta Dahal, University of Connecticut, Environmental Engineering, MS.

2009-2010 Michael Stredney, University of Connecticut, Polymers program, MS (B)

*denotes primary advisor

Undergraduate Students (20 total, past 5 years, 55% under-represented)

University of Connecticut, Storrs CT (Bold denotes honors student writing thesis)

2011-pres **Emily Anderson**, Chemical Engineering, *"Hydrogel effects on soil moisture retention"*

2011-pres Amanda Card, Chemical Engineering, TBA.

2011-pres **Jacob Deneff**, Chemical Engineering, TBA.

2011-pres Leia Dwyer, Chemical Engineering, TBA.

2010-2011 Kristina Gillick, Chemical Engineering, *"Protozoa Signaling in Microfluidic Networks"*

2011-pres Thomas Kelly, Chemical Engineering, TBA.

2010-2011 Megan Nolan, Chemical Engineering, *"Trapping of Microbial Eukaryotes"*

2011-pres Erika Orner, Molecular & Cellular Biology, TBA.

2010 Kate Nicholson, Chemical Engineering, *"Development of a biofilm screening device for drug discovery"*

2009-pres **Leonela Villegas**, Chemical Engineering, *"Determining the Effect of Spacing in Protection of Staphylococcus aureus by Pseudomonas"*

Instituto Tecnológico y de Estudios Superiores de Monterrey, Monterrey Mexico

2010 Alfredo Vázquez Rodríguez, Chemical Engineering, *"Modeling diffusion through hydrogels"*

Vanderbilt University, Nashville TN

2007-2010 Jennifer L. Greene, Chemical Engineering, *"Sorption and Diffusion of Organic compounds in PDMS"*

2006-2010 Grant M. Bouchillon, Environmental Engineering, *"Leaching of PAHs from cement-stabilized soil cores"*

2007-2010 Adit Dhummakupt, Chemistry, *"Information Cascading in Protozoa Populations"*

2007-2009 Kathleen Grunder, Biomedical Engineering, *"Development and Calibration of an Optical Oxygen Sensor for Microfluidic Devices"*

2008 Nicholas Luibrand, Biomedical Engineering, *"Development of Micro-structured Arrays for Microbial Diversity Studies"*

2008-2009 Victoria Lopez, Biomedical Engineering, *"Microscopic size and Microfluidic Devices"*

2007 Samuel Nackman, Mechanical Engineering, *"Growth Kinetics of Protozoa in Microfluidic Devices"*

2008 Samantha Sabatinio, Environmental Engineering, *"Simulating Natural Pore Structures with Microfluidic Devices"*

Nashville State Technical Community College (NSF REU Co-op.), Nashville TN

2007-2009 Vanessa Allwardt, Biotechnology, *"Development of the Quad Biofilm Array for Biomedical Research"*

2007 John M. Mallard, Biotechnology, *"Microbial Habitat Arrays for Microbiological Research and Education"*

SERVICE

Professional Service

2011-present Director, Environmental Division, American Institute of Chemical Engineers (AIChE)

- 2009-present Co-Chair of Water Section, Environmental Division, American Institute of Chemical Engineers (AIChE)
- 2009-present Session Chair, American Institute of Chemical Engineers (AIChE) National meeting (multiple sessions)
- 2005-2009 Technical advisor to New York Academy of Sciences Pollution Prevention Committee evaluating PAH pollution sources to the New York Harbor watershed.
- 2008 Organizing Committee and Systems Biology Session Chair, NSF Instrument Development for Biological (IDBR) Research Workshop, September 19-21.
- 2007 Academic Programs Organizing Committee, Society of Women Engineers (SWE) National Conference, Nashville TN, October 24-26.

Peer Reviewing

NSF Proposal Review

- 2009, 2010 Environmental Impacts of Emerging Technologies, Engineering Directorate
- 2007, 2009, 2011 Instrument Development for Biological Research, Biology Directorate
- Ad hoc* proposal review for Microbial Interactions and Processes, Biology Directorate

Ad hoc Manuscript Reviewing:

- BMC Systems Biology; Chemosphere; Environmental Health Perspectives;*
- Environmental Science & Technology; Environmental Toxicology and Chemistry;*
- Journal of Environmental Quality; Journal of Limnology & Oceanography, PloS One*

Service, University of Connecticut, Storrs CT

Community-level

- 2009-present Presenter: Multiply Your Options (MyO). (One-day workshop hosted at UConn that for local middle school girls).

University-level

- 2012-present Department Representative to UConn Graduate Faculty Council (peer elected)
- 2012-2013 Member: Center for Environmental Science & Engineering Executive Committee
- 2012-2013 Member: Molecular and Cellular Biology Faculty Search Committee
- 2009-2010 Member: University Environment Committee (planning for proposed BA in Environmental Studies)
- 2009-present Participant, Speaker: Women in Math, Science, and Engineering (WIMSE)

School-level

- 2010-present Presenter: Engineering Squared summer camp, Chemical Engineering representative

Department-level

- 2012-2013 Member: Chemical Engineering Faculty Search Committee
- 2011-2012 Member: Chemical Engineering Faculty Search Committee
- 2011-2012 Organizer: Chemical Engineering Seminar series
- 2010-present Member: Chemical Engineering Undergraduate Curriculum Committee
- 2010-present Faculty Advisor: Alpha Chi Omega Chemical Engineering Honor Society
- 2009-present Presenter: UConn Engineering Open House, department and SoE.

University Service, Vanderbilt University, Nashville TN

- 2003-2009 Faculty Advisor, Society of Women Engineers (SWE) student chapter.
- 2007-2009 Faculty Mentor, Systems Biology and Bioengineering Undergraduate Research Experience (SyBBURE).

- 2006-2008 Faculty Advisor, Mayfield Lodge, *"The Gender Gap in STEM: Research and Outreach."*
- 2006-2008 Faculty VUceptor, Vanderbilt Visions Freshman Orientation Program (4 semesters).
- 2005-2006 Vanderbilt University Committee on Articulation of Norms and Values.

Professional Organizations

American Chemical Society (ACS)

American Institute of Chemical Engineers (AIChE)

American Society for Microbiology (ASM)

Association of Environmental Engineering and Science Professors (AEESP)