

Largus T. Angenent, Ph.D.

Contact Information

Associate Professor
Cornell University
Department of Biological and Environmental Engineering
Field of Microbiology
Director, Agricultural Waste Management Lab
Faculty Fellow, Atkinson Center for a Sustainable Future
214 Riley-Robb Hall
Ithaca, NY 14853
Tel: +1-607-255-2480
Fax: +1-607-255-4080
E-mail: la249@cornell.edu
Web: <http://angenent.bee.cornell.edu>

Main Research Interests

Bioenergy: My goal is to intentionally shape mixed consortia of microbes (reactor microbiomes) that convert organic wastes into bioenergy carriers, such as methane, electrical current, hydrogen, or *n*-butyrate and other medium-chain carboxylates. Within this carboxylate platform, my lab focuses on improving the performance and stability of anaerobic digesters, on optimizing microbial electrochemical systems, such as microbial fuel cells and microbial electrolysis cells, and on optimizing anaerobic fermentation bioreactors (including product separation). In addition, my lab works on anaerobic fermentation with pure or defined cultures to convert precursors, such as syngas and carboxylates, into alcohols. When necessary, genomic tools are used in conjunction with long-term bioreactor studies and ecology theory to understand how to shape communities or how to operate bioreactors better.

Biosensors: Microbial electrochemical systems with living bacterial cells can also be used as biosensors. My lab is performing pure and binary culture studies to maximize the electronic signal and test applications, such as acute toxicity assays and biocomputing. In addition, we have placed microbial electrochemical systems in Alaskan soil to monitor electrochemical activity of soil microbes within a complex biogeochemistry system.

Computational Ecology Methods: I have used genome-enabled techniques in combination with statistical methods to link environmental metadata, microbiomes, and performance. Besides performing these methods in engineered systems, I am interested in unraveling the interactions between indoor environments and bioaerosols and in understanding the complex interactions of soil and subsurface microbiomes within their complex biogeochemistry environment.

University Education

Post-Doc. Environmental Engineering/Molecular Biology, 2002

University of Colorado at Boulder, Boulder, Colorado, USA

Advisors: Mark T. Hernandez and Norman R. Pace

Post-Doc. Environmental Engineering, 2000

University of Illinois at Urbana-Champaign, Urbana, Illinois, USA

Advisor: Lutgarde Raskin

Ph.D. Environmental Engineering, 1998

Iowa State University, Ames, Iowa, USA

Thesis Title: Development of a new high-rate anaerobic process for the treatment of industrial and domestic wastewaters: the Anaerobic Migrating Blanket Reactor (AMBR).

Advisors: Richard R. Dague and Shihwu Sung

M.S. Environmental Technology/Microbiology, 1994

Wageningen University (formerly Wageningen Agricultural University), Wageningen, The Netherlands

Thesis Title 1: The influence of pH on competition between sulfate reducing bacteria and methanogens in laboratory-scale UASB reactors.

Advisors: Gatze Lettinga, Look W. Hulshoff Pol and André Visser

Thesis Title 2: Enrichment studies on anaerobic, monochlorophenol-degrading bacteria.

Advisors: Alphons J. M. Stams and Karin A. Ennik-Maarsen

B.S. Environmental Sciences, 1992

Wageningen University, Wageningen, The Netherlands

Professional Experience

Aug. 2008-present	Associate Professor in the Department of Biological and Environmental Engineering, Cornell University.
Aug. 2008-Aug. 2009	Adjunct Professor in the Department of Energy, Environmental & Chemical Engineering, Washington University in St. Louis.
Aug. 2002-July 2008	Assistant Professor in the Department of Energy, Environmental & Chemical Engineering (formerly the Department of Chemical Engineering and Environmental Engineering Science Program), Washington University in St. Louis.
Jan. 1999-May 1999	Visiting Lecturer at the University of Illinois at Urbana-Champaign in the Department of Civil and Environmental Engineering.

US Patents

- Co-inventor US Patent No. 5,885,460: "Anaerobic Migrating Blanket Reactor" issued on March 23, 1999.
- Co-inventor US Provisional Patent Application 61/521,603: "Concurrent Carboxylates and Methane Production from Lignocellulosic Waste and Ethanol with In-Situ Carboxylate Recovery". Filing date: September 9, 2011.

Awards and Honors

- Kavli Fellow, U.S. National Academy of Sciences, 2008
- Excellence in Review Award, *Environmental Science & Technology*, 2007
- NSF CAREER award, U.S. National Science Foundation, 2007
- GE Scholar, The Academy for Excellence in Engineering Education, Engineering College, University of Illinois at Urbana-Champaign, USA, 1999

Awards with Graduate Students

1. Catherine Spirito, 2011 Ram Sagi Award, Cornell University.
2. Joseph G. Usack, 2010 Ram Sagi Award, Cornell University.
3. Jeffrey J. Fornero, First place in poster competition for Architecture/Materials division, Microbial Fuel Cells - First International Symposium, Penn State University, May 27-29, 2008.
4. Sarah Dryden Perkins, Recipient of the 2005 National Science Foundation Graduate Research Fellowship Award.

Journal Publications

1. Li Z., Venkataraman A., Rosenbaum M. A. and Angenent L. T. (2012). A laminar-flow microfluidic device for quantitative analysis of microbial electrochemical activity. *ChemSusChem*, DOI: 10.1002/cssc.201100736.
2. Rosenbaum M. A., Bar H. Y., Beg Q. K., Segrè D., Booth J., Cotta M. A. and Angenent L. T. (2012). Transcriptional analysis of *Shewanella oneidensis* MR-1 with an electrode compared to Fe(III)citrate or oxygen as terminal electron acceptor. *PLoS ONE* Vol. 7, No. 2: e30827.
3. Friedman E. S., Rosenbaum M. A., Lee A. W., Lipson D. A., Land B. R. and Largus T. Angenent L. T. (2012). A cost-effective and field-ready potentiostat that poises subsurface electrodes to monitor bacterial respiration. *Biosensors and Bioelectronics*, Vol. 32, No. 1, pp. 309-313.
4. Werner J. J., Zhou D., Caporaso J. G., Knight R. and Angenent L. T. (2012). Comparison of Illumina paired-end and single-direction sequencing for microbial 16S rRNA gene amplicon surveys. *The ISME Journal*, DOI:10.1038/ismej.2011.186.
5. Usack J. G., Spirito C. M. and Angenent L. T. (2012). Continuously-stirred anaerobic digester to convert organic wastes into biogas: system setup and basic operation. Accepted for *Journal of Visualized Experiments (JoVE)*.
6. Richter H., Qureshi N., Heger S., Dien B., Cotta M. A. and Angenent L. T. (2012). Prolonged conversion of n-butyrate to n-butanol with *Clostridium saccharoperbutylacetonicum* in a two-stage continuous culture with *in-situ* product removal. *Biotechnology and Bioengineering*, Vol. 109, No. 4, pp. 913-921.
7. Werner J. J., Koren O., Hugenholtz P., DeSantis T. Z., Walters W. A., Caporaso J. G., Angenent L. T., Knight R., Ley R. E. (2012). Impact of training sets on classification of high-throughput bacterial 16S rRNA gene surveys. *The ISME Journal*, Vol. 6, No. 1, pp. 94-103.
8. TerAvest M. A., Li Z. and Angenent L. T. (2011). Bacteria-based biocomputing with Cellular Computing Circuits to sense, decide, signal, and act. *Energy and Environmental Science*, Vol. 4, No. 12, pp. 4907-4916.
9. Venkataraman A., Rosenbaum M. A., Perkins S. D., Werner J. J. and Angenent L. T. (2011). Metabolite-based mutualism between *Pseudomonas aeruginosa* PA14 and *Enterobacter aerogenes* enhances current generation in bioelectrochemical systems. *Energy and Environmental Science*, Vol. 4, No. 11, pp. 4550-4559.
10. Werner J. J., Knights D., Garcia M. L., Scalfone N. B., Smith S., Yarasheski K., Cummings T. A., Beers A. R., Knight R. and Angenent L. T. (2011). Bacterial community structures are unique and resilient in full-scale bioenergy systems. *Proceedings of the National Academy of Sciences USA*, Vol. 108, No. 10, pp. 4158-4163. *Faculty 1000 post-publication reviewed paper*.
11. Angenent L. T. and Kleerebezem R. (2011). Crystal ball-2011: Bioproducts from undefined mixed cultures: electron pushing. *Microbial Biotechnology*, Vol. 4, No. 2, pp. 109-110.
12. Perkins S. D., Scalfone N. B. and Angenent L. T. (2011). Comparative 16S rRNA gene surveys of granular sludge from three upflow anaerobic bioreactors treating purified

- terephthalic acid (PTA) wastewater. *Water Science and Technology*, Vol. 64, No. 7, pp. 1406-1412.
13. Li Z., Rosenbaum M. A., Venkataraman A., Tam T. K., Katz E. and Angenent L. T. (2011). Bacteria-based AND logic gate: a decision-making and self-powered biosensor. *Chemical Communications*, Vol. 47, No. 11, pp. 3060-3062.
 14. Agler M. T., Wrenn B. A., Zinder S. H. and Angenent L. T. (2011). Waste to bioproduct conversion with undefined mixed cultures: the carboxylate platform. *Trends in Biotechnology*, Vol. 29, No. 2, pp. 70-78.
 15. Labatut R. A., Angenent L. T. and Scott N. R. (2011). Biochemical methane potential and biodegradability of complex organic substrates. *Bioresource Technology*, Vol. 102, No. 3, pp. 2255-2264.
 16. Rosenbaum M. A., Bar H. Y., Beg Q. K., Segrè D., Booth J., Cotta M. A. and Angenent L. T. (2011). *Shewanella oneidensis* in a lactate-fed pure-culture and a glucose-fed co-culture with *Lactococcus lactis* with an electrode as electron acceptor. *Bioresource Technology*, Vol. 102, No. 3, pp. 2623–2628.
 17. Rosenbaum M., Aulenta F., Villano M. and Angenent L. T. (2011). Cathodes as electron donors for microbial metabolism: Which extracellular electron transfer mechanisms are involved? *Bioresource Technology*, Vol. 102, No. 1, pp. 324-333.
 18. Koenig J. E., Spor A., Scalfone N., Fricker A. D., Stombaugh J., Knight R., Angenent L. T. and Ley R. E. (2011). Succession of microbial consortia in the developing infant gut microbiome. *Proceedings of the National Academy of Sciences USA*, Vol. 108, No. Suppl. 1, pp. 4578-4585.
 19. Perkins S. D. and Angenent L. T. (2010). Potential pathogenic bacteria in metalworking fluids and aerosols from a machining facility. *FEMS Microbiology Ecology*, Vol. 74, No. 3, pp. 643-654.
 20. Villano M., Rosenbaum M., Aulenta F., Majone M. and Angenent L. T. (2010). Production of gaseous or liquid value-added products in bioelectrochemical systems. *Journal of Biotechnology*, Vol. 150, No. Suppl. 1: pp. S179-S179.
 21. Rosenbaum M., He Z. and Angenent L. T. (2010). Light energy to bioelectricity: photosynthetic microbial fuel cells. *Current Opinion in Biotechnology*, Vol. 21, No. 3, pp. 259-264.
 22. Agler M. T., Aydinkaya Z., Cummings T. A., Beers A. R. and Angenent L. T. (2010). Anaerobic digestion of brewery primary sludge to enhance bioenergy generation: A comparison between low- and high-rate solids treatment and different temperatures. *Bioresource Technology*, Vol. 101, No. 15, pp. 5842-5851.
 23. Perkins S. D., Woeltje K. F. and Angenent L. T. (2010). Endotracheal tube biofilm inoculation of oral flora and subsequent colonization of opportunistic pathogens. *International Journal of Medical Microbiology*, Vol., 300, No. 7, pp. 503-511.
 24. Fornero J. J., Rosenbaum M., Cotta M. A. and Angenent L. T. (2010). Carbon dioxide addition to microbial fuel cell cathodes maintains sustainable catholyte pH and improves anolyte pH, alkalinity, and conductivity. *Environmental Science and Technology*, Vol. 44, No. 7, pp. 2728-2734.
 25. Venkataraman A., Rosenbaum M., Arends J. B. A., Halitschke R., Angenent L. T. (2010). Quorum sensing regulates electric current generation of *Pseudomonas aeruginosa* PA14 in bioelectrochemical systems. *Electrochemical Communications*, Vol. 12, No. 3, pp. 459-462.
 26. Rosenbaum M., Cotta M. A. and Angenent L. T. (2010). Aerated *Shewanella oneidensis* in continuously-fed bioelectrochemical systems for power and hydrogen production. *Biotechnology and Bioengineering*, Vol. 105, No. 5, pp. 880-888.
 27. Fornero J. J., Rosenbaum M. and Angenent L. T. (2010). Electric power generation from municipal, food, and animal wastewaters using microbial fuel cells. *Electroanalysis*, Vol. 22, No. 7-8, pp. 832-843.

28. Briones A. M., Daugherty B. J., Angenent L. T., Rausch K. D., Tumbleson M. E. and Raskin L. (2009). Characterization of microbial trophic structures of two anaerobic bioreactors processing sulfate-rich waste streams. *Water Research*, Vol. 43, No. 18, pp. 4451-4460.
29. Perkins S. D., Mayfield J., Fraser V. and Angenent L. T. (2009). Potential pathogenic bacteria in shower water and air of a bone marrow transplant unit. *Applied and Environmental Microbiology*, Vol. 75, No. 16, pp. 5363-5372.
30. Kettleson E. M., Ramaswami B., Hogan C. J., Lee M.-H., Statyukha G. A., Biswas P. and Angenent L. T. (2009). Airborne virus capture and inactivation by an electrostatic particle collector. *Environmental Science and Technology*, Vol. 43, No. 15, pp. 5940-5946.
31. Garcia M. L. and Angenent L. T. (2009) Interaction between temperature and ammonia in mesophilic digesters for animal waste treatment. *Water Research*, Vol. 43, No. 9, pp. 2373-2382.
32. He Z., Kan J., Mansfeld F., Angenent L. T. and Neilson K.H. (2009). Self-sustained phototrophic microbial fuel cells based on the synergistic cooperation between photosynthetic microorganisms and heterotrophic bacteria. *Environmental Science and Technology*, Vol. 43, No. 5, pp. 1648-1654.
33. Fornero J. J., Rosenbaum M., Cotta M. A. and Angenent L. T. (2008). Microbial fuel cell performance with a pressurized cathode. *Environmental Science and Technology*, Vol. 42, No. 22, pp. 8578-8584.
34. Agler M. T., Garcia M. L., Lee E. S., Schlicher M. and Angenent L. T. (2008). Thermophilic anaerobic digestion to increase the net energy balance of corn grain ethanol. *Environmental Science and Technology*, Vol. 42, No. 17, pp. 6723-6729.
35. Angenent L. T., Mau M., George U., Zahn J. A. and Raskin L. (2008). Effect of the presence of the antimicrobial tylosin in swine waste on anaerobic treatment. *Water Research*, Vol. 42, No. 10-11, pp. 2377-2384.
36. Bocher B. T., Agler M. T., Garcia M. L., Beers A. R. and Angenent L. T. (2008). Anaerobic digestion of secondary residuals from an anaerobic bioreactor at a brewery to enhance bioenergy generation. *Journal of Industrial Microbiology and Biotechnology*, Vol. 35, No. 5, pp. 321-329.
37. Hoffmann R. A., Garcia M. L., Veskivar M., Karim K., Al-Dahhan M. H. and Angenent L. T. (2008). Effect of shear on performance and microbial ecology of continuously-stirred anaerobic digesters treating animal manure. *Biotechnology and Bioengineering*, Vol. 100, No. 1, pp. 38-48.
38. Angenent L. T. (2007). Energy biotechnology: beyond the general lignocellulose-to-ethanol pathway. *Current Opinion in Biotechnology*, Vol. 18, No. 3, pp. 1-2.
39. He Z., Shao H. and Angenent L. T. (2007). Increased power production from a sediment microbial fuel cell with a rotating cathode. *Biosensors and Bioelectronics*, Vol. 22, No. 12, pp. 3252-3255.
40. Steinhaus B., Garcia M. L., Shen A. Q. and Angenent L. T. (2007). A portable anaerobic microbioreactor reveals optimum growth conditions for the methanogen *Methanosaeta concilii*. *Applied and Environmental Microbiology*, Vol. 73, No. 5, pp. 1653-1658.
41. Yuan Z., Ramaswami B., Casaletto D., Falke S., Angenent L. T. and Giammar D. E. (2007). Evaluation of chemical indicators for tracking and apportionment of phosphorus sources to Table Rock Lake in Southwest Missouri. *Water Research*, Vol. 41, No. 7, pp. 1525-1533.
42. Briones A. M., Daugherty B. J., Angenent L. T., Rausch K. D., Tumbleson M. E. and Raskin L. (2007). Microbial diversity and dynamics in multi- and single-compartment anaerobic bioreactors processing sulfate-rich waste streams. *Environmental Microbiology*, Vol. 9, No. 1, pp. 93-106.
43. He Z. and Angenent L. T. (2006). Application of bacterial biocathodes in microbial fuel cells. *Electroanalysis*, Vol. 18, No. 19-20, pp. 2009-2015.

44. He Z., Wagner N., Minteer S. D. and Angenent L. T. (2006). The upflow microbial fuel cell with an interior cathode: assessment of the internal resistance by impedance spectroscopy. *Environmental Science and Technology*, Vol. 40, No. 17, pp. 5212-5217
45. Dryden S. K.,* B. Ramaswami,* Yuan Z., Giammar D. E. and Angenent L. T. (2006). A rapid reverse transcription-PCR assay for F⁺ RNA coliphages to trace fecal pollution in Table Rock Lake on the Arkansas-Missouri border. *Water Research*, Vol. 40, No. 20, pp. 3719-3724.
46. Zheng D., Angenent L. T. and Raskin L. (2006). Monitoring granule formation in anaerobic upflow bioreactors using oligonucleotide hybridization probes. *Biotechnology and Bioengineering*, Vol. 94, No. 3, pp. 458-472.
47. He Z., Minteer S. D. and Angenent L.T. (2005). Electricity generation from artificial wastewater using an upflow microbial fuel cell. *Environmental Science and Technology*, Vol. 39, No. 14, pp. 5262-5267.
48. Hogan C. J., Kettleson E. M., Lee M. -H., Ramaswami B., Angenent L. T. and Biswas P. (2005). Sampling methodologies and dosage assessment techniques for submicrometre and ultrafine virus aerosol particles. *Journal of Applied Microbiology*, Vol. 99, pp. 1422-1434.
49. Angenent L. T., Kelley S. T., St. Amand A., Pace N. R. and Hernandez M. T. (2005). Molecular identification of potential pathogens in water and air of a hospital therapy pool. *Proceedings of the National Academy of Sciences USA*, Vol. 102, No. 13, pp. 4860-4865.
50. Kujundzic E., Angenent L. T., Zander D. A., Henderson D. E., Miller S. L. and Hernandez M. T. (2005). Effects of ceiling-mounted HEPA-UV air filters on airborne bacteria concentrations in an indoor therapy pool building. *Journal of Air and Waste Management Association*, Vol. 55, pp. 210-218.
51. Angenent L. T., Karim K., Al-Dahhan M. H., Wrenn B. A. and Domínguez-Espinosa R. (2004). Production of bioenergy and biochemicals from industrial and agricultural wastewater. *TRENDS in Biotechnology*, Vol. 22, No. 9, pp. 477-485.
52. Sonnenburg J.*, Angenent L. T.* and Gordon J. I. (2004). Getting a grip on things: how do communities of bacterial symbionts become established in our intestine? *Nature Immunology*, Vol. 5, No. 6, pp. 569-573.
53. Kelley S. T., Theisen U., Angenent L. T., St. Amand A. and Pace N. R. (2004). Molecular analysis of shower curtain biofilm microbes. *Applied and Environmental Microbiology*, Vol. 70, No. 7, pp. 4187-4192.
54. Angenent L. T., Sung S. and Raskin L. (2004). The formation of granules and *Methanosaeta* fibres in anaerobic migrating blanket reactor (AMBR). *Environmental Microbiology*, Vol. 6, No. 4, pp. 315-322.
55. Angenent L. T., Zheng D., Sung S. and Raskin L. (2002). Microbial community structure and activity in a compartmentalized, anaerobic bioreactor. *Water Environment Research*. Vol. 74, No. 5., pp. 450-461.
56. Angenent L. T., Abel S. and Sung S. (2002). Effect of an organic shock load on the stability of an anaerobic migrating blanket reactor. *Journal of Environmental Engineering*, Vol. 128, No. 12, pp. 1109-1120.
57. Angenent L. T., Sung S. and Raskin L. (2002). Methanogen population dynamics during startup of a full-scale anaerobic sequencing batch reactor treating swine waste. *Water Research*. Vol. 36, No. 18, pp. 4648-4654.
58. Angenent L. T., Banik G. C. and Sung S. (2001). Anaerobic migrating blanket reactor treatment of low-strength wastewater at low temperatures. *Water Environment Research*, Vol. 73, No. 5, pp. 567-574.
59. Angenent L. T. and Sung S. (2001). Development of anaerobic migrating blanket reactor (AMBR), a novel anaerobic treatment system. *Water Research*, Vol. 35, No. 7, pp. 1739-1747.

60. Angenent L. T., Zheng D, Sung S. and Raskin L. (2000). *Methanosaeta* fibers in anaerobic migrating blanket reactors. *Water Science and Technology*, Vol. 41, No. 4-5, pp. 35-39.
61. Angenent L. T., Sung S. and Dague R. R. (1998). Start up of the anaerobic migrating blanket reactor (AMBR) seeded with primary digester sludge. *Fluid/Particle Separation Journal*, Vol. 11, No. 1, pp. 55-61.

*Contributed equally

Book

Vanek F. M., Albright L. D. and Angenent L. T. Energy Systems Engineering: Evaluation & Implementation, 2nd edition, McGraw Hill, New York, NY.

Book Chapters

1. TerAvest M. A., Li Z. and Angenent L. T. (Accepted). Development of bacteria-based Cellular Computing Circuits for sensing and control in biological systems. In: *Molecular and biomolecular information processing: from logic systems to sensors and actuators*. Ed.: Katz E., Wiley.
2. Bluhm K., Heger S., Agler M. T., Maletz S., Schäffer A., Seiler T.-B., Angenent L. T. and Hollert H. (Accepted). Assessment of the ecotoxicological & environmental effects of biorefineries. In: *The role of green chemistry in biomass processing and conversion*. Eds.: Xie H. and Gathergood N., Wiley.
3. Angenent L. T. and Scott N. R. (2010). Practical aspects of methane production from agricultural wastes (Chapter 4, pp. 39-66). In: *Biofuels from Agricultural Wastes and Byproducts*. Eds.: Blaschek H. P., Ezeji T. C. and Scheffran, J., Wiley-Blackwell, Ames, IA.
4. Rosenbaum M and Angenent L. T. (2010). Genetically modified microorganisms for bioelectrochemical systems (Chapter 6, pp. 101-117). In: *Bioelectrochemical Systems: from extracellular electron transfer to biotechnological application*. Eds.: Rabaey K., Angenent L. T., Schröder U. and Keller J. International Water Association, London, UK.
5. Rosenbaum M, Agler M. T., Fornero J. J., Venkataraman A. and Angenent L. T. (2010). Integrating BES in the wastewater and sludge treatment line (Chapter 19, pp. 393-408). In: *Bioelectrochemical Systems: from extracellular electron transfer to biotechnological application*. Eds.: Rabaey K., Angenent L. T., Schröder U. and Keller J. International Water Association, London, UK.
6. Keller J., Rozendal R. A., Angenent L. T., Schröder U., Lens P., Rabaey K. (2010). Outlook: Research directions and new applications (Chapter 22, pp. 449-465). In: *Bioelectrochemical Systems: from extracellular electron transfer to biotechnological application*. Eds.: Rabaey K., Angenent L. T., Schröder U. and Keller J. International Water Association, London, UK.
7. Angenent L. T. and Wrenn B. A. (2008). Optimizing mixed-culture bioprocesses to convert wastes into biofuels (chapter 15, pp. 179-194). In: *Bioenergy*. Eds.: Wall J. D., Harwood, C. S. and Demain, A. ASM Press, Washington, DC.

Other Peer-Reviewed Publications

Friedman E. S., TerAvest M. A., Venkataraman A., Angenent L. T. (2012). Enzymatic and Microbial Electrochemical Cells. In: *Encyclopedia of Agricultural, Food, and Biological Engineering, Second Edition*, 2nd ed. Taylor & Francis.

Angenent L. T., Ramaswami B., Dryden S., Falke S. R., Yuan Z., and Giammar D. E. (2006). *Evaluation of Chemical and Biological Indicators for Source Apportionment of Phosphorus in Table Rock Lake, on the Missouri-Arkansas Border*. Project No. WU-HT-03-00. Prepared for the National Decentralized Water Resources Capacity Development Project, Washington University,

St. Louis, MO, by Washington University, St. Louis, MO.

Non-Peer-Reviewed Publications

1. Angenent L., Rosenbaum M., Rozendal R., Rabaey K., Logan B. and Schröder U. (2011). Comments on “Electricity generation by *Enterobacter cloacae* SU-1 in mediator less microbial fuel cell” by Samrot et al., *Int. J. Hydrogen Energy*, 35 (15) 2010, 7723-7729. Letter to Editor, *International Journal of Hydrogen Energy*.
2. Barron B., Rosenbaum M., Balcerzak P. and Angenent L. T. (2010). A curriculum for high school science education: Microbial Fuel Cells; a living battery. *Published online* (<http://angenent.bee.cornell.edu/MFCcurriculum.pdf>).
3. Garcia M. L., Dryden S. K. and Angenent L.T. (2008). Tratamento de resíduo suíno em reatores de bateladas: desempenho e análise microbiana. *Revista Minerva*, Vol. 5, No. 3, pp. 241-247 (in Portuguese).
4. McMahon K. D., Gu A. Z. Nerenberg R. and Angenent L. T. (2007). Molecular methods in biological systems. *Water Environment Research*, Vol. 79, No. 10, Literature Review.
5. Angenent L. T., McMahon K. D., Gu A. Z. and Nerenberg R. (2006). Molecular methods in biological systems. *Water Environment Research*, Vol. 78, No. 6, Literature Review.
6. Angenent L. T., de Los Reyes F. L., Oerther D. B. and McMahon K. D. (2005). Molecular methods in biological systems. *Water Environment Research*, Vol. 77, No. 6, pp. 718-779, Literature Review.
7. de Los Reyes F. L., Oerther D. B. and Angenent L. T. (2004). Molecular methods in biological systems. *Water Environment Research*, Vol. 76, No. 6, Literature Review.
8. de Los Reyes F. L., Oerther D. B. and Angenent L. T. (2003). Molecular methods in biological systems. *Water Environment Research*, Vol. 75, No. 6, Literature Review.
9. Biswas P. and Angenent L. T. (2002). Electrotechnology countermeasures (Chapter 4), Conclusions and recommendations (Chapter 5), and Inactivation mechanisms of selected electrotechnologies (Appendix C). In: *Electrotechnologies for countering bioterrorism*, EPRI Technical Report 1006903, (Edited by Mezei, G. and Rohr, A.), Electric Power Research Institute, Palo Alto, CA.
10. Angenent L. T. and Kaal M. B. T. (1999). Swine waste gives energy, from biomass to methane. *Energie Techniek* (Energy Technology), Vol. 77, No. 7/8, pp. 382-384 (in Dutch).
11. Angenent L. T., Binnendijk K., Knot M., Richtert W. and Vervoordeldonk R. (1994). The problem of supplying energy in Northern Bohemia, Czech republic. In: *Environmental strategies and technology in the Czech republic*. (Edited by Leemans, M. J. P.), pp. 45-51, Wageningen Agricultural University (in Dutch).
12. Angenent L. T., Binnendijk K., Knot M., Richtert W. and Vervoordeldonk R. (1994). Ecological modernizing in the Czech republic. In: *Environmental strategies and technology in the Czech republic*. (Edited by Leemans, M. J. P.), pp. 53-64, Wageningen Agricultural University (in Dutch).

Invited Seminars and Lectures

1. Biomass to Fuel: with the carboxylate platform. Winter-enhancement program (WEP), KAUST, Saudi Arabia, January 20-22, 2012.
2. Undefined mixed cultures to convert wastes into energy with engineered systems. MBL microbial diversity summer course, Woods Hole, MA, July 6, 2010.
3. Bioelectrochemical systems: from wastewater to energy production. Chats in the Stacks Book Talk, Albert R. Mann Library, Cornell University, Ithaca, NY, February 25, 2010.

4. Undefined mixed cultures to convert organic waste into energy. The Environmental Engineering Program in the Department of Chemical Engineering at Yale University, New Haven, CT, April 14, 2009.
5. Nondefined mixed culture bioprocessing to convert organic waste into bioenergy. The Department of Chemistry and Biomolecular Science, Clarkson University, Potsdam, NY, December 15, 2008.
6. Nondefined mixed culture bioprocessing to convert organic waste into bioenergy. The department of Microbiology at Cornell University, December 4, 2008.
7. Nondefined mixed culture bioprocessing to convert organic waste into bioenergy. The department of Civil and Environmental Engineering at Cornell University, Ithaca, NY, September 25, 2008.
8. Electric power generation from municipal, food, and animal wastewaters using microbial fuel cells. Laboratory of Microbiology, Wageningen University, The Netherlands, May 14, 2008.
9. Electric power generation from municipal, food, and animal wastewaters using microbial fuel cells. The 2008 St. Louis Award Symposium, St. Louis section of the American Chemical Society, Department of Chemistry, St. Louis University, April 25, 2008.
10. Gene surveys to identify airborne bacteria. The Department of Molecular Microbiology at Washington University Medical School, St. Louis, MO, March 18, 2008.
11. Mixed cultures to generate bioenergy from waste. The department of Civil and Geological Sciences at Notre Dame University, South Bend, IN, November 29, 2007.
12. Mixed cultures to generate bioenergy from waste. The department of Biological and Environmental Engineering at Cornell University, Ithaca, NY, November 5, 2007.
13. Mixed cultures to generate bioenergy from waste. The department of Chemical and Biochemical Engineering at The University of Iowa, Iowa City, IA, October 11 2007.
14. Mixed cultures to generate bioenergy from waste. The Department of Civil and Environmental Engineering at Duke University, Durham, NC, May 24, 2007.
15. Mixed cultures to generate bioenergy from waste. The Department of Civil and Environmental Engineering at Northwestern University, Evanston, IL, April 27, 2007.
16. Mixed culture processing to convert wastewater into bioenergy. The Analytical Environmental Microbiology Applications Seminar, MIL, Inc., November 30, 2007.
17. Mixed culture processing to convert wastewater into bioenergy. The Missouri Water Environment Association (MWEA) Young Professional Lunch and Learn, St. Louis, MO, September 18, 2007.
18. Generating bioenergy from organic wastes: anaerobic digestion, microbial fuel cells, and biobutanol fermentation. Presented at the “Sustainable Energy” seminar: Faculté de l’Environnement Naturel, Architectural et Construit DECANAT (ENAC) at École Polytechnique Fédérale De Lausanne (EPFL), Switzerland, September 3, 2007.
19. Mixed culture bioprocessing of industrial and agricultural waste to generate energy. The Metropolitan Saint Louis Grants Conference. Research Day 2, Southern Illinois University Edwardsville, January 10, 2007.
20. From the gutter to the light switch: creating electricity with wastewater. Science Frontiers. Academy of Sciences – St. Louis and Skandalaris Center for Entrepreneurial Studies, Washington University in Saint Louis, November 29, 2006.
21. Making microbial fuel cells work: from reactor configurations to genes. The Biodesign Institute at Arizona State University, October 19, 2006, Tempe, AZ.
22. The upflow microbial fuel cell: simultaneous electricity generation and wastewater treatment. St. Louis AIChE chapter, March 15, 2006, St. Louis, MO.
23. The UMFC with an interior cathode. Sub-department of Environmental Technology, Wageningen University and Research Center, March 3, 2006.
24. Improving stability in anaerobic digestion for animal waste treatment by understanding microbial ecology. Genes to products: agricultural plant, microbe, and biobased product

- research. USDA, Cooperative State Research, Education, and Extension Service, February 27-28, 2006, Warrington, Virginia.
25. The upflow microbial fuel cell: simultaneous electricity generation and wastewater treatment. Environmental Engineering Program seminar series, Department of Civil and Environmental Engineering, University of Wisconsin – Madison, February 7, 2006.
 26. Bacteriophages as surrogates for human viruses and biocontrol in environmental engineering studies. San Diego Microbiology Group, San Diego State University/University of California San Diego/The Scribbs Research Institute, La Jolla, CA, October 19, 2005.
 27. From anaerobic digestion to microbial fuel cell research: the upflow microbial fuel cell. The Laboratory of Microbial Ecology and Technology, Ghent University, Belgium, August 4, 2005.
 28. Microbial fuel cells (MFCs) – simultaneous wastewater treatment and energy production. Department of Chemical Engineering seminar series, University of Missouri at Rolla, Rolla, MO., December 3, 2004.
 29. Electrotechnologies for reducing bioaerosol exposure in the indoor environment: HEPA-UV and corona soft-X-ray air purifiers. Air Quality, Health, and Risk, Electric Power Research Institute (EPRI), Palo Alto, CA, June 20, 2003.
 30. Anaerobic digestion of swine waste and issues related to further disposal of the produced biosolids and effluent from the digester. National Risk Management Research Laboratory, US EPA, Cincinnati, OH, June 2, 2003.
 31. Abundant mycobacteria in pool water and air of an indoor therapy pool. 1. Diagnostic Micro Journal Club, Washington University Medical School, St. Louis, MO., March 9, 2007.
 32. Abundant mycobacteria in pool water and air of an indoor therapy pool. Department of Biology, Washington University in St. Louis, MO., January 13, 2003.
 33. Abundant mycobacteria in pool water and air of an indoor therapy pool. Hospital Epidemiology Seminar Series, Infectious Diseases, Washington University Medical School, St. Louis, MO., October 29, 2002.
 34. Abundant mycobacteria in pool water and air of an indoor therapy pool. Department of Biomedical Engineering, Washington University in St. Louis, MO., September, 13, 2002.
 35. Anaerobic digestion and nutrient recovery as an on-farm, integral swine waste treatment system. Department of Civil Engineering seminar series, University of Missouri at Rolla, Rolla, MO., February 7, 2002.
 36. From anaerobic waste treatment to bioaerosol testing: interfacing molecular tools with environmental engineering. Department of Civil and Environmental Engineering, University of Wisconsin-Madison, Madison, WI, July 25, 2001.
 37. From anaerobic waste treatment to bioaerosol testing: interfacing molecular tools with environmental engineering. Environmental Engineering Science Program, Washington University in St. Louis, St. Louis, MO, July 19, 2001.
 38. From anaerobic waste treatment to bioaerosol testing: interfacing molecular tools with environmental engineering. Department of Civil and Environmental Engineering and Center for Environmental Biotechnology, University of Tennessee at Knoxville, Knoxville, TN, July 9, 2001.

Invited Conference Presentations

1. Bacterial community structure predicts function in full-scale bioenergy systems, First international symposium on Microbial Resource Management in Biotechnology: Concepts & Applications – scientific honorary farewell to Prof. Willy Verstraete, June 30-July 1, 2011, Ghent, Belgium.

2. Quorum sensing regulates electric current generation of *Pseudomonas aeruginosa* PA14 in bioelectrochemical systems, North American BioElectric Systems Meeting (NABESM), October 11-13, 2010, Amherst, MA.
3. Undefined mixed cultures to convert wastes into energy with engineered systems, 2nd International Conference on Ambient Sanitation Engineering, July 18-21 2010, Fortaleza, Brazil.
4. Quorum sensing regulates electric current generation of *Pseudomonas aeruginosa* PA14 in bioelectrochemical systems, 2010 ACS Northeast Regional Meeting, June 3-5 2010, Potsdam, NY.
5. Quorum sensing regulates electric current generation of *Pseudomonas aeruginosa* PA14 in bioelectrochemical systems – 239th ACS national meeting, March 21-25, 2010, San Francisco, CA.
6. Integrating BES in wastewater and sludge treatment flows – Second International Microbial Fuel Cell Conference on Waste to Energy, June 10-12, 2009, Gwangju Institute of Science and Technology (GIST), Gwangju City, The Republic of Korea.
7. Recovery of water in the corn-to-ethanol industry by integrating anaerobic digestion – Sixth International Starch Technology Conference, May 31-June 3, 2009, University of Illinois at Urbana-Champaign, Urbana, IL.
8. Conversion of organic waste to bioenergy. Alexander von Humboldt Foundation and U.S. National Academy of Sciences: 14th German-American Frontiers of Science Symposium, June 11-14, 2008, Potsdam, Germany.
9. Electric power generation from municipal, food, and animal wastewaters using microbial fuel cells. Microbial Fuel Cells - First International Symposium, Penn State University, May 27-29, 2008.
10. The Upflow Microbial Fuel Cell for wastewater treatment and electricity generation. The Knowledge Foundation's 8th Annual International Symposium on Small Fuel Cells, April 2 - 4, 2006, Washington DC, USA
11. Improving the power output of a continuously-fed microbial fuel cell. 2006 Pacific Rim Summit on Industrial Biotechnology and Bioenergy, January 11-13, 2006, Honolulu, HI.
12. Microbial fuel cells to simultaneously treat wastewater and produce electricity. 2005 Joint Meeting of the Missouri Branch of the American Society for Microbiology (ASM) and the Midwest Microbiology Educators, April 8, 2005, St. Louis MO.
13. Anaerobic migrating blanket reactor system. At: 35th annual ASCE environmental and water resources design conference, April 2-3, 1997, Iowa City, Iowa, USA.
14. Anaerobic migrating blanket reactor. At: 41st Great plains waste management conference, March 27, 1997, Omaha, Nebraska, USA.
15. Principles of the anaerobic migrating blanket reactor. At: 10th forum for applied biotechnology, 26-27 September, 1996, Gent University, Brugge, Belgium.

Papers in Conference Proceedings

1. Werner J. J., Knights D. B., Garcia M. L., Scalfone N., Cummings T. A., Beers A. R., Knight R. and Angenent L. T.* (2010). Phylogenetic dynamics of bacterial communities in a time series of nine full-scale granular upflow digesters treating brewery wastewater. In: *Proc. of the 12th World Conference on Anaerobic Digestion*, October 31-November 4, 2010, Guadalajara, Mexico.
2. Perkins S. D., Scalfone N. B. and L. T. Angenent L. T.* (2010). Comparative 16S rRNA gene surveys of granular sludge from three upflow anaerobic bioreactors treating purified terephthalic acid (PTA) wastewater. In: *Proc. of the 12th World Conference on Anaerobic Digestion*, October 31-November 4, 2010, Guadalajara, Mexico.

3. Wiratni* and Angenent L. T. (2010). Improved design of low-cost anaerobic digesters for household biogas production in Indonesian rural areas. In: *Proc. of the Chemeca 2010 annual conference*, September 26–29, 2010, Adelaide, Australia.
4. Rosenbaum M. and Angenent L. T.* (2009). A microbial fuel cell laboratory for freshmen undergraduate students. In: *Proc. of the 8th World Conference on Chemical Engineering*, August 23-27, 2009, Montréal, Quebec, Canada.
5. Rosenbaum M., Agler M. T., Fornero J. J., Venkataraman A. and Angenent L. T.* (2009). Integrating BES in wastewater and sludge treatment flows. In: *Proc. of the 2nd International Microbial Fuel Cell Conference on Waste to Energy*, June 10-12, 2009, Gwangju Institute of Science and Technology (GIST), Gwangju City, The Republic of Korea.
6. Rosenbaum M.*, Cotta M. A. and Angenent L. T. (2009). Efficiencies of bio-electrocatalytic production of hydrogen from lactate using *Shewanella oneidensis* MR-1. In: *Proc. of the 2nd International Microbial Fuel Cell Conference on Waste to Energy*, June 10-12, 2009, Gwangju Institute of Science and Technology (GIST), Gwangju City, The Republic of Korea.
7. Agler M. T., Wrenn B. A. and Angenent L. T.* (2009). Recovery of water in the corn-to-ethanol industry by integrating anaerobic digestion. In: *Proc. of the 6th International Starch Technology Conference*, May 31-June 3, 2009, University of Illinois at Urbana-Champaign, Urbana, IL.
8. Garcia M. L., Dryden S. K. and Angenent L. T.* (2007). Swine waste treatment with anaerobic sequencing batch reactors: performance and microbial community. In: *Proc. of the 2007 IWA, anaerobic digestion in mountain area and isolated rural zones workshop*, June 5-7, 2007, Chambéry, France.
9. He Z.* and Angenent L.T. (2006). Upflow microbial fuel cell operation without a proton exchange membrane. In: *Proc. of the International Water Association World Water Congress and Exhibition*, September 10-14, 2006, Beijing, China.
10. Hoffmann R.*, Garcia M. L., Veskivar M., Varma R., Karim K., Al-Dahhan M. H. and Angenent L. T. (2005). Effect of shear on performance and microbial ecology of completely-stirred anaerobic digesters treating animal manure. In: *Proc. of the Animal Agriculture and Processing: Managing Environmental Impacts Conference*, Aug. 31 – Sept. 2, 2005, St. Louis, MO, Air and Waste Management Association and Water Environment Federation.
11. Angenent L. T.*, Sung S. and Raskin L. (2002). Methane yield and methanogen levels of ASBR systems treating swine waste: effect of different inocula. In: *Proc. of the VII Latin American Workshop and Symposium on Anaerobic Digestion (LAAD2002)*, October 22-25, Mérida, Yucatán, Mexico, pp. 253-260, International Water Association, London, UK.
12. Daugherty B. J.*, Mori Y., Angenent L. T., Agbisit R., Rausch K., Tumbleson M. and Raskin L. (2002). Using biological processes to recover sulfur from corn processing industry waste streams. In: *CD-rom of the WEFTEC '02*, September 30 - October 3, 2002, Chicago, Illinois USA, Water Environment Federation, Alexandria, Virginia, USA.
13. Angenent L. T.*, Mau M., Jindal A., George U., Zahn J. A. and Raskin L. (2001). Monitoring antibiotic resistance in biological waste treatment systems. In: *CD-rom of the WEFTEC '01*, Molecular Techniques Session, October 13-17, 2001, Atlanta, Georgia, USA, Water Environment Federation, Alexandria, Virginia, USA.
14. Angenent L. T.*, Sung S. and Raskin, L. (2001). Mixing intensity in anaerobic sequencing batch reactor affects reactor performance and microbial community structure. In: *Proc. of the Anaerobic Digestion 9th World Congress*, Part 1, pp. 267-274, September 2-6, 2001, Antwerp, Belgium. International Water Association, London, UK.
15. Angenent L. T., Sung S. and Raskin, L. (2001). Methanogenic population dynamics during startup of a full-scale anaerobic sequencing batch reactor treating swine waste. In: *Proc. of the Anaerobic Digestion 9th World Congress*, Part 2, pp. 365-368, September 2-6, 2001, Antwerp, Belgium. International Water Association, London, UK.

16. Angenent L. T.*, Banik G. C. and Sung S. (2000). Psychrophilic anaerobic pretreatment of low-strength wastewater using the anaerobic migrating blanket reactor. In: *CD-rom of the WEFTEC'00*, October 14-18, 2000, Anaheim, California, USA, Water Environment Federation, Alexandria, Virginia, USA.
17. Angenent L. T.*, Sung S. and Raskin L. (1999). Phosphorus removal and recovery from swine waste: Results of pretreatment with ASBRs. In: *CD-rom of the WEF Animal Residuals Management Conference*, November 14-16, 1999, Crystal City, Virginia, USA, Water Environment Federation, Alexandria, Virginia, USA.
18. Angenent L. T.*, Mau M., Zheng D., Sung S. and Raskin L. (1999). Microbial structure of granules and *Methanosaeta* fibers in anaerobic migrating blanket reactors. In: *Proc. of the IAWQ/IWA Conference on Biofilm Systems*, pp. 88-91, October 17-20, 1999, New York, New York, USA, International Association on Water Quality/International Water Association, London, UK.
19. Angenent L. T.*, Sung S. and Raskin L. (1999). Phosphorus removal and recovery from the effluent of an anaerobic sequencing batch reactor treating swine waste. In: *CD-rom of the WEF/Purdue Industrial Waste Technical Conference*, June 27-30, 1999, Indianapolis, Indiana, USA, Water Environment Federation, Alexandria, Virginia, USA.
20. Angenent L. T.*, Sung S. and Dague R. R. (1997). Start-up and granulation of the anaerobic migrating blanket reactor (AMBR). In: *Proc. of the WEFTEC'97*, No. 1, pp. 113-124, October 18-22, 1997, Chicago, Illinois, USA, Water Environment Federation, Alexandria, Virginia, USA.
21. Angenent L. T.*, Sung S. and Dague R. R. (1997). Start-up of the anaerobic migrating blanket reactor (AMBR) seeded with primary digester sludge. In: *Proc. of the AFS97; Advances in Filtration and Separation Technology*, (Edited by Bauman E. R. and Weisert L.), Vol. 11, pp. 602-607, April 29-May 2, 1997, Minneapolis, Minnesota, USA, The American Filtration and Separations Society, Northport, Alabama, USA.
22. Angenent L. T., Sung S. and Dague R. R. (1997). Granulation and start-up of the anaerobic migrating blanket reactor process. In: *Proc. 8th International Conference on Anaerobic Digestion*, Sendai, Japan, May 1997, No. 3, pp. 182-185.
23. Flamming J. J.*, Angenent L. T., Sung S. and Dague R. R. (1997). Treatability studies of a combined industrial wastewater stream using the anaerobic migrating blanket reactor. In: *Proc. of 52nd Purdue Industrial Waste Conference* (Edited by Alleman J. E. and Butz R.), pp. 289-303, May 5-7, 1997, Ann Arbor Press, Chelsea, Michigan, USA.
24. Angenent L. T.* and Dague R. R. (1996). Initial studies on the anaerobic migrating blanket reactor. In: *Proc. of 51st Purdue Industrial Waste Conference* (Edited by Dalton C. S. and Wukasz R. F.), pp. 271-288, May 6-8, 1996, Purdue University, West Lafayette, Indiana, USA, Ann Arbor Press, Chelsea, Michigan, USA.
25. Angenent L. T.* and Dague R. R. (1995). A laboratory-scale comparison of the UASB and ASBR processes. In: *Proc. of 50th Purdue Industrial Waste Conference* (Edited by Dalton C. S. and Wukasz R. F.), pp. 365-377, May 8-10, 1995, Purdue University, West Lafayette, Indiana, USA, Ann Arbor Press, Chelsea, Michigan, USA.
26. Angenent L. T.* and Dague R. R. (1996). Principles of the anaerobic migrating blanket reactor. In: *Med. Fac. Landbouww. Univ. Gent*, Vol. 61, No. 4b, pp. 2077-2084.

* Presenter for podium presentation

Abstracts and Posters at Conferences

1. Richter R. and Angenent L. T. (2012). Syngas fermentation for liquid biofuels. SIMB 34th Symposium on Biotechnology for Fuels and Chemicals, April 30 - May 3, New Orleans, LA.

2. Usack J. G., Gooch C. A. and Angenent L. T. (2012). Anaerobic co-digestion of dairy waste with three organic co-substrate types. Got Manure? Enhancing Environmental and Economic Sustainability AgSTAR Conference, March 27-29, 2012, Syracuse, NY.
3. Spirito C. M., Wittman J. K. and Angenent L. T. (2012). Effect of the antibiotic monensin on the stability of manure-based anaerobic digesters. Got Manure? Enhancing Environmental and Economic Sustainability AgSTAR Conference, March 27-29, 2012, Syracuse, NY.
4. Angenent L. T.*, Agler M. T., Werner J. J., Heger S., Hollert H., Dien B. S., Iten L. B. and Cotta M. A. (2011). The effect of different lignocellulosic pretreatment methods on diverse microbial consortiums in a bioprocess step to generate fuel precursors. SETAC North America 32nd Annual Meeting, November 13-17, Boston, MA.
5. Heger S.*, Bluhm K., Brinkmann M., Winkens K., Schneider A., Wollenweber M., Maletz S., Wölz J., Agler M. T., Angenent L. T., Seiler T. B. and Hollert H. (2011). What's up inside the reactor - Biotests for risk assessment of biofuel fermentation. SETAC North America 32nd Annual Meeting, November 13-17, Boston, MA.
6. Richter H., Qureshi N., Dien B., Cotta M.A. and Angenent L.T. (2011). Long-term conversion of n-butyrate to n-butanol with *Clostridium saccharoperbutylacetonicum* using a two-stage continuous culture and *in-situ* product removal. SIM annual meeting and exhibition, July 24-28, 2011, New Orleans, USA.
7. Venkataraman A., Li Z., Rosenbaum M. A. and Angenent L. T.* (2011). *Pseudomonas aeruginosa* – A model organism for understanding ecological networks in bioelectrochemical systems. 3rd International Microbial Fuel Cell Conference, June 6-8, Leeuwarden, The Netherlands.
8. Rosenbaum M. A., Bar H. Y., Beg Q. K., Segrè D., Booth J., Cotta M. A. and Angenent L. T. (2011). Transcriptional profiling of *Shewanella oneidensis* with an electrode, iron(III)-citrate, or oxygen as the electron acceptor. 3rd International Microbial Fuel Cell Conference, June 6-8, Leeuwarden, The Netherlands.
9. Heger S., Winkens K., Schneider A., Wollenweber M., Brinkmann M., Maletz S., Wölz J., Bluhm K., Agler M. T., Seiler T. B., Angenent L. T. and Hollert H. (2011). What's up inside the reactor - biotests for risk assessment of biofuel fermentation. 21th Annual Meeting SETAC Europe, May 14-19, 2011, Milan, Italy.
10. Friedman E. S.*, Lee A., Rosenbaum M. A. and Angenent L.T. (2010). Remote *in-situ* chronoamperometric monitoring of bacterial respiration in arctic peat soils. North American BioElectric Systems Meeting (NABESM), October 11-13, 2010, Amherst, MA.
11. TerAvest M. A.*, Rosenbaum M. A. and Angenent L. T. (2010). Characterizing the effect of microaerobic conditions on *Shewanella oneidensis* in bioelectrochemical systems. North American BioElectric Systems Meeting (NABESM), October 11-13, 2010, Amherst, MA.
12. Rosenbaum M. A.*, Bar H. Y., Beg Q., Booth J., Segrè D., Cotta M. A. and Angenent L. T. (2010). Transcriptional profiling of *Shewanella oneidensis* with an electrode, iron(III)-citrate, and oxygen as the electron acceptor. North American BioElectric Systems Meeting (NABESM), October 11-13, 2010, Amherst, MA.
13. Villano M., Rosenbaum M., Aulenta F., Majone M., Angenent L. T. (2010). Production of gaseous or liquid value-added products in bioelectrochemical systems. 14th International Biotechnology Symposium and Exhibition, September 14-18, 2010, Rimini, Italy.
14. Rosenbaum M.*, Bar H. Y., Beg Q., Booth J., Segrè D., Cotta M. A. and Angenent L. T. (2010). Transcriptional profiling of *Shewanella oneidensis* with an electrode, iron(III)-citrate, and oxygen as the electron acceptor. 2010 ACS Northeast Regional Meeting, June 3-5 2010, Potsdam, NY.
15. Richter H., Qureshi N., Cotta M. A. and Angenent L. T. (2010). Producing butanol from syngas with hollow fiber bioreactors. Northeast Sun Grant 2010 Regional Conference. May 24-26 2010, Syracuse, NY.

16. Agler M. T.*, Iten L. B., Cotta M. A., Dien B. S. and Angenent L. T. (2010). Toward narrowing fermentation endproduct distribution in mixed culture anaerobic conversion of lignocellulosic corn fiber to n-butyrate. 2010 Cornell Engineering Research Conference, March 17 2010, Ithaca, NY.
17. Werner J. J.*, Garcia M. L., Perkins S. D., Smith S. R., Muegge M. D., Gordon J. I. and Angenent L. T. (2010). Stability of microbial communities in mesophilic anaerobic digesters. Institute for Biological Engineering 2010 Annual Conference. March 4-6, 2010, Boston, MA.
18. Agler M. T.*, Iten L. B., Qureshi N., Cotta M. A., Dien B. and Angenent L. T. (2010). Toward narrowing endproduct distribution in nondefined mixed culture anaerobic conversion of lignocellulosic corn Fiber to n-butyrate. Institute for Biological Engineering 2010 Annual Conference. March 4-6, 2010, Boston, MA.
19. Venkataraman A.*, Rosenbaum M., Arends J. B. A. and Angenent, L. T. (2010). Quorum sensing regulates electric current generation of *Pseudomonas aeruginosa* PA14 in bioelectrochemical systems. Institute for Biological Engineering 2010 Annual Conference. March 4-6, 2010, Boston, MA.
20. Rosenbaum M.*, Venkataraman A., Li R. L., Cotta M. A. and Angenent L.T. (2010). Oxygen – Enemy or Friend for Microbial Fuel Cell Anode Performance? Institute for Biological Engineering 2010 Annual Conference. March 4-6, 2010, Boston, MA.
21. Richter H.*, Qureshi N., Cotta M. A. and Angenent L. T. (2010). Conversion of n-butyrate to n-butanol with continuous fermentation. Institute for Biological Engineering 2010 Annual Conference. March 4-6, 2010, Boston, MA.
22. Li R. L., Rosenbaum M. and Angenent L. T. (2010). Performance of *Shewanella oneidensis* in a microbial fuel cell as a function of the dissolved oxygen concentration. Institute for Biological Engineering 2010 Annual Conference. March 4-6, 2010, Boston, MA.
23. Heger S., Bluhm K., Brinkmann M., Winkens K., Schneider A., Wollenweber M., Maletz S., Wölz J., Agler M. T., Seiler T. B., Angenent L. T. and Hollert H. (2010). What's up inside the reactor – Biotests for risk assessment of biofuel fermentation. 20th Annual Meeting SETAC Europe, May 23-27, 2010, Seville, Spain.
24. Lipson D., Mauritz M., Bozzolo F., Raab T. K., Santos M. J., Friedman E. S., Rosenbaum M., Angenent L. T. (2009). Seasonal and spatial variation in soil chemistry and anaerobic processes in an Arctic ecosystem. American Geophysical Union Fall Meeting, December 14-18, 2009, San Francisco, CA.
25. Heger S., Winkens K., Schneider A., Wollenweber M., Brinkmann M., Maletz S., Wölz J., Bluhm K., Agler M. T., Seiler T. B., Angenent L. T. and Hollert H. (2009). Assessing the ecotoxicological effects of bioenergy extraction processes. 30th Annual Meeting SETAC North America, November 19-23, 2009, New Orleans, Louisiana, USA.
26. Raab T. K., Lipson D. A., Friedman E. S., Rosenbaum M. and Angenent L. T. Iron-cold iron-is master of them all: consequences of microbial iron-reduction for soil organic matter in coastal arctic tundra. 17th Arctic Conference, University of Colorado at Boulder, November 13-14, 2009.
27. Fornero J. J., Rosenbaum M., Cotta M. A. and Angenent L. T. (2009). Ion exchange membrane influence on ohmic resistance. 2nd International Microbial Fuel Cell Conference on Waste to Energy, June 10-12, 2009, Gwangju Institute of Science and Technology (GIST), Gwnagju City, The Republic of Korea.
28. Heger S., Winkens K., Schneider A., Brinkmann M., Maletz S., Wölz J., Agler M. T., Angenent L. T., Seiler T. B. and Hollert H. (2009). Assessing the ecotoxicological effects of bioenergy extraction processes. 2009 Europe Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), 31 May - 4 June, 2009, Gothenburg, Sweden.
29. Venkataraman A., Arends J. B. A., Rosenbaum M. and Angenent L. T. (2009). *Pseudomonas aeruginosa* in bioelectrochemical systems (BESS) - a characterization of mutants. 109th

- General Meeting of the American Society of Microbiology, May 17-21, 2009, Philadelphia, PA.
30. Rosenbaum M.*, Barron B., Balcerzak P. and Angenent L.T. (2009). Microbial fuel cells as versatile science teaching tools. 2009 Institute of Biological Engineering IBE Annual Conference, March 19-21 2009, Santa Clara, CA.
 31. Agler M. T.*, Iten L. B., Qureshi N., Cotta M. A., Dien B. and Angenent L. T. (2009). Use of nondefined mixed cultures for anaerobic conversion of lignocellulosic corn fiber to n-butyrate. 2009 Institute of Biological Engineering IBE Annual Conference, March 19-21 2009, Santa Clara, CA.
 32. Agler M. T., Iten L. B., Qureshi N., Cotta M. A., Dien B. and Angenent L. T. (2008). Mixed-community bioreactors to convert (ligno)cellulosic feedstocks into liquid biofuels. 2008 Northeast Renewable Energy Conference. August 26-28, 2008, State College, PA.
 33. Fornero J. J., Rosenbaum M., Cotta M. A. and Angenent L. T. (2008). Microbial fuel cell performance with a pressurized cathode. Microbial Fuel Cells-First International Symposium. May 26-29, 2008, Pennsylvania State University, State Collage, PA.
 34. Rosenbaum M., Cotta M. A. and Angenent L. T. (2008). Synergetic effects of microbial binary cultures on microbial fuel cell performance. Microbial Fuel Cells-First International Symposium, May 26-29 2008, Pennsylvania State University, State Collage, PA.
 35. Rosenbaum M., Frawley E. R., Lee R. E., Angenent L. T. and Kranz R. G. (2008). Recombinant engineering of *Shewanella oneidensis* MR-1 c-type cytochromes in *Escherichia coli*. 108th General Meeting of the American Society for Microbiology, June 1-5 2008, Boston, MA.
 36. Perkins S. D., Mayfield J., Fraser V. and Angenent L. T. (2008). Effectiveness of membrane-integrated filters to decrease microbial counts in shower-generated aerosols on a blood and marrow transplant unit. 2008 Annual Scientific Meeting of the Society for Healthcare Epidemiology of America. April 5-8, 2008, Orlando, FL.
 37. Garcia M. L.*, Dryden S. K. and Angenent L. T. (2008). Treating swine waste with anaerobic sequencing batch reactors: performance and microbial community. 2008 Institute of Biological Engineering Annual Meeting, March 6-9, 2008, Chapel Hill, NC.
 38. Agler M. T.*, Garcia M. L. and Angenent L. T. (2008). Conversion of thin stillage from corn-to-ethanol dry mills into biogas to offset natural gas consumption. 2008 Institute of Biological Engineering Annual Meeting, March 6-9, 2008, Chapel Hill, NC.
 39. Rosenbaum M., Cotta M. A. and Angenent L. T. (2008). Teamwork in microbial fuel cells: symbiotic conversion of sugars into electricity. Gordon Research Conference on Electrochemistry, January 14-19, 2008, Ventura, CA.
 40. He Z., Martens E.C., Gordon J. I. and Angenent L. T. (2007). Functional genomic studies of electricity generation by *Bacteriodes thetaiotaomicron*. 2007 Institute of Biological Engineering Annual Meeting, March 30-April 1, 2007, St. Louis, MO.
 41. Dryden S. K.*, Ramaswami B., Yuan Z., Giammar D. E. and Angenent, L. T. (2007). Coliphages to Trace Fecal Pollution in the Table Rock Watershed. 2007 MWEA-AWWA Joint Annual Meeting, March 25-28, 2007, Osage Beach, MO.
 42. He Z. and Angenent L. T. (2006). Selecting a microbiota with a high electron transfer rate in the Upflow Microbial Fuel Cell (UMFC). 106th General Meeting of the American Society for Microbiology, Orlando, FL, May 21-25, 2006.
 43. Steinhaus B., Garcia M. L., Shen A. Q. and Angenent L. T. (2006). Using microfluidics to study the optimal growth conditions of pure cultures of *Methanosaeta concilii*. 106th General Meeting of the American Society for Microbiology, Orlando, FL, May 21-25, 2006.
 44. He Z. and Angenent L. T.* (2006). The Upflow Microbial Fuel Cell: simultaneous electricity generation and wastewater treatment. ICE, International Conference on Bioenergy: From Concept to Commercial Processes, Tomar, Portugal March 5-10, 2006.

45. Steinhaus B.*, Shen A. and Angenent L. (2005). Growth and analysis of anaerobic wastewater methanogens using microfluidics. 58th Meeting of the Division of Fluid Dynamics, November 20-22, Chicago, IL, American Physical Society, College Park, MD.
46. Kettleson E. M.*, Ramaswami B., Hogan Jr. C. J., Lee M., Biswas P., and Angenent L. T. (2005). Inactivation of virus aerosol particles in an electrostatic precipitator. 24th Annual Conference, pp.108, October 17-21, 2005, Austin, TX, American Association for Aerosol Research (AAAR), Mt. Laurel, NJ.
47. Giammar D.*, Yuan Z., Ramaswami B., Falke S., Angenent L., and Casaletto D. (2005). Evaluation of chemical and biological indicators for centralized and decentralized wastewater treatment source inputs at Table Rock Lake. 2005 Missouri Water Environment Association Annual Meeting, March 19-22, 2005, Osage Beach, MO.
48. Hoffmann R., Veskivar M., Varma R., Karim K., Angenent L. T., and Al-Dahhan M. H.* (2005). Effect of shear on performance and microbial community in anaerobic digesters treating cow manure. Fifth International Chemical Engineering Conference, Sept. 12-15, 2005, Amman, Jordan.
49. Angenent, L. T.*, Kettleson E. M., Hogan Jr. C. J., Lee M., Biswas P. (2005). Viral capture and inactivation with a soft X-ray enhanced corona system. Regional Centers for Biodefense and Emerging Infectious Diseases Research, second annual meeting, March 13-15, 2005, Western RCE, Galveston, TX.
50. Rauer D., Turner J. R. and Angenent L. T. (2004). Ambient biological particulate matter characterization at the St. Louis Midwest Supersite. 23rd Annual Conference, Atlanta, Georgia, October 4-8, 2004, American Association for Aerosol Research (AAAR), Mt. Laurel, NJ.
51. Kettleson E. M., Hogan Jr. C. J., Ramaswami B., Lee M., Biswas P., and Angenent L. T. (2004). Capture and inactivation of viral bioaerosols using an X-ray enhanced electrostatic precipitator. 23rd Annual Conference, Atlanta, Georgia, October 4-8, 2004, American Association for Aerosol Research (AAAR), Mt. Laurel, NJ.
52. Briones A*, Daugherty B. J., Angenent L. T., Rausch K., Tumbleson M. and Raskin, L. (2004) Microbial community diversity, dynamics, and interactions in anaerobic bioreactors treating sulfate-rich waste streams. 10th International Symposium on Microbial Ecology (ISME), Cancun, Mexico, August 22-27, 2004, International Society for Microbial Ecology, Geneva, Switzerland.
53. Ley R. E. and Angenent L. T. (2004). Enrichment of hydrogen-utilizing microorganisms from hypersaline microbial mats with a hollow-fiber bioreactor. 104nd General Meeting, New Orleans, LA, May 23-27, 2004, American Society for Microbiology, Washington, DC, USA.
54. Angenent L. T., Clarke L., Robinson A. and Hernandez M.* (2003). Occurrence of primary biological materials in the atmosphere: protein, carbohydrate and endotoxin associations with particulate matter in temperate region urban aerosols. 22th Annual AAAR Conference, October 20-24, 2003, Anaheim, California, USA, American Association for Aerosol Research, Cincinnati, Ohio, USA.
55. Angenent L. T., Kujundzic E., Zander D. A., Henderson D. E., Miller S. L. and Hernandez, M. T.* (2002). Bioaerosol and airborne particulate matter mitigation using hybrid HEPA-UV filter units in a high-exposure environment. 21th Annual AAAR Conference, October 7-11, 2002, Charlotte, North Carolina, USA, American Association for Aerosol Research, Cincinnati, Ohio, USA.
56. Angenent L. T. (2002). A senior, group-based design project of an expanding wastewater treatment plant. Proceedings of the ASEE Summer School Poster Session, Effective Teaching Strategies. July 27-August 1, 2002, Boulder, Colorado, American Society for Engineering Education, Washington, DC, USA.
57. Raskin L.*, Rausch K. D., Tumbleson M. E., Daugherty B. J., Angenent L. T., Agbisit R. M. and Belyea R. L., Nutrient Recovery from Food Processing Industry Waste Streams. 2002

- Corn Utilization and Technology Conference, June 3-5, 2002, Kansas City, MO, Corn Refiners Association and National Corn Growers Association, St. Louis, Missouri, USA.
58. Agbisit R. M., Daugherty B. J., Angenent L. T., Belyea R. L., Clevenger T. E., Raskin L., Rausch K. D. and Tumbleson M. E. (2002). Recovery of nutrients in the corn wet milling process. 2002 Corn Utilization and Technology Conference, June 3-5, 2002, Kansas City, MO, Corn Refiners Association and National Corn Growers Association, St. Louis, Missouri, USA.
 59. Jindal A., Robert M., Zahn J., Angenent L., Aminov R., Funk T., Mackie R. and Raskin L. (2002). Antimicrobials and antimicrobial resistance in swine waste treatment processes. 102nd General Meeting, Salt Lake City, Utah, May 19 - 23, 2002, American Society for Microbiology, Washington, DC, USA.
 60. Angenent L. T., Kelley S. T., Pace N. R. and Hernandez, M. T.* (2001). Characterization of bioaerosols in a high exposure environment using direct microscopy, genetic amplification (PCR), and molecular cloning. 20th Annual Conference, October 15-19, 2001, Portland, Oregon, USA, American Association for Aerosol Research, Cincinnati, Ohio, USA.
 61. Agbisit R. M., Daugherty B., Belyea R. L., Angenent L., Raskin L. M., Rausch K. D. and Tumbleson M. E. (2001). Recovery of nutrients in the corn wet milling process. 2001 AACC annual meeting, October 14-17, 2001, Charlotte, North Carolina, USA. American Association of Cereal Chemists, St. Paul, Minnesota, USA.
 62. Rausch K. D., Thompson C. I., Belyea R. L., Plata H., Angenent L. T. and Raskin L. (2000). Variation in composition of coproducts and wastewater from a commercial wet milling facility. 2000 Corn Utilization and Technology Conference, June 5-7, 2000, St. Paul, Minnesota, USA, Corn Refiners Association and National Corn Growers Association, St. Louis, Missouri, USA.
 63. Frigon D., Angenent L. T., Zheng D. and Raskin L. (2000). Filamentous bacteria grow in upflow anaerobic sludge blanket reactors at high loading. 100th General Meeting, May 21-25, Los Angeles, California, USA, American Society for Microbiology, Washington, DC, USA.
 64. Oerther D.B.*, Angenent L. T. and Raskin L. (2000). Biological treatment of food processing waste streams. Environmental Horizons 2000, March 27-28, 2000, The Environmental Council, Urbana, IL, USA.
 65. Mau M.*, Angenent L. T., George U. and Raskin L. (2000). Monitoring antibiotic resistance during swine waste treatment using oligonucleotide probes targeting the MLS_B resistance determinant in the 23S rRNA. Microbiology_2000, March 12-16, München, Germany, VAAM, DGHM, ÖGHMP.
 66. Angenent L. T., Mau M., George U. and Raskin L. (1999). Culture-independent monitoring of changes in translation-antibiotic resistance during swine waste treatment using oligonucleotide probes targeting the functional region of 23S rRNA. *MMME99*, August 1-3, Urbana, Illinois, USA, Midwest Molecular Microbial Ecology Meeting.
 67. Mau M., Angenent L. T., George U. and Raskin L. (1999). Culture-independent monitoring of changes in translation-antibiotic resistance during swine waste treatment using oligonucleotide probes targeting the functional region of 23S rRNA. 99th General Meeting, May 30-June 3, Chicago, Illinois, USA, American Society for Microbiology, Washington, DC, USA.
 68. Zheng D.*, Angenent L. T., Sung S, and Raskin L. (1998). Microbial community structure in an anaerobic migrating blanket reactor. Eight International Symposium on Microbial Ecology, August 9-14, 1998, Halifax, Nova Scotia, Canada.
 69. Zheng D., Angenent L. T., Sung S, and Raskin L.* (1998). Microbial population dynamics in wastewater treatment systems. Environmental Horizons 1998, April 21, 1998, The Environmental Council, Urbana, IL, USA.

* Presenter for podium presentation

Invited Webinar Presentation

Microbial Fuel Cells, Interactive Web Conference, 3pm-4:30pm, July 29th, 2010.

Courses Taught at Cornell University

<i>Number</i>	<i>Name</i>	<i>Co-Taught With</i>	<i>Semester</i>
BEE6570	Mixed Culture Engineered Systems: Bioenergy and Microbial Ecology		Spring 2010
BEE4870			Spring 2012
	Sustainable Bioenergy Systems		Fall 2009
			Fall 2010
			Fall 2011

Courses Taught at Washington University

<i>Number</i>	<i>Name</i>	<i>Co-Taught With</i>	<i>Semester</i>
ChE 351	Engineering Analysis of Chemical Systems		Fall 2005
			Fall 2006
			Fall 2007
ChE 146A	Modern Technological Challenges	4 others	Fall 2004
		3 others	Fall 2005
		3 others	Fall 2006
		Jay Turner	Fall 2007
ChE/ENVE/CE 408/508	Environmental Engineering Laboratory	Brian Wrenn	Spring 2004
		Brian Wrenn	Spring 2005
		Brian Wrenn	Spring 2006
			Spring 2008
ChE/ENVE 450-A/550-A	Engineering and Molecular Biology Techniques		Fall 2003
			Fall 2004
ChE/ENVE 523	Biological Treatment Processes		Spring 2003
			Spring 2005

Awards with Undergraduate Students

Robert D'Ambra, Jeremiah Joseph and Anthony Terrizzi, 1st place 2011 NABEC-ASABE Student Design Competition.

James Chiang, Mariel Eisenberg, Ivana Nitzova and Jessica Schmidt, 2nd place, 2011 NABEC-ASABE Student Design Competition.

Shane Rothmel and Scott Tucker, 2nd place, 2010 NABEC-ASABE Student Design Competition.

Short Courses and Other Teaching Activities

- Participated/lectured in workshops at the annual conference of the Water Environment Federation WEFTEC'03, WEFTEC'04, and WEFTEC'05: "FISHing in activated sludge",

- Los Angeles, CA, October 12, 2003, New Orleans, LO, October 3, 2004, and Washington, DC, October Oct 29- Nov. 2, 2005.
- Spring 1999: Instructor for graduate course: CE 442 - Processes for Water Quality Control, II (Dept. of Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign).

Teaching and Leadership Improvement Activities

Summer 2011	Participated in the Center for Sustainable Engineering (CSE) an NSF-sponsored workshop. This was organized by the Syracuse Center of Excellence in Environmental and Energy Systems (SyracuseCoE) and Syracuse University (SU), Syracuse, NY, May 26-27, 2011.
Summer 2010	Participated in the CALS Faculty Leadership Program. This was organized by the College of Agricultural Life Sciences, Trumansburg, NY, June 21-25, 2010.
Summer 2002	Participated in the 2002 Summer School for Chemical Engineering Faculty, Boulder CO, July 27-August 1, 2002. This was organized by the American Society for Engineering Education (ASEE), Chemical Engineering Division. Attended workshops on effective teaching.
Fall 1998-Spring 1999	Participated in a faculty development program at the University of Illinois at Urbana-Champaign: The Teaching College, organized by The Academy for Excellence in Engineering Education (AE ³). Attended year-long workshops on effective teaching.

Ph.D. Students Graduated

<i>Name</i>	<i>Work Period</i>	<i>Thesis Title</i>	<i>Placement</i>
Arvind Venkataraman	May 08-Nov. 11	The role of intraspecies and interspecies communication of <i>Pseudomonas aeruginosa</i> PA14 towards phenazine and production and virulence	Post-doc, University of Michigan in Ann Arbor, MI
Matt Agler	Jun. 06-Aug. 11	Improving performance and product specificity of the carboxylate platform for production of biochemicals	TBD
Jeff Fornero	Aug. 06-Aug. 09	Improving the cathode conditions by pressurizing and carbon dioxide addition to enhance the practicality of MFC treatment of wastewater	Chief Engineering of Electrochaea, LLC a start-up company in Missouri
Sarah Dryden Perkins	Aug. 04-Jan. 09	16S rRNA gene surveys to quantify pathogens in environmental bioaerosols	Post-Doc, Battelle, Indianapolis, IN
Marcelo Garcia	Jan. 04-Dec. 08	Improving the stability of anaerobic digesters for animal waste treatment	Assistant Professor, State University of Sao Paulo, Rio Claro, Brazil
Zhen (Jason) He	Aug. 03-Jun. 07	Microbial fuel cells: their application and microbiology	Assistant Professor, University of Wisconsin – Milwaukee, WI

Ph.D. Students at Present

<i>Name</i>	<i>Work Period</i>	<i>Research Topic</i>
Devin Doud	Aug. 10-	Optimizing growth of photosynthetic microorganisms in microfluidic photobioreactors
Michaela TerAvest	Aug. 09-	Biochemical methods to study exocellular electron transport in bioelectrochemical systems
Elliot Friedman	Jun. 09-	Potentiostat-controlled electrodes in the environment to monitor bacterial exocellular electron transfer in the environment

M.S. Students Graduated (With Thesis)

<i>Name</i>	<i>Work Period</i>	<i>Thesis Title</i>	<i>Placement</i>
Eric Kettleson	Aug. 03-Aug. 05	Capture and inactivation of virus aerosol using electrostatic precipitation	PhD candidate, Washington University in St. Louis, MO
Rebecca Hoffmann (co-advised with	May 03-May 05	The effect of shear on the performance and microbial ecology of anaerobic digesters treating cow manure	Horner & Shifrin, Inc. Engineers, St. Louis, MO

Muthanna Al-Dahhan)		from dairy farms	
Dan Rauer (co-advised with Jay Turner)	Jan. 03-Febr. 05	Characterization and monitoring of ambient biological PM _{2.5} at the St. Louis-Midwest Super site	Lab Technician, Bayer Corporation USA, Berkeley, CA

M.S. Students at Present (With Thesis)

<i>Name</i>	<i>Work Period</i>	<i>Research Project</i>	
Catherine Spirito	Jan. 11-	Optimizing the startup of digesters when fed dairy waste that includes antibiotics	
Joe Usack	June 10-	The effect of different organic waste feedstocks on manure digester performance	
José Miguel Perez	Aug. 09-Mar 12	Syngas fermentation	

Additional M.S. Students Graduated (Project Report)

<i>Name</i>	<i>Work Period</i>	<i>Report Title</i>	<i>Placement</i>
Bob Frost (MEng)	Aug. 10-May 11	House-hold digester for kitchen waste	Consultant, Hazen and Sawyer, New York City, NY
Adam Garnica (MPS)	Aug. 09-May 10	Toxicity of line lubricants in UASB bioreactor treatment of brewery waste	Law School, Cornell University
Ben Bocher (MS)	May 05-Dec. 06	Shear-enhanced anaerobic digestion of secondary biosolids from upflow anaerobic bioreactors	PhD student, Zitomer Lab, Marquette University, WI

Additional M.S. Students at Present (Project Report)

<i>Name</i>	<i>Work Period</i>	<i>Research Project</i>	
Sarah Clement	Aug. 11-Aug. 12	Slow pyrolysis of different biomass mixtures	
Christian Pichard	Aug. 11-Aug. 12	Economic analysis and life-cycle assessment of the carboxylate platform	

Post-Doctoral Researchers/Research Associates Supervised

<i>Name</i>	<i>Work Period</i>	<i>Thesis Title</i>	<i>Placement</i>
Jeffrey Werner	June 09-Aug. 2011	Stability in upflow anaerobic bioreactors	Assistant Professor, SUNY Cortland
Miriam Rosenbaum	March 07-May 11	Bioelectrochemical systems	Assistant Professor, RWTH-Aachen University, Germany
Sarah Dryden Perkins	Febr. 09-May 09	Syntrophic acetate oxidation in anaerobic digesters	Post-Doc, Battelle, Indianapolis, IN
Balathiagarán Ramaswami	April 04-May 05	Bacteriophages as indicators for human fecal contamination in Table Rock Lake, MO	Post-doc, University of Pittsburgh, PA

Post-Doctoral Researchers/Research Associates at Present

<i>Name</i>	<i>Work Period</i>	<i>Research Project</i>	
Hanno Richter	Nov. 08-	Conversion of n-butyrate into n-butanol with <i>Clostridium</i> spp.	

Technicians

<i>Name</i>	<i>Work Period</i>	<i>Research Project</i>	
Michael Martin	Dec. 11-Jul. 12	Syngas Fermentation	
Wendy Hoose (collaborating with the Georg Jander)	June 10-April 11	Genetically-modifying photosynthetic microorganisms	
Alex Lee	Jan. 10-June 10	Building cheap potentiostats	
Joe Usack	Dec. 09-May 10	Co-digestion of cow manure with lipid-rich wastes	
Nick Scalfone	Nov. 08-Jun. 09	16S rRNA gene surveys and FISH	

Visiting Scholars/Professor Hosted

<i>Name</i>	<i>Work Period</i>	<i>Research Project</i>	<i>Placement/Current Position</i>
Wei Zhang	Nov. 10-Nov. 11	Undefined mixed cultures in bioreactors and soil	Assistant Prof., North China Electric Power University
Zhongjian Li	Sept. 09-Sept. 11	Mechanisms of electron transfer in biofilms	PhD student, Zhejiang University, China
Nebiyu Merdekios (visiting MS student)	May 10-Aug. 10	Selective removal of caproate with pertraction	MS student, Wageningen University, The Netherlands

Sebastian Heger	June 10-Aug. 10	EcoTox studies for biofuels production	MS student, Technical University Aachen, Germany
Marianna Villano	Jan. 10-June 10	Making chemical products on the cathode	PhD student, Sapienza University of Rome, Italy
Wiratni	Jul. 09-Apr. 10	Low-tech anaerobic digester for farmers in Indonesia	Associate Professor, Gadjah Mada University, Indonesia
Renato Carrhá Leitão	Sept. 09-Nov. 09	Solids digestion	Researcher, Brazilian Agricultural Research Corporation (Embrapa)
Arjan Dekker (visiting MS student)	Jul. 09-Nov. 09	Selective removal of n-butyrate with pertraction and the effect on butyrate fermentation	MS student, Wageningen University, The Netherlands
Nathan Ball	Jun. 09-Aug. 09	Pure-culture studies in bioelectrochemical systems	MS student, KAUST, Saudi-Arabia
Brett Barron	Summer 07, 08, 09	MFC labs and kits for high-school students	Chemistry high-school teacher, Hazelwood Central High School District, MO
Amanda Scampini	April 09-May 09	Upflow anaerobic sludge blanket treatment of acidified brewery wastewater	MS student, MIT, MA
Khalidah Jafaar (Cornell Humphrey Fellow)	Sept. 08-April 09	Anaerobic digestion of date-palm waste	M.Eng. student, Cornell
Zeynep Aydinkaya (visiting MS student)	Jan. 08-Jan. 09	Anaerobic digestion of domestic wastewater in UASB and AMBR systems	MS student, Bogaziçi University, Turkey
Jan Arends (visiting MS student)	Oct. 07-April 2008	Mechanisms of exocellular electron transfer with knock-out strains of <i>Pseudomonas aeruginosa</i>	PhD student, Verstraete Lab, Gent University, Belgium
Erin Roades	Summer 07	Research Experience for Teachers project	Chemistry high-school teacher, Hazelwood Central High School District, MO
Young Whan Kim	Sept. 02-Sept. 04	Effect of sonification on sludge characteristics and methanogenic activity	Governmental Position, Busan, South-Korea

Visiting Scholars/Professors at Present

<i>Name</i>	<i>Work Period</i>	<i>Research Project</i>	<i>Placement/Current Position</i>
Shijian Ge	Sept. 11-May 13	Medium-chain carboxylate production and extraction	PhD student, Beijing University of Technology, China
Kyoung-Yeol Kim	Dec. 11-Jun. 12	Microfluidic bioelectrochemical sensor	PhD student, Gwangju Institute of Science and Technology (GIST), Republic of Korea

Rotation PhD Student Research Instruction

Supervised graduate students who rotated in my lab for a semester: Alex Esche (Fall 2010, BEE); Devin Doud (Spring 2010, Microbiology); Armanda Roco (Spring 2010, Microbiology); Hnin Aung (Fall 2008, BEE); Larry Page (Spring 2008, DBBS); Joost Groot (Fall 2007, EECE); Abhas Singh (Spring 2006, EECE).

Undergraduate Student Research Instruction

Supervised undergraduate students during regular academic semesters: Dylan Webster (Spring 2012-present, BEE); John (Jay) Schwalbe (Spring 2012-present, CEE); Walker Grimshaw (Spring 2012-present, CS); Sarah Loftus (Fall 2011-present, BEE); Dennis Zhou (Spring 2011, BEE); Brit Bergen (Spring 2011-present, BEE); Yong Uk Kim (Spring 2011, BEE); Hyung Mo (Peter) Kang (Spring 2011-Fall 2011, BEE); Jiaqing (Jack) Yi (Spring 2009-present, BEE); Roxanne Li (Spring 2009-Fall 2010, BEE); Kevin Wu (Spring 2009-Fall 2009, BEE); Vipul Borkar (Fall 2007-Spring 2009, EECE); Adam Webb (Fall 2007, EECE); James Wexler (Fall 2004-Spring 2007, EECE); David Hall (Spring 2005-Spring 2007, EECE); Ryan Mackin (Fall 2004-Spring 2006, EECE); Theresa Cummings (Spring 2006-Fall 2006, EECE); Liz Campbell (Fall 2004-Fall 2005, EECE); Kristian Kaufmann (Fall 2002-Spring 2003, EECE).

Supervised undergraduate students during 10-weeks as part of a NSF research experience for undergraduates (REU) program or other summer-intern program: Jiaqing (Jack) Yi (Summer 2010, BEE); Isaac Markus (Summer 2009, NNIN); Alex Lee (Summer 2009, BEE); Kevin Wu (Summer 2009, BEE);

Jiaqing (Jack) Yi (Summer 2009, BEE); Vipul Borkar (Summer 2009, EECE); Adam Webb (Summer 2007, EECE); Robert (Bobby) Levine (Summer 2007, EECE); Teri McClerklin (Summer 2006, EECE); James Wexler (Summer 2006, EECE); Rufe Lu (Summer 2005, EECE); David Hall (Summer 2005, EECE); Seth Forster (Summer 2004, EECE); Gabriel (Gabe) Trejo (Summer 2004, EECE); Richard (Memie) Ezike (Summer 2003, EECE); Scott Crothers (Summer 2003, EECE); Kristian Kaufmann (Summer 2003, EECE).

Ph.D. Committee Work – Cornell University

1. Michaela TerAvest (BEE) – A exam in September 2011, Chair
2. Elliot Friedman (BEE) – A exam in August 2011, Chair
3. Arvind Venkataraman (BEE) – completed B exam in November 2011, Chair
4. Rodrigo Labatut (BEE) – completed B exam in August 2011, Member
5. Matt Agler (BEE) – completed B exam in August 2011, Chair

Ph.D. Committee Work – Washington University

1. Jeff Fornero (EECE) – completed in August 2009, Chair
2. Sarah Dryden Perkins (EECE) – completed in January 2009, Chair
3. Marcelo Garcia (EECE) – completed in December 2008, Chair
4. Hui Zheng (EECE) – completed in December 2008, Member
5. Nicole Moore (Kohrt) (BME) – completed April 2008, Member
6. Rajneesh Varma (EECE) – completed in April 2008, Member
7. Shannon K. Alford (BME) – completed in April 2008, Member
8. Stephanie Willert (BME) – completed in March 2008, Member
9. Buck Samual (DBBS) – completed in June 2007, Member
10. Elizabeth Hansen (DBBS) – qualifying exam in June 2007, Member
11. Zhen He (EECE) - completed in June 2007, Chair
12. Bia Henriquez (EECE) – qualifying exam in April 2007, Member
13. Liyun Xie (EECE) – completed in January 2007, Member
14. Karyn Lynne Rogers (Earth and Planetary Sciences) – completed in August 2006, Member
15. Scott Crick (BME) – qualifying exam June 2006, Member
16. Mehul Veskiyar (EECE) – completed in May 2006, Member
17. Benjamin Steinhaus (ME) – completed in April 2006, Member
18. Huping Luo (EECE) – completed in April 2005, Member
19. Zhengkai Li (EECE) – completed in April 2005, Member
20. Jin-Ku Kim (BME) – completed in May 2005, Member
21. D’Arcy Renee Meyer-Dombard (Earth and Planetary Sciences) – completed in October 2004, Member

Ph.D. Committee Work – External

1. Ka Yu Cheng (Murdoch University, Australia) – completed in April 2010, Ad-hoc Member
2. Falk Harnisch (University of Greifswald, Germany) – completed in January 2009, Ad-hoc Member
3. Caitlyn Shea (Notre Dame University) – Member in Proposal Exam

German Habilitation Committee Work

1. Dr. Uwe Schröder (University of Greifswald, Germany) – completed in July 2007, Ad-hoc Member

Proposals and Projects Funded

<i>PI and co-PIs</i>	<i>Title</i>	<i>Granting Agency</i>	<i>Start & End Date</i>	<i>Angenent Funding</i>
Angenent	NA-ISMET meeting at Cornell University (Ithaca, NY)	Office of Naval Research	Jan. 12-Dec. 12	\$9,173.00

Angenent, Gooch	October 8-10, 2012 The effect of Rumensin (Monensin) on the stability of manure-based anaerobic digestion	Elanco/Eli Lilly	Dec. 10-June 12	\$115,000
Erickson, Angenent, Sinton	Thousandfold improvement in solar photobioreactors using advanced photonics	ACSF-Cornell	July 10-June 12	\$50,000 (direct costs)
Angenent	Producing butanol from syngas with hollow-fiber reactors	Northeast Sun Grant Initiative (NESGI)-DOT	July 10-June 12	\$150,000
Lehmann, Angenent, Fisher, Gouldin, Lee	Kenya Pyrolysis Project	Donor (Yossie Hollander) to Cornell University and ACSF	March 2010-Aug. 2014	\$648,053
Angenent, Jander	Engineering phototrophic bacteria to convert n-butyrate into n-butanol with sunlight	ACSF-Cornell	Feb. 10-Feb. 11	\$50,000
Gooch, Angenent	Anaerobic digestion training	NYSERDA	Sept. 09-Aug. 12	\$78,710 (direct costs)
Angenent	Codigestion of carbon-rich wastes to boost energy production during anaerobic digestion of dairy waste	Hatch-Cornell	Oct. 09-Sept. 12	\$90,000 (direct costs)
Angenent	Laboratory scale anaerobic digestion	GE Water and Process Technologies	March 09-May 10	\$150,001
Lipson, Raab, Angenent	Reduction of iron and humic substances as a dominant respiratory process in arctic peat soils	NSF	Aug. 08-June 11	\$239,139
Angenent	Characterization of microbial communities in anaerobic granules	BP Amoco Chemical Company	May 08-Dec. 08	\$53,566
Pakrasi, Angenent, Aurora, Axelbaum, Beachy, Biswas, Blankenship, Gordon, Ho, Kerley, Minteer, Quatrano, Schmidt, Smith, Stacey, Thiel, Wang, Xu, Yu, Zhang	Discovery and utilization of enzymes for renewable biofuels production	Missouri Life Science Research Board	Dec. 07-July 08	\$58,796
Angenent, Onay, Yenigün, Nuengjamnong, Rachdawong	Anaerobic treatment of domestic wastewater from rural Communities with an anaerobic migrating blanket reactor	McDonnell Academy Global Energy and Environment Partnership, Washington University	Nov. 07-Dec. 08	\$35,500
Angenent, Dien, Cotta, Qureshi	Mixed community bioreactors to convert (ligno)cellulosic feedstocks into the liquid biofuel butanol	USDA-CREES-NRI	Sept. 07-Aug. 11	\$365,000
Angenent	CAREER: Microbial fuel cell technology for large-scale wastewater treatment	NSF	July 07-June 12	\$406,250
Angenent	Overcoming metabolic constraints of biological hydrogen production from biomass sugars by electrochemically-assisted hydrogen production in Microbial Fuel Cells	USDA - Agricultural Research Service – Fermentation Biotechnology Research – National Center for Agricultural Utilization Research	July 06-June 10	\$173,889
Angenent	SEAD treatability of secondary biosolids from the upflow anaerobic bioreactors of Anheuser-Busch	Anheuser-Busch, Inc., St. Louis, MO	May 06-July 08	\$75,952
Angenent	Effect of variable loading rates on the anaerobic treatment of corn milling wastewater	Illinois Department of Commerce and Economic Opportunity/National Corn-to-Ethanol Research Center	Jan. 06-June 07	\$58,986
Angenent, Mayfield, Fraser	Effectiveness of membrane integrated shower outlets for increasing patient safety	Barnes-Jewish Hospital Foundation, St. Louis, MO	May 06-Oct. 07	\$34,889

Angenent	Development of the multi-phase UMFC: simultaneous bioelectricity generation and wastewater treatment	Bear Cub - Washington University	Mar. 05-Febr. 06	\$40,000
Angenent, Shen, Floss	Improving stability in anaerobic digestion for animal waste treatment by understanding microbial ecology	USDA-CSREES-NRI	August 2004-July 2008	\$312,205
Giammar, Angenent	Evaluation of chemical and biological tracers for phosphorus source apportionment in Table Rock Lake, on the Missouri-Arkansas Border	EPA-NDWRCDP	Nov 03-June 05	\$125,000
Biswas, Angenent	Use of a novel corona-soft X-ray system for inactivation of bioagents	NIH-MRCE	Aug. 03-Febr. 05	\$70,000

Entrepreneurial activities

Aug. 2011-present	Member of the Board of Directors for Electrochaea, LLC, which is a start-up company in Missouri that develops systems to convert renewable electricity and carbon dioxide into renewable natural gas.
Dec. 2010-present	Nidus Partners, Technical Advisory Board, St. Louis, MO.
July 2010-Aug. 2011	Co-founder and Scientific Advisor for 6 Convert, LLC, which was a startup company in Missouri that developed bioelectrochemical systems for wastewater treatment. This company merged with Electrochaea, LLC in August 2011.

Industrial Activities and Consulting

Oct. 2000-Nov. 2000	Environmental Consultant, Ecofuels Corp., Egan, Minnesota, USA. Activities: Designing a high yield anaerobic digester (HYAD™) to convert swine waste into methane. A pre-proposal including the plans for a digester and a nutrient removal system was prepared. In addition, we proposed to convert the produced methane into an ethanol blend (registered as ethanol plus by the EPA) through the use of a molybdenum-sulfide catalyst.
July 1999-August 1999	Environmental Consultant, Aero-Mod, Inc. (Waterlink Aero-Mod), Manhattan, KS, USA. Activities: design of a full-scale AMBR for the treatment of industrial wastewater.
June 1998-March 2000	Environmental Consultant, Double L Group, LTD., Deyersville, IA, USA. Activities: development of a "future farm", where nutrients, energy, and water produced from animal waste digestion are utilized in hydroponic greenhouses on the farm, reaping economical benefits.
July 1995-August 1997	Environmental Consultant, Anaerobic Biosystems Corporation and Iowa State University, Ames, IA, USA. Activities: -- Treatment feasibility studies on slaughterhouse wastewater and a combined wastewater from a paper recycling company and an enzyme-producing biotech company. These studies led to full-scale anaerobic treatment: (1) Excel Corp., Ottumwa, IA, USA. System: ASBR; Design flow: 2.3 mgd; and (2) City of Cedar Rapids, Cedar Rapids, IA, USA. System: UASB reactor;

Design: 500,000 PE; -- Designed an effluent-baffle system (EBS) for a full-scale ASBR for the pre-treatment of hog slaughterhouse wastewater (The Excel Corp. plant in Ottumwa, Iowa, USA).

Membership in Professional Organizations

1. International Water Association
2. Association of Environmental Engineering and Science Professors
3. American Association for the Advancement of Science
4. American Institute of BioEngineering
5. International Society for Microbial Electrochemical Technologies

Professional Service

1. Conference chair for the North American International Society for Microbial Electrochemical Technology Meeting (NA-ISMET meeting), October 8-10, 2012, Cornell University, Ithaca, NY.
2. Participated in: ARPA-E Novel Bioreactors and Photosynthetic Electrofuels-based Systems Workshop, March 27, 2012.
3. Founding member and secretary of the International Society for Microbial Electrochemical Technologies (ISMET); an international nonprofit organization to link researchers who work with bioelectrochemical systems (BESs) that include microbes. Founded on September 15, 2011 at Penn State University.
4. Participated in: Bioelectrochemical Systems Workshop: Standardized Analyses, Design Benchmarks, and Reporting, September 15, 2011, Penn State University, State College, PA.
5. Scientific committee for the 10th Latin American Workshop and Symposium on Anaerobic Digestion, October 23-27, 2011, Ouro Preto, Minas Gerais, Brazil.
6. Scientific committee for the 3rd International Microbial Fuel Cell Conference, June 6-8, 2011, Leeuwarden, The Netherlands.
7. Session chair for the 12th World Conference on Anaerobic Digestion, October 31-November 4, 2010, Guadalajara, Mexico.
8. Conference co-chair and session chair for the North American BioElectric Systems Meeting (NABESM), October 12-13, 2010, Amherst, MA.
9. Participated in Microbial Fuel Cell Workshop, June 15, 2010, Medical University of South Carolina, Charleston, SC.
10. Participant in National Synthesis Workshop Pathogens (Bacteria, Viruses, and Protozoa) in Rural and Agricultural Water and Watersheds, May 16-20, 2010, Cornell University, Ithaca, NY.
11. Organizing committee and chair of session for the 2nd International Microbial Fuel Cell Conference on Waste to Energy, Gwangju Institute of Science and Technology (GIST), The Republic of Korea, June 10-12, 2009.
12. Organizing committee and chair of final session for the Microbial Fuel Cells First International Symposium, Penn State University, May 27-29, 2008.
13. AFOSR MURI Mid-term Biofuel Cell review board, October 2, 2008.
14. Participated in the environmental career information session for ECO-ACT workshop at the Missouri Botanical Gardens, St. Louis, MO, March 23, 2004.
15. Chaired a session at the annual meeting for the American Institute for Chemical Engineers (AIChE): "Advances in Environmental Biotechnology II: Green Processing", San Francisco, CA, November 19, 2003.

Editor Activities of Journals and Books

- Member of the editorial board of “Microbial Biotechnology”, Febr. 2011-present.
- Co-editor for the book: *Bioelectrochemical Systems: from extracellular electron transfer to biotechnological application*. Eds.: Rabaey K., Angenent L. T., Schröder U. and Keller J. International Water Association, London, UK, December 2009.
- Special editor for the Energy Biotechnology special issue in “Current Opinion in Biotechnology” (Elsevier London), June 2007.

Referee Activities of Journals

1. *Angewandte Chemie*
2. *Annals of Microbiology*
3. *Applied and Environmental Microbiology*
4. *Applied Microbiology and Biotechnology*
5. *Atmospheric Environment*
6. *Bioresource Technology*
7. *Biosensors and Bioelectronics*
8. *Biotechnology and Bioengineering*
9. *Chemical Communications*
10. *Chemical Engineering and Processing*
11. *Chemosphere*
12. *Current Opinion in Biotechnology*
13. *Electrochemistry Communications*
14. *Electrochimica Acta*
15. *Energy and Environmental Science*
16. *Environmental Engineering Science*
17. *Environmental Microbiology*
18. *Environmental Science and Technology*
19. *ISME Journal*
20. *FEMS Microbiology Ecology*
21. *FEMS Microbiology Letters*
22. *Journal of Applied Microbiology*
23. *Journal of Environmental Engineering and Science*
24. *Journal of Environmental Engineering*
25. *Journal of Environmental Management*
26. *Journal of Hazardous Materials*
27. *Journal of Industrial Microbiology*
28. *Microbial Biotechnology*
29. *Renewable Agriculture and Food Systems*
30. *Trends in Biotechnology*
31. *Water Environment Research*
32. *Water Research*
33. *Water Science and Technology*
34. *World Journal of Microbiology and Biotechnology*

Referee Activities of Research Proposals

NSF-SBIR-BioEnergy; NSF Energy for Sustainability; USDA NRI SBIR; USDA NRI: Biobased Products and Bioenergy Production Research; NE SUN Grant; AVAC, Canada; Georgian NSF, Georgia; NSF/USDA Microbial Observatories and Microbial Interactions and Processes program; NSF Energy for Sustainability CAREER; FIRST Israel Science Foundation, Israel; FONDECYT

National Research Funding Competition, Chile; Engineering and Physical Sciences Research Council, UK; ACS The Petroleum Research Fund; NSF BES: Environmental Engineering and Technologies.

Service to Cornell University

- Member of President's Sustainable Campus Committee (PSCC's) Energy Team – Energy.
- Invited panelist and presenter for Liberty Hyde Bailey Lecture: “Renewable Energy Research and Development at Cornell University” as part of CALS Reunion Weekend, June 11, 2010
- Invited panelist and presenter for “Renewable Energy Research and Development at Cornell” presentation for 59th Trustee-Council Annual Meeting, October 23, 2009
- Invited renewable energy panel member for CALS: Making a World of Difference, April 18, 2009
- Invited presentation: “Undefined mixed culture conversion of organic waste into energy”, Cornell Engineering Research Conference (CERC), April 3, 2009
- Member of CURBI advising team

Service to Department of Biological and Environmental Engineering

- Member of retirement symposium organization for Prof. Norm Scott
- Member of Riley-Robb Hall facilities committee
- Chair of search committee for specialty hire
- Member of graduate coordinate committee
- Director of the Agricultural Waste Management Lab, Game-farm road complex
- Member of committee to study the Master of Business Administration (MBA) and Master of Engineering (MEng) program on Energy, Sustainability and the Environment (MESE)
- Undergraduate advisor for ~ 15 students

Service to Washington University

- Student advisor for the local chapter of the American Institute of Chemical Engineers (AIChE)
- Member of the Institutional Biological & Chemical Safety Committee (IBC)
- Invited presentation: “Bioaerosols”: Annual MRCE Biosafety Course for Midwest Regional Center of Excellence in Biodefense and Emerging Infectious Diseases Research (MRCE) Program about: “Bioaerosols” for three years

Service to Department of Energy, Environmental & Chemical Engineering

- Prepared a new concentration area (Bioprocessing) for undergraduates in the Department of Chemical Engineering as part of the curriculum changes
- Participated in the Scholarship dinner during the merit fellowship weekend (2004, 2005, and 2006)
- Undergraduate advisor for a total of ~ 30 Chemical Engineering students over four years
- Organized the qualifying exams for PhD students (2003-2008)
- Environmental engineering faculty search (Spring 2006)
- Bioenergy faculty search (Fall 2006 and Spring 2007)
- Moderator for “Water Resources and Sustainable Systems” breakout group at the International Symposium on Energy and the Environment, May 4-7, 2007. St. Louis, MO
- Participant in the core group of I-CARES focusing on bioenergy

News outreach

Numerous interviews for national magazines on bioenergy: a sample of these activities include:

- “Bacteria in wastewater harnessed for electricity” by R. Colin Johnson for EETimes, 7/18/2005.
- “Microbe Power” by David C. Holzman for Environmental Health Perspectives, Vol. 113, No. 11, November 2005.
- “WU engineers harness bacteria, waste for energy”, by Tina Hesman for the St. Louis-Post Dispatch, June 16, 2005.
- “Boosting Wastewater Fuel Cell Power.” 2006. Industrial Bioprocessing (technical Insights), Vol. 28, No. 9, pp. 2.
- “Harnessing the power of microbes” by Diana Greer for BioCycle, Vol. 48, No. 5, May 2007.
- “Scaling up microbial fuel cells”, *Environmental Science and Technology* Technology News – March 21, 2007.
- “Taking out nitrates with a self-sufficient MFC”, *Environmental Science and Technology* Technology News – March 28, 2007.
- “Microbes Plus Sugars Equals Hydrogen Fuel?” *ScienceDaily* - Nov. 3, 2007.
- “More energy-efficient ethanol: A process used in wastewater treatment may increase efficiency in ethanol plants”, *MIT Technology Review* – August 18, 2008.
- “Using MFCs to teach high-school students”, ASM’s Microbeworld, broadcasted through a national network of 85 public radio stations on June 18, 2008.
- “The brew barons: masters of advanced fermentation, driving the redefinition of biofuels; Pt 1” by Jim Lane for *Biofuels Digest* – March 1, 2011.
- “Cornell researchers work to develop carboxylate platform”, *Biorefinery Magazine* – March 4, 2011.
- WSKG's Pathways To Understanding Our Energy Future; interviewed by Crystal Sarakas at WSKG Public TV, aired on May 19, 2011.