

Professional Preparation

Georgia Institute of Technology Civil and Environmental Engineering B.S. May, 2000
Georgia Institute of Technology Biology M.S. Fall, 2007
Georgia Institute of Technology Civil and Environmental Engineering Ph.D. May, 2009

Awards

- 5/2006-5/2007 National Science Foundation Georgia Tech Student and Teacher Enhancement Partnership (STEP) Program Fellowship
- 8/2002-5/2007 National Science Foundation Integrative Graduate Education and Research Traineeship (IGERT) Fellowship
 - Two years of graduate research funding
 - Research mini-grant for chemotaxis method development
 - Travel grants
 - Collaborative research trip to Pacific Northwest National Laboratory
 - Speaker at two international conferences
- 10/2006 Travel Grant from Oak Ridge National Laboratory (ORNL) Environmental Remediation Sciences Program (ERSP)

Teaching Experience and Preparation

- 8/2006-1/2009 **Substitute Lecturer** *Georgia Institute of Technology*
 - Led lecture in instances that primary research advisor was absent.
 - Courses ranged from large undergraduate introductory courses to small graduate-level courses that were very discipline-specific.
- 8/2007-12/2007 **Teaching Assistant** *Georgia Institute of Technology*
 - Graded tests and homework assignments for Environmental Engineering Principles (CEE 2300), a large lecture-based course containing about 60 undergraduate students.
- 5/2006-5/2007 **STEP Fellow** *Miller Grove High School*
 - Attended courses designed to teach education to graduate students in various departments at Georgia Tech including Mechanical Engineering, Biology, Public Policy, and Mathematics.
 - Assisted in curriculum design, grading, and instruction of AP Biology and Environmental Science at a minority, low-income public school.
 - Exchanged mentorship with teachers who have aspirations in science research
- 1/2006 **Science Fair Judge** *Westlake High School*
 - Assessed 8-10 projects from a variety of areas including microbiology, environmental science, and agriculture.
- 8/2000-11/2000 **Math Tutor** *Americorps, Baltimore, MD*
 - Received training in math tutoring techniques.
 - Met with middle school students twice weekly to work on math skills.

Research and Other Relevant Experience

- 1/2009-Present **Postdoctoral Research Fellow** *Georgia Institute of Technology*
 - Address ecological and evolutionary questions using freshwater zooplankton-parasite interactions.
 - Conduct field sampling of lake zooplankton communities.

- Isolate and culture novel organisms that play a role in parasitism of freshwater zooplankton.
 - Use molecular techniques to assess the ecophysiology of parasitic microorganisms.
- 8/2002-1/2009 **Graduate Research Assistant** *Georgia Institute of Technology*
 - Analyzed the genome sequence of *Anaeromyxobacter dehalogenans* strain 2CP-C with respect to its similarity to the Myxococcales and other δ -proteobacteria.
 - Isolated and cultured novel organisms from contaminated groundwater, acidic peat bogs, iguana feces, and other promising substrates.
 - Applied molecular, bioinformatics, and microbiological techniques to the exploration of a newly discovered bioremediation organism.
 - Worked to develop a genetic system for gene disruption and manipulation of *Anaeromyxobacter dehalogenans* using information from the genome sequence.
 - Adapted chemotaxis experiments for surface motility of slow-growing microorganisms.
- 2/2006-3/2006 **Visiting Researcher** *Pacific Northwest National Laboratory*
 - Worked with geneticists and microbiologists on genetic system development and uranium reduction assays in *A. dehalogenans*
- 5/2003-7/2003 **NSF IGERT Fellow** *Skidaway Institute of Oceanography*
 - Implemented an Ecology-based experiment that included microbial culturing techniques as well as molecular and chemical analyses using denaturing gradient gel electrophoresis (DGGE) and gas chromatography mass spectrometry (GC-MS).
- 1/2000-8/2002 **Site Assessment Project Manager** *Tetra Tech EM Inc.*
 - Provided project management and field support for the U.S. Environmental Protection Agency START (Superfund Technical Assessment and Response Team) contract

Publications

- **Thomas, S. H.**, E. Padilla-Crespo, P. M. Jardine, R. A. Sanford, and F. E. Löffler. Diversity and Distribution of *Anaeromyxobacter* Strains in a Uranium-Contaminated Subsurface Environment With Nonuniform Flow. *Applied and Environmental Microbiology*. 75(11): 3679-3687.
- Himmelheber, D. W., **S. H. Thomas**, F. E. Löffler, M. Taillefert, and J. B. Hughes. 2009. Microbial Colonization of an *In Situ* Sediment Cap and Correlation to Stratified Redox Zones. *Environ. Sci. Technol.* 43: 66–74.
- Marshall, M. J., A. C. Dohnalkova, D. W. Kennedy, A. E. Plymale, **S. H. Thomas**, F. E. Löffler, R. A. Sanford, J. M. Zachara, J. K. Fredrickson, and A. S. Beliaev. 2008. Electron donor-dependent radionuclide reduction and nanoparticle formation by *Anaeromyxobacter dehalogenans* strain 2CP-C. *Environ. Microbiol.* 11: 534-543.
- **Thomas S.H.**, R. D. Wagner, A. K. Arakaki, J. R. Kirby, I. Zhulin, L. Shimkets, J. Skolnick, and F.E. Löffler. 2008. The mosaic genome of *Anaeromyxobacter dehalogenans* strain 2CP-C suggests an aerobic common ancestor to the delta-proteobacteria. *PLoS ONE*. 3:e2103.
- Sanford, R.A., Q. Wu, Q., Y. Sung, **S.H. Thomas**, B.K. Amos, E.K. Prince, and F.E. Löffler. 2007. Hexavalent uranium supports growth of *Anaeromyxobacter dehalogenans* and *Geobacter* spp. with lower than predicted biomass yields. *Environmental Microbiology*. 9(11):2885-2893

In preparation:

- **Thomas, S.H.**, R.A. Sanford, and F.E. Löffler. Oxygen reduction, tolerance, and microaerophilic growth by *Anaeromyxobacter dehalogenans*. Submitted.
- **Thomas, S.H.**, E. Padilla-Crespo, R.A. Sanford, Q. Wu, K. Finneran, and F.E. Löffler. Strain Variation and Metabolic Diversity in *Anaeromyxobacter dehalogenans* Isolates from Uranium and Pesticide-Contaminated Soils. In preparation.
- Preston, K.E., A. Woolfitt, H. Moura, **S. H. Thomas**, Q. Wu, Y. Sung, J. R. Barr, and F. E. Löffler. Whole-Cell MALDI-TOF MS Detection and Monitoring of *Anaeromyxobacter dehalogenans*. In preparation.
- Wu, Q., **S.H. Thomas**, R. Wagner, G. Rodriguez, A. Massol, K. Krishnani, K. M. Ritalahti, R. A. Sanford, J. Chee-Sanford, and F. E. Löffler. Nitrous Oxide Respiration by Facultative Anaerobic Myxobacteria. In preparation.

Presentations

1. **Henry, S.**, F. E. Löffler, and J. Kirby. 7/2005. *Anaeromyxobacter dehalogenans*: Pilus-based Motility in the Subsurface. *The 32nd International Meeting on the Biology of the Myxobacteria*, July 2005, Harrison Hot Spring, British Columbia, Canada
2. **Henry, S.**, F.E. Löffler, and J. Kirby. 1/2005. Chemotaxis and Bioremediation by *Anaeromyxobacter dehalogenans*. *Bacterial Locomotion and Signal Transduction (BLAST) VIII Meeting*, January 16-21, Deerfield Beach, Florida.
3. **Henry, S.**, F. E. Löffler, and J. Kirby. 7/2004. Characterization of *Anaeromyxobacter dehalogenans*. *The 31st International Meeting on the Biology of the Myxobacteria*, July 3-7, Elsinore, Denmark.
4. **Henry, S.**, 3/2004. *Anaeromyxobacter dehalogenans*: A Model Organism to Explore the Relevance of Pilus-based Motility and Chemotaxis in Bioremediation. *Southeastern Ecology and Evolution Conference*, March 5-7, Atlanta, Georgia.

Poster Presentations

1. **Thomas, S.H.**, E. Padilla-Crespo, R.D. Wagner, A.K. Thorp, Q. Wu, R.A. Sanford, F. E. Löffler. 2008. Metal Reduction at the Anoxic/Oxic Interface: Respiratory Versatility of *Anaeromyxobacter dehalogenans*. Abstract N-331. *108th General Meeting of the American Society for Microbiology*, June 1-5, Boston, Massachusetts.
2. **Thomas, S. H.**, R. D. Wagner, A. K. Arakaki, J. R. Kirby, I. Zhulin, L. Shimkets, J. Skolnick, and F. E. Löffler. 2007. Rooting the Myxococcales in the delta-Proteobacteria: genome analysis of *Anaeromyxobacter dehalogenans* strain 2CP-C. Abstract N-175. *107th General Meeting of the American Society for Microbiology*, May 21-25, Toronto, Canada.
3. **Thomas, S. H.**, Q. Wu, R. D. Wagner, A. K. Arakaki, J. R. Kirby, I. Zhulin, L. Shimkets, J. Skolnick, R. Sanford, F. E. Loeffler. 2007. From Underground to the Mainstream: The Missing Link from Anaerobic to Aerobic Lifestyle Illuminated by the *Anaeromyxobacter dehalogenans* strain 2CP-C Genome. *"Incredible Anaerobes: From Physiology to Genomics to Fuels" A 'State-of-the-Art' Symposium in honor of Professor Lars G. Ljungdahl on the Occasion of his Retirement and 80th Birthday*, March 2-3, Athens, Georgia.
4. **Thomas, S.H.**, Wu, Q., Padilla, E., Lee, N.M., Sanford, R.A., Loeffler, F.E. 2006. *Anaeromyxobacter dehalogenans* Strain Diversity in Uranium and Nitrate-contaminated FRC Sediments. *Department of Energy (DOE) Environmental Remediation Sciences Program (ERSP) PI Fall Meeting*, October 23-25, Oak Ridge, Tennessee.
5. **Thomas, S.H.**, Pavlekovic, M., Lee, N., Marshall, M.J., Kennedy, D.W., Ritalahti, K.M., Sanford, R.A., Loeffler, F.E. 2006. Diversification in the Subsurface: Strain Variation of *Anaeromyxobacter dehalogenans* in a Uranium and Nitrate-Contaminated Subsurface

- Environment. *International Society for Microbial Ecology*, August 20-25, Vienna Austria.
6. **Henry, S.**, Wu, Q., Sanford, R., and Löffler, F.E. 2006. Uranium (VI) Reduction by *Anaeromyxobacter dehalogenans*. *Annual DOE-ERSP PI Meeting*, April 2-5, Warrenton, Virginia.
 7. Preston, K.E., Barr, J.R., Woolfitt, A., Moura, H., Amos, B, Sung, Y., **Henry, S.**, and Löffler, F.E.. 2006. Characterization of *Anaeromyxobacter dehalogenans* and Related Metal-Reducing Bacteria by MALDI-TOF MS. *Annual DOE-ERSP PI Meeting*, April 3-5, Warrenton, Virginia.
 8. Preston, K.E., Barr, J.R., Moura, H., Woolfitt, A., Amos, B.K., Sung, Y., **Henry, S.**, and Löffler, F.E. 2005. MALDI-TOF MS Profiling of Metal-Reducing Bacteria Including *Anaeromyxobacter*, *Geobacter*, and *Desulfuromonas* Species. *The Joint International Symposia for Subsurface Microbiology and Environmental Biogeochemistry*, August 17. Jackson Hole, WY.
 9. **Henry, S.**, Kirby, J., Löffler, F., Sanford R. Pilus-Based Motility and Energy Taxis in the Subsurface: *Anaeromyxobacter dehalogenans* as a Model Organism for Bioremediation Applications. 2005. *105th General Meeting of the American Society of Microbiology*, June 5-9. Atlanta, Georgia.
 10. Thomson, I., **Henry, S.**, Krajmalnik-Brown, R., Loeffler, F., Ritalahti, K. Cloning and Expression Analysis of *Anaeromyxobacter* Reductive Dehalogenase Genes. 2005. *105th General Meeting of the American Society of Microbiology*, June 5-9. Atlanta, Georgia.
 11. Preston, K.E., Löffler, F.E., Moura, H., Woolfitt, A., Amos, B.K., Sung, Y., **Henry, S.**, and Barr, J.R. MALDI-TOF MS Profiling of Environmentally Relevant Bacteria Including *Anaeromyxobacter*, *Geobacter*, and *Desulfuromonas* Species. 2005. *105th General Meeting of the American Society of Microbiology*, June 5-9. Atlanta, Georgia.
 12. Preston, K.E., Löffler, F.E., Moura, H., Woolfitt, A., Amos, B.K., Sung, Y., **Henry, S.**, Barr, J.R. 2005. Detection of *Anaeromyxobacter dehalogenans* Biomarkers by MALDI-TOF-MS Analysis of Whole Cells. Association of Biomolecular Resource Facilities Annual Meeting, February 5-8. Savannah, Georgia.
 13. **Henry S.**, Q. Wu, R. Sanford, J. Kirby, and F. Löffler. 2004. Physiological Characterization and Environmental Distribution of *Anaeromyxobacter dehalogenans*. *Natural and Accelerated Bioremediation Research (NABIR), Oak Ridge Field Research Center (FRC) Workshop*, October 18-20, Oak Ridge, Tennessee.

Professional Service and Affiliations

- **Association of Environmental Engineers and Scientists** (Fall 2002-present)
 - Chair—Distinguished Lecturer Fall 2007
 - Inviting a speaker
 - Making lecture room arrangements
 - Making flight/hotel arrangements
 - Making schedule for faculty/student meetings
 - Chair—Outreach committee Fall 2003-Spring 2004
 - Prepared an extensive bound document “for students by students” to introduce prospective/new students to Atlanta, Georgia Tech, and the School of Environmental Engineering.
 - Interviewed graduate students
 - Compiled information
 - Worked with administrative staff for binding and distribution
 - Committee Member—Panel Discussion on Alternative Energy

- Invited an expert on sustainable residential buildings.
 - Facilitated audience participation
- ***NSF IGERT Program Seminar Series Committee*** (Fall 2003-Fall 2006)
 - Chair—Fall 2006
 - Invited four speakers in various disciplines
 - Dr. Clay Fuqua, University of Indiana
 - Dr. Cameron Currie, University of Wisconsin
 - Dr. Bill Gerwick, Oregon State University
 - Dr. Florence Thomas, University of South Florida
 - Made lecture room arrangements
 - Recruited and trained a host for each speaker
 - Hosted speakers
 - Spring 2006 Dr. Bonnie Bassler, Princeton University
 - Fall 2004 Dr. Gregory Velicer, University of Indiana
 - Made flight/hotel arrangements
 - Made schedules for meetings with faculty and students
 - Arranged or provided transportation
- ***International Society of Microbial Ecologists*** (Fall 2004-present)
- ***American Society for Microbiology*** (Fall 2003-present)

Professional Registrations

Georgia Engineer in Training Certification (EIT)