
Julie Beth Zimmerman

9 Hillhouse Avenue, 301 Mason Lab
Yale University, New Haven, CT 06520
Julie.Zimmerman@yale.edu 203-432-9703

EDUCATION

- Ph.D.** Dual Interdepartmental Doctoral Degree. *June 2003.*
Environmental and Water Resources Engineering, College of Engineering
Resource Policy and Behavior, School of Natural Resources and Environment
The University of Michigan at Ann Arbor
Dissertation: *Formulation and Evaluation of Emulsifier Systems for Petroleum- and Bio-Based Semi-Synthetic Metalworking Fluids*
(Dr. Kim F. Hayes; Dr. Steven J. Skerlos; Dr. Gregory A. Keoleian, advisors)
- Cert.** Industrial Ecology. *December 2002.*
School of Natural Resources and Environment, The University of Michigan at Ann Arbor.
- M. S.** Environmental and Water Resources Engineering. *May 1999.*
Concentration in Environmental Sustainability
College of Engineering, The University of Michigan at Ann Arbor.
- B. S.** Civil Engineering (Environmental Option) with high distinction. *May 1997.*
Minor Environmental Sciences.
School of Engineering and Applied Sciences, University of Virginia.

ACADEMIC APPOINTMENTS

- 2006 -** **Assistant Professor.** Environmental Engineering Program, Department of Chemical Engineering, Faculty of Arts and Science; and School of Forestry and Environment; Assistant Director for Research, Green Chemistry and Green Engineering Center at Yale; Yale University, New Haven, Connecticut
- 2006 -** **Visiting Assistant Professor.** Department of Civil Engineering, School of Engineering and Applied Science, University of Virginia, Charlottesville, Virginia.
- 2005 - 2006** **Assistant Professor.** Department of Civil Engineering, School of Engineering and Applied Science, University of Virginia, Charlottesville, Virginia.

RELEVANT EXPERIENCE

- 2003 - 2006** **Engineer/Program Coordinator.** National Center for Environmental Research, Office of Research and Development, United States Environmental Protection Agency.
Responsible for the Technologies for a Sustainable Environment academic research grants program; oversight of the Small Business Innovation Research contracts for clean technologies, pollution prevention and waste minimization; designed and implemented the P3 (People, Prosperity and Planet) Award: A National Student Design Competition for Sustainability in the Developed and Developing World; designed and implemented the Benchmarking of the Integration of Sustainability in Engineering Curricula at U.S. Institutions of Higher Education; member of writing team of EPA's Research Strategy for Sustainability; served on intra- and inter-agency committees on emerging chemicals, sustainability in the federal government, and green buildings; prepared Congressional testimony; initiated workshop through the National Academies of Engineering on Green Engineering and Sustainability Education.
- 2000 - 2003** **Graduate Research Assistant.** The University of Michigan at Ann Arbor.
Designed and performed laboratory research to investigate relationships between field conditions, metalworking fluid (MWF) formulation and machining performance to develop guidelines for more robust and green MWF formulations. Evaluated MWF formulations for emulsion stability by particle size and zeta potential as well as machining performance by tapping torque test response. Performed life cycle analysis of current petroleum-based product and newly developed green product for integration into MWF formulation guidelines and analyzed potential policy implications. Research was collaborative effort between Departments of Environmental Engineering and Mechanical Engineering, College of Engineering, University of Michigan; Center for Sustainable Systems, School of Natural Resources and Environment, University of Michigan; D.A. Stuart, Incorporated; Milacron, Incorporated; Ford Motor Company.

AWARDS and HONORS

EPA Gold Medal for Commendable Service, 2006.
National Academy of Engineering, Frontiers in Engineering, 2005.
EPA Bronze Medal for Commendable Service, 2005.
University of Michigan Distinguished Dissertation Award, 2004.
Graduate Student Paper Award, Environmental Chemistry, American Chemical Society, 2003.
Society of Tribologists and Lubrication Engineers scholarship recipient, 2002.
Marian Sarah Parker Prize for Outstanding Woman Graduate Engineering Student, 2001.
Graduate Student Award, Environmental Chemistry, American Chemical Society, 2000.
United States Environmental Protection Agency STAR Fellow, 1999 – 2002.
Alfred P. Sloan Fellowship, 1998.
Environmental and Water Resources Departmental Fellowship, Department of Civil and Environmental Engineering, University of Michigan, 1997.

SERVICE

Guest Editor, Environmental Science and Technology, “The World’s Water” special issue published June 15, 2008.
Chair, Green Chemistry and Engineering Subdivision, Industrial and Engineering Chemistry Division, American Chemical Society, January 2007 – January 2008.
Editorial Board, Sustainability: Science, Practice, and Policy, January 2007 – present.
Editorial Board, Journal of Engineering for Sustainable Development: Energy, Environment, and Health, September 2006 – present.
Session co-Chair, “Design and Manufacturing for Sustainability” 2006 International Symposium on Flexible Automation, Osaka, Japan, July 10-12, 2006.
Steering Committee, US Partnership for the UN Decade for Education for Sustainable Development, 2004 – present.
Programming Committee, Annual Green Chemistry and Engineering Conference, 2003-present.
Organizing Committee, International Green Chemistry and Engineering Conference, 2003-2004.
Graduate Student Advisory Council to the College of Engineering, University of Michigan, member, 2002.
Graduate Environmental Engineering Network, founding member, Secretary, 1998-2003.
Environmental Science, Engineering, and Policy in the 21st Seminar Committee, Co-Chair, 1998.

ASSOCIATIONS

American Chemical Society (ACS)
Association of Environmental Engineering and Science Professors (AEESP)
American Society of Civil Engineers (ASCE)
American Society for Engineering Education (ASEE)
American Society of Mechanical Engineers (ASME)
Engineers without Borders (EwB)

REFEREED PUBLICATIONS and SUBMISSIONS

Clarens, A.F.; **Zimmerman, J.B.**; Keoleian, G.A.; Hayes, K.F.; Skerlos, S.J “Comparison of life cycle emissions and energy consumption for environmentally adapted metalworking fluid systems”, *in press*.

Barenfanger, J., Mueller, T., O'Brien, J., Drake, C., Lawhorn, J., **Zimmerman, J.B.**, Ace, J. “Comparison of Flocked Swabs to Nasal Aspirates for Recovery of Respiratory Viruses, Cost and Carbon Footprint”, Journal of Clinical Microbiology, *submitted*.

Eckelman, M.J.; Anastas, P.T.; **Zimmerman, J.B.** “Spatial assessment of net mercury emissions from the use of fluorescent bulbs”, , *in press*.

Miller, S.; Fugate, E.; Craver, V.; Smith, J.A.; **Zimmerman, J.B.** “Toward Understanding the Efficacy and Mechanism of Opuntia spp. as a Natural Coagulant for Potential Applications in Water Treatment”, Environmental Science and Technology, 42, 12, 4274-4279, 2008.

Zimmerman, J.B.; Mihelcic, J.R.; Smith, J.A. “Global Stressors on Water Quality and Quantity”, Environmental Science and Technology, 42, 12, 4247-4254, 2008.

Eckelman, M. J.; Zimmerman, J. B.; Anastas, P.T. “Designing Safer Nanotechnology through Green Chemistry and Green Engineering“, Journal of Industrial Ecology, *in press*.

Mihelcic, J.; **Zimmerman, J.B.**; Ramaswami, A. "Integrating Developed and Developing World Knowledge into Global Discussions and Strategies for Sustainability. Part I: Science and Technology", *Environmental Science and Technology*, 41, 10, 3415-3421, 2007.

Ramaswami, A.; **Zimmerman, J.B.**; Mihelcic, J. "Integrating Developed and Developing World Knowledge into Global Discussions and Strategies for Sustainability. Part II: Economics, Commerce and Governance", *Environmental Science and Technology*, 41, 10, 3422-3430, 2007.

Zimmerman, J.B.; Vanegas, J.A. "Using Sustainability Education to Enable the Increase of Diversity in Science, Engineering, and Technology Related Disciplines." *International Journal of Engineering Education*, 23, 2, 2007.

Zimmerman, J.B. (invited), "EPA's P3 - People, Prosperity, and Planet – Award", *Sustainability: Science, Practice, and Policy*, 1 (2), 2005.

Zimmerman, J.B.; Anastas, P.T. (invited) "Approaches to Innovations in the Aerospace Sector through Green Engineering and Green Chemistry" *SAE Transactions, Journal of Aerospace*, 114, 1, 987-993, 2005.

Zimmerman, J. B.; Skerlos, S. J.; Hayes, K. F. "Influence of Ion Accumulation on the Emulsion Stability and Machining Performance of Two Semi-Synthetic Metalworking Fluids." *Environmental Science and Technology*, 38 (8): 2482-2490, 2004.

McDonough, W.; Braungart, M.; Anastas, P.T.; **Zimmerman, J.B.** "Applying the Principles of Green Engineering to Cradle-to-Cradle Design." *Environmental Science and Technology*, 37 (23): 434A-441A, 2003.

Zimmerman, J.B.; Clarens, A. F., Skerlos, S. J.; Hayes, K. F. "Design of Emulsifier Systems for Petroleum- and Bio-based Semi-Synthetic Metalworking Fluid Stability Under Hardwater Conditions." *Environmental Science and Technology*, 37 (23): 5278-5288, 2003.

Anastas, P. T.; **Zimmerman, J. B.**, "Design through the Twelve Principles of Green Engineering." *Environmental Science and Technology*, 37 (5): 94A-101A, 2003.

Zimmerman, J. B.; Hayes, K. F.; Skerlos, S.J. "Statistical Considerations and Interpretations for the Design of Cutting Fluid Evaluation Experiments using the Tapping Torque Test." *Lubrication Engineering* 59 (3), 17-24, 2003.

Cowell, M. A.; **Zimmerman, J. B.**; Kibbey, T. C. G.; Hayes, K. F. "Influence of Surfactant and Organic Liquid Properties on the Partitioning of Surfactants into Nonaqueous Phase Organic Liquids." *Environmental Science and Technology*, 34 (8), 1583-1588, 2000.

Zimmerman, J. B.; Kibbey, T. C. G.; Cowell, M. A.; Hayes, K. F., "Partitioning of Ethoxylated Nonionic Surfactants into Nonaqueous Phase Organic Liquids: Influence on Solubilization Behavior." *Environmental Science and Technology*, 33 (1), 169 -176, 1999.

REFEREED BOOKS

Mihelcic, J.; **Zimmerman, J.B.** *Environmental Engineering: Fundamentals, Sustainability, and Design*, John Wiley and Sons, New York, 2008, *in press*.

REFEREED BOOK CHAPTERS

Zimmerman, J.B.; Anastas, P.T. "When is a waste not a waste?" in *Sustainability Science and Engineering: Principles Book*. Ed. Martin Abraham, Elsevier Science. 2006.

Anastas, P.T.; **Zimmerman, J.B.** "The 12 Principles of Green Engineering as a Foundation for Sustainability" in *Sustainability Science and Engineering: Principles Book*. Ed. Martin Abraham, Elsevier Science. 2006.

OTHER PUBLICATIONS and SUBMISSIONS

Zimmerman, J.B. and P. Anastas, "Designing Today's Curriculum to Create Tomorrow's Leaders", *The Chemical Engineer*, 784, 48-52, October 2006.

Zimmerman, J.B. (invited), "Sustainable Development Through the Principles of Green Engineering", *National Academy of Engineering: Frontiers in Engineering 2005*, National Academies Press, Washington, DC, 2006.