

Julie Beth Zimmerman

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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

- 2015 -** **Professor of Management.** School of Management; Yale University, New Haven, Connecticut
- 2014 -** **Professor.** School of Forestry and Environmental Studies; **Associate Professor with tenure.** Department of Chemical and Environmental Engineering, School of Engineering and Applied Sciences; **Associate Director for Research,** Center for Green Chemistry and Green Engineering at Yale; Yale University, New Haven, Connecticut
- 2013 - 2014** **Inaugural Donna L. Dubinsky Associate Professor of Environmental Engineering.** Department of Chemical and Environmental Engineering, School of Engineering and Applied Sciences; School of Forestry and Environmental Studies; Yale University, New Haven, Connecticut
- 2011 - 2014** **Associate Professor.** Department of Chemical and Environmental Engineering, School of Engineering and Applied Sciences; School of Forestry and Environmental Studies; **Acting Director** (2010-2012); **Assistant Director for Research,** Center for Green Chemistry and Green Engineering at Yale; Yale University, New Haven, Connecticut
- 2007 - 2011** **Assistant Professor.** Department of Chemical and Environmental Engineering, School of Engineering and Applied Sciences; School of Forestry and Environmental Studies; Acting Director (2010-2012); Assistant Director for Research, Center for Green Chemistry and Green Engineering at Yale; Yale University, New Haven, Connecticut
- 2007 - 2010** **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.

AWARDS and HONORS

- Fellow, Royal Society of Chemistry, United Kingdom, 2015
Elected Member, Connecticut Academy of Science and Engineering, 2015

Walter J. Weber Distinguished Lecturer, School of Engineering and Applied Sciences, University of Michigan, 2014.

Finalist, Connecticut Women of Innovation, Research Category, 2013

Karman Fellow, RWTH-Aachen University, Aachen, Germany, 2013

Invited speaker, Gordon Research Conference – Environmental Nanotechnology, June 2013

Walter L. Huber Civil Engineering Research Prize, American Society of Civil Engineering, 2012

Keynote speaker, 2011 Michigan Green Chemistry and Engineering Conference, October 2011

Invited speaker, Gordon Research Conference – Green Chemistry, July 2010

Invited speaker, Gordon Research Conference – Environment: Water, June 2010

National Academy of Engineering, Frontiers in Engineering Education, 2009.

American Association of Engineering Education, Environmental Engineering Division, Best Paper Award, 2009

EPA Bronze Medal for Commendable Service, 2007

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

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

CURRENT AND PAST RESEARCH GRANTS AND CONTRACTS

National Science Foundation/Environmental Protection Agency: Network for Sustainable Molecular Design and Synthesis supplement, co-PI, total budget \$200,000, 2015-2016

National Science Foundation: Engineering Research Center: Nano-Enabled Water Treatment, co-PI, total budget \$10,000,000, 2015-2019

Food and Drug Administration: Irritant Flavor Products in Heated E-Cigarette Liquids and Vapors, co-PI, \$350,000, 2015-2017

Food and Drug Administration: The Effects of Flavors on Nicotine Consumption and Addiction in Mice, co-PI, \$350,000, 2014-2016

National Science Foundation/Environmental Protection Agency: Network for Sustainable Molecular Design and Synthesis supplement, co-PI, total budget \$200,000, 2014-2015

National Science Foundation: Fraction, Extraction, and Conversion of Biomass for Fuels and Value-Added Chemicals, PI, \$450,000, 2014-2016

National Science Foundation/Environmental Protection Agency: Network for Sustainable Molecular Design and Synthesis, co-PI, total budget \$4,400,000, 2013-2017

Connecticut Innovations Challenge, Adding value to Biomass Pathways-Sustainable Energies: Innovative technologies involving biomass conversion processes and equipment to produce fuels, power or bio-based chemicals, co-PI @ 40% (with PI AgriFuels, LLC @ 60%), total budget \$150,000, 2013-2014

Environmental Protection Agency: Networks for Characterizing Chemical Life Cycle: Life Cycle of Nanomaterials, Senior Personnel, total budget \$4,400,000, 2013-2016

Environmental Protection Agency: National Center for Reinventing Aging Infrastructure for Nutrient Management, co-PI, total budget \$2,000,000, 2013-2016

National Science Foundation: A Workshop on the Molecular Design of Commercial Chemicals for Minimal Unintended Biological Activity, co-PI, total budget \$90,500, 2012-2014

National Science Foundation: Designing and Integrating Life Cycle Assessment Methods for Nanomanufacturing Scale-up, co-PI, total budget \$1,670,000, 2012-2016
Center for Business and the Environment at Yale: Greening Supply Chains: Enabling Sustainability Beyond Firm Boundaries, PI, total budget \$75,000, 2012-2013

The Kendeda Fund, The Yale Center for Green Chemistry and Green Engineering: Leading the Way to a Sustainable World, PI, \$300,000, 2010-2013

United States Department of Agriculture: Transformation of lignin into building blocks for protective coatings, PI, total budget \$500,000, 2009-2013

National Science Foundation: Targeted Design of Biomaterials for Water Treatment: Arsenic Removal and Recovery, PI, total budget \$325,000, 2009-2013

National Science Foundation: Design of Safer Carbon-Based Nanomaterials: The Impact of Surface Modifications on Toxicity and Environmental Fate and Transport, PI, total budget \$360,000, 2009-2013

National Science Foundation: Exploring the Relationships between Gene Regulation and Microbial Ecology for the Sustainable Production of Microalgae-based Biofuels, co-PI, total budget \$300,000, 2009-2013

National Science Foundation: BE MUSES: Collaborative Research: Modeling and Analyzing the Use, Efficiency, Value and Governance of Water as a Material in the Great Lakes Region Through an Integrated Approach, PI, total budget \$2,000,000, 2007-2014

National Science Foundation: Collaborative Research: Civil & Environmental Engineering Education (CEEE) Transformational Change: Tools & Strategies for Sustainability Integration & Assessment in Engineering Education, PI, total budget \$500,000, 2007-2010

National Aeronautics and Space Administration, Precision Cleaning of Oxygen Systems and Components through Green Chemistry and Green Engineering, PI, total budget \$220,000, 2007-2009

National Science Foundation: Mechanistic Laboratory and Field Evaluation of Sustainable Point-of-Use Water Treatment Technologies to Remove Turbidity and Deactivate Coliform Bacteria, co-PI, total budget \$400,000, 2006-2009

SERVICE

Editorial Services

Editorial Board, Journal of Green Chemistry, 2014 – present.

Editorial Board, Journal of Environmental Management, 2014 – present.

Associate Editor, Environmental Science and Technology, 2012 – present.

Editorial Advisory Board, Environmental Science and Technology, 2010 – 2012.

Guest Editor, Environmental Science and Technology, “The World’s Water” special issue published June 15, 2008.

Editorial Board, Sustainability: Science, Practice, and Policy, January 2007 – present.

Government Advisory Committees and Committee Memberships

Member, Steering Committee, Water Planning Council, State of Connecticut, 2015-present.

Member, Green Ribbon Science Panel, Department of Toxic Substances Control, State of California, 2009 – 2013.

Witness, House Committee on Science and Technology, Subcommittee on Technology and Innovation, draft legislation – “Electronic Waste Research Development Act of 2009”, February 11, 2009.

Conference/Association Advisory Committees

Organizing Committee, 2nd International Symposium on Green Chemistry: Renewable carbon and Eco-efficient Processes (ISGC-2), Poitiers, France, May 21 – 24, 2013.

Member, Science Advisory Board, Sustainable Apparel Coalition, 2011 – present.

Member, Selection Committee, Ontario Research Chairs in Green Chemistry and Engineering, Council of Ontario Universities, Ontario, Canada, 2010.

Member, NSF US-Japan Workshop on Industrial Ecology/Life Cycle Analysis for Sustainable Infrastructure Materials, Sapporo, Japan, 2009.

Member, Advisory Board, Rocky Mountain Institute, Factor 10 Engineering (10xE), 2009 – 2011.

Steering Committee, International Conference and Workshop on Sustainable Green Building Design And Construction, Cairo, Egypt, March 8-11, 2009.

Programming Committee, Annual Green Chemistry and Engineering Conference, 2003-2007.

Organizing Committee, International Green Chemistry and Engineering Conference, 2003-2004.

Professional Societies

Member, Governing Board, Green Chemistry Institute, American Chemical Society, 2010 – 2013.

Chair, Green Chemistry and Engineering Subdivision, Industrial and Engineering Chemistry Division, American Chemical Society, January 2007 – January 2008.

Session Chair and Symposia Organizer

Session co-chair, “The Design of Safer Chemicals from First Principles”, American Chemical Society National Meeting, Boston, August, 2015.

Organizer, NSF-supported Workshop on “Rational Design of Molecules”, American Chemical Society, Washington, DC, June 25-26, 2013.

Organizer, “Workshop on Biobased Feedstocks: Supply Chain Risks and Rewards”, American Chemical Society, Washington, DC, November 29-30, 2012

Session co-chair, “Designing Safer Chemicals with Minimized Unintentional Biological Activity”, Society of Environmental Toxicology and Chemistry, Long Beach, CA, November 11-15, 2012.

Convener, “Designing Chemicals for Reduced Toxicity: ‘First-tier’ Approaches to Linking Physiochemical Properties and Toxicological Hazards”, Washington, DC, June 23-24, 2011.

Session chair, “Green Engineering”, 15th Annual Green Chemistry & Engineering Conference, Washington, DC, June 21-23, 2011.

Convener, “Monash-Waseda-Yale Symposium on Green Chemistry, Greenberg Conference Center, Yale University, February 7-9, 2010.

Convener, “Integrating Green Chemistry and Green Engineering into the Revitalization of the Toxic Substances Control Act”, Woolsey Hall, Yale University, October 29-30, 2009.

Organizer, “Integrating Sustainability into Environmental Engineering: Design principles and tools to expand your educative capacity”, American Society of Environmental Engineering and Science Professors Conference on Grand Environmental Challenges, Iowa City, Iowa, July 26-29, 2009.

Organizer, NSF-supported International Workshop on Delivering Sustainable Infrastructure that Supports the Urban Built Environment, Auckland, New Zealand, December 15-17, 2008.

Organizer, “Training the Trainer: Lessons of Green Chemistry for Worker Safety and Job Security for the Steelworkers Union”, Yale University, October 3-4, 2007.

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 – 2007.

Peer Review

Reviewer for Environmental Science and Technology, Journal of Industrial Ecology, Chemosphere, Environmental Engineering Science, Bioresource Technology, Water Research, ChemSusChem, Journal of Green Chemistry, Science of the Total Environment, Journal of Surfactants and Detergents, International Journal of Engineering Education, Journal of the American Chemical Society

Panelist for National Science Foundation, Environmental Protection Agency, Department of Energy, Department of Agriculture, Canadian Research Chairs of Excellence, United States Department of Agriculture.

Yale University

Yale College Committee for Advising, Placement, and Enrollment (2015 – present)

Yale Pathways to Science Advisory Board (2015 – present)

Yale College Admissions Committee (2014 – present)

Yale Teaching Center, Associates in Teaching Selection Committee (2014 – present)

Director of Undergraduate Studies, Environmental Engineering major (2014 – 2015)

School of Engineering and Applied Sciences Center for Engineering Innovation and Design Faculty Advisory Group (2013 – present)

School of Forestry and Environmental Studies Masters Program Committee (2013 – present)

School of Forestry and Environmental Studies Search Committee (2013 – 2014)

Department of Chemical and Environmental Engineering Faculty Search Committee (2012 – 2013; 2015 – present)

School of Forestry and Environmental Studies PhD Admissions Committee (2012 – present)

Yale Energy Sciences Institute Advisory Committee (2011 – 2013)

School of Engineering and Applied Sciences Victor Tyler Lectureship Selection Committee (2011, 2012)

Yale Bulldog Days Master Class Lecturer (2011, 2012)

School of Forestry and Environmental Studies 5-year Degree (BS/MEM) Admissions Committee (2011)

School of Forestry and Environmental Studies Doctoral Program Committee (2011-present)

Lecturer and discussion participant for “Perspectives on Science and Engineering” (2011)

Acting Director of the Center for Green Chemistry and Green Engineering at Yale (2010 – 2012)

Yale Climate and Energy Institute Policy and Strategy Board (2010, 2011)

School of Forestry and Environmental Studies Ladder Faculty Search Committee (2010)

Yale Institute for Biospheric Studies Faculty Council (2009 – present)

Yale Sustainability Advisory Committee (2009 – 2013)

Yale School of Management’s Executive Education trainer and facilitator (2009 – present)

Environmental Studies Major Advisory Committee (2009 – 2013)

Yale Climate and Energy Institute Executive Committee (2009, 2010)

Morris K. Udall Scholarship Selection Committee (2009)

School of Forestry and Environmental Studies Faculty Development and Advancements Committee (2008 – 2013)

School of Forestry and Environmental Studies Space Committee (2008 – 2009)

Environmental Studies Fellowship Committee (2008 – present)

School of Engineering and Applied Sciences Graduate Prize Committee (2008)

Redpath Seminar for Association of Yale Alumni (2008)

Assistant Director of the Center for Green Chemistry and Green Engineering at Yale
(2007 – 2010; 2012 – present)

PROFESSIONAL DEVELOPMENT

Business Skills for Faculty Leaders, Executive Education (at the Invitation of the Provost), Yale School of Management, Yale University, 2015 – present.

The National Academies Summer Institute on Undergraduate Education, Yale University, July 18-20, 2012.

Service Learning Projects, Association of Environmental Engineering and Science Professionals, University of South Florida, July 15, 2011.

RELEVANT EXPERIENCE

2007 - Private Consultant. Provide strategic guidance to Fortune 500 companies, State and International Organizations on sustainability, green chemistry, and green engineering.

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; designed and implemented the P3 (People, Prosperity and Planet) Award: A National Student Design Competition for Sustainability; designed and implemented the Benchmarking of the Integration of Sustainability in Engineering Curricula at U.S. Institutions of Higher Education; served on intra- and inter-agency committees on emerging chemicals, sustainability in the federal government, and green buildings

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)

Connecticut Academy of Science and Engineering (CASE)

CURRENT MASTERS STUDENTS

Eugene Tang (MESC, 2017)

Zhimei (Sophia) Luo (MESC, 2016)

PAST MASTERS STUDENTS

Erin Barnes (MEM, 2007)

Current Title and Affiliation: Executive Director/Co-Founder, ioby

Jen Ace (MEM, 2009)

Current Title and Affiliation: Sustainability Consultant, Accenture

Eva Gladek (MEM, 2009)

Current Title and Affiliation: Executive Director, Metabolic Lab – The Netherlands

Peter Caligiuri (MF, 2010)

Current Title and Affiliation: Central Oregon Forest Ecologist, The Nature Conservancy

Jacob Iverson (MEM, 2010)

Current Title and Affiliation: Environmental Scientist, California State Water Resource Control Board

Jack Yeh (MEM, 2010)

Current Title and Affiliation: Director of Marketing and Communications, The Good

Steven Williams (MESc/MPH, 2011)
Current Title and Affiliation: Industrial Hygiene Program Owner, Global Health and Safety, The Intel Corporation

Simon De Stercke (MEM, 2012)
Current Title and Affiliation: Research Assistant, IIASA-Austria

Ashley MacDonald (MEM, 2012)
Current Title and Affiliation: Environmental Specialty Claims Associate, ACE Group

Juan Ramirez (MEM, 2012)
Current Title and Affiliation: General Manager, ViveSolar SA de CV-Mexico

Jake Seligman (MEM, 2012)
Current Title and Affiliation: Associate, Chadbourne & Parke, LLC

Mitchell Bauer (MEM, 2013)
Current Title and Affiliation: Development Intern, NRG Energy

Pooja Jain (MEM/MBA, 2013)
Current Title and Affiliation: Sustainability Intern, Bigelow Tea

Charissa Rujanavech (MEM, 2013)
Current Title and Affiliation: Environmental Program Manager, Apple Inc.

Troy Savage (MEM/MDiv, 2013)
Current Title and Affiliation: Assistant Pastor, Raleigh, North Carolina

Jonathan Sullivan (MF, 2013)
Current Title and Affiliation: Community Forester, Yale University Forests

Jessica Brooks (MESc, 2014)
Current Title and Affiliation: PhD Student, University of North Carolina

William Tucker (MESc, 2015)
Current Title and Affiliation: Presidential Management Fellow, Executive Branch, Washington, DC

CURRENT DOCTORAL STUDENTS (Committee Chair)

Cammryn Fausey (co-advised with Prof. Menachem Elimelech)
Research Area: Fabrication of a multi-functional, nano-enabled filter for water treatment

Thomas Kwan (NSF Graduate Fellowship)
Research Area: Supercritical extraction and transesterification of algal lipids for biofuel

Amanda Lounsbury (EPA STAR Fellowship)
Research Area: Sorption of inorganic contaminants by nano metal oxide/biopolymer composites

Fjodor Melnikov (Yale School of Forestry and Environmental Studies Doctoral Fellowship)
Research Area: Relating physiochemical properties to oxidative stress mechanism using high-throughput screening

Lauren Pincus (Yale School of Forestry and Environmental Studies Doctoral Fellowship)
Research Area: Gas phase chemistry during the synthesis of carbon nanotubes

Keira Roberts
Research Area: Controlled synthesis of engineered nanomaterials to evaluate applications and implications

Ranran Wang (Yale School of Forestry and Environmental Studies Doctoral Fellowship)
Research Area: Optimizing resource allocation at the energy-water nexus

PAST DOCTORAL STUDENTS (Committee Chair)

Sarah Miller (2011; NSF Graduate Fellowship)

Dissertation Topic: Toward Sustainable Water Treatment: Use of Biomaterials in Water Purification
Current Title and Affiliation: AAAS Science Policy Fellow, National Science Foundation

Patrick Foley (2011)

Dissertation Topic: The Derivation and Synthesis of Renewable Surfactants
Current Title and Affiliation: Chief Technology Officer, P2 Science, New Haven, CT

Lindsay Soh (2013; EPA STAR Fellowship)

Dissertation Topic: Advancements in Sustainable Biofuel Production: Optimization of Algal Cultivation Practices and Development of Greener Extraction and Conversion Technologies
Current Title and Affiliation: Assistant Professor of Chemical Engineering, Lafayette College, Easton, PA

Leanne Pasquini (NSF Graduate Fellowship / EPA STAR Fellowship)

Dissertation Topic: Cytotoxicity of carbon nanotubes: Relationship of physiochemical properties, functionalization, and reactivity
Current Title and Affiliation: Assistant Professor, Department of Civil and Environmental Engineering, University of Pittsburgh

Jamila Yamani (EPA STAR Fellowship)

Dissertation Topic: Towards Sustainable Remediation of Metal Contaminants from Wastewater:
A Novel Nano Metal Oxide Impregnated Chitosan-based Adsorption Technology
Current Title and Affiliation: Strategic Advisor, Pegasus Capital Advisors

CURRENT POST-DOCTORAL ASSOCIATES

George Gachumi, PhD
Department of Chemical Engineering, South Dakota State University

PAST POST-DOCTORAL ASSOCIATES

Dr. Fuzhan Nasiri (2009-2010)

Current Title and Affiliation: Assistant Professor, Faculty of Built Environment, University College London, London, UK

Dr. Matthew Eckelman (2009-2011)

Current Title and Affiliation: Assistant Professor, Department of Civil and Environmental Engineering, Northeastern University, Boston, MA

Dr. Laura Brentner (2010)

Current Title and Affiliation: Adjunct Faculty and Research Assistant at Clark University

Dr. Valerie Fuchs (2010-2011)

Current Title and Affiliation: Water Resources Engineer, MWH Global

Dr. Kira Matus (2010-2011)

Current Title and Affiliation: Assistant Professor, Department of Government, London School of Economics, London, UK

Dr. Adelina Voutchkova (2011-2012)

Current Title and Affiliation: Assistant Professor, Department of Chemistry, George Washington University, Washington, DC

Dr. Azadeh Kermanshahpour (2011-2013; NSERC Fellowship)

Current Title and Affiliation: Assistant Professor, Department of Process Engineering and Applied Science, Dalhousie University, Halifax, Nova Scotia, Canada

Dr. Weiwei Mo (Ph.D., University of South Florida)

Current Title and Affiliation: Assistant Professor, Department of Civil and Environmental Engineering, University of New Hampshire

Dr. Chun-Chi Chen (2013-2014)

Current Title and Affiliation: Research Scientist, Taiwanese Research Corporation

Dr. Jonathan Mellor (2013-2014)

Current Title and Affiliation: Assistant Professor, Department of Civil and Environmental Engineering, University of Connecticut

THESIS COMMITTEE MEMBER

Sarah Miller, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Patrick Foley, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Lindsay Soh, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Leanne Pasquini, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Jamila Yamani, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Ranran Wang, Ph.D. (**chair**), School of Forestry and Environmental Studies, Yale University
Amanda Lounsbury, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Thomas Kwan, Ph.D. (**chair**), Chemical and Environmental Engineering, Yale University
Fjodor Melnikov, Ph.D. (**co-chair**), School of Forestry and Environmental Studies, Yale University
Matthew Eckelman, Ph.D., Chemical and Environmental Engineering, Yale University
Laura Sima, Ph.D., Chemical and Environmental Engineering, Yale University
Shan Young, Ph.D., Chemical and Environmental Engineering, Yale University
Candice Pelligra, Ph.D., Chemical and Environmental Engineering, Yale University
Kyle Bibby, Ph.D., Chemical and Environmental Engineering, Yale University
Zachary Fishman, Ph.D., Chemical and Environmental Engineering, Yale University
James Gutierrez, Ph.D., Chemical and Environmental Engineering, Yale University
Sarah Kwan, Ph.D., Chemical and Environmental Engineering, Yale University
Akshay Deshmukh, Ph.D., Chemical and Environmental Engineering, Yale University
Bridgette Hegarty, Ph.D., Chemical and Environmental Engineering, Yale University
Jon Powell, Ph.D., Chemical and Environmental Engineering, Yale University

Ph.D. STUDENT SPECIAL INVESTIGATIONS AND ROTATIONS

Louis Fazen (MD-PhD), "Drinking Water Quality and Health Outcomes: Study Design", Fall 2007

Ezekiel Fugate, "Cluster Analysis of Great Lakes Basin Watersheds", Fall 2007

Rebecca Grove, "Survey of Green Solvents for Precision Cleaning of Oxygen Systems", Fall 2007

Sarah Miller, "Natural Coagulants for Drinking Water Treatment", Fall 2007

Sarah Miller, "Isolation of Active Coagulant in Opuntia", Spring 2007

Lindsay Soh, "Carbon Nanotube Toxicity on E. Coli", Fall 2007

Lindsay Soh, "Fate and Transport of Sucralose in Wastewater Treatment Plants", Spring 2007

Eric Fox, "Methodology to Evaluate Precision Cleaning of Oxygen Systems", Spring 2008

Peter Tobin, "Use of Ionic Liquids for Precision Cleaning of Oxygen Systems", Spring 2009

Kathryn Dana, "Fate of Functionalized Carbon Nanotubes under Irradiation", Fall 2010

Kathryn Dana, "Impact of Carbon Nanotube Functionalization on Fate and Transport in Environmental Systems", Spring 2011

Leanne Pasquini, "Functionalization of Carbon Nanotubes" Fall 2009

Leanne Pasquini, "Impact of Functionalization of Carbon Nanotubes on Cytotoxicity" Spring 2010

Jamila Yamani, "Arsenic Sorption by Nano-Metal Oxides" Fall 2010

Jamila Yamani, "Role of Systems Conditions on Sorption of Arsenic by Nano-Aluminum Oxide" Spring 2011

Amanda Lounsbury, "Selenium Sorption by Nano-Metal Oxides" Fall 2011

Amanda Lounsbury, "Synthesis of Nano-Iron Oxides" Spring 2012

Thomas Kwan, "Role of Systems Conditions on Catalytic Activity of Nafion in Supercritical Carbon Dioxide" Fall 2012

Thomas Kwan, "Extraction and Fractionation of Algal Biomass in Supercritical Carbon Dioxide" Spring 2013

Jon Powell, "Cytotoxicity of N- and S-Functionalized Multiwalled Carbon Nanotubes" Fall 2014

Mark Falinski, "Potential of Nano-hematite Sourced from Acid Mine Drainage for Remediation Applications" Fall 2014

Mark Falinski, "Controlled Modification of Functionalized Multiwalled Carbon Nanotubes" Spring 2015

Keira Roberts, "Controlled Synthesis of Nano-hematite" Fall 2015

Cammryn Fausy, "Electrospun Nano-enabled Biopolymers for Application in a Filtration" Fall 2015

UNDERGRADUATE PROJECTS

Dominic Albino, "Bayesian Material Separation" (2007)

Paul-Harvey Weiner, "Scanning the Statistics: Targeting Current Sources of Industry Pollution in the Great Lakes (2008)

Davis Lindsey, "Marginal Lands for Biofuel Production" (2009)

Christine Ellman, "A Case Study in Trans-Boundary Water Security: Impact of the Great Lakes Compact on the City of Waukesha, Wisconsin" (2009)

Nico Barawid, "Systems Dynamics Modeling of Water Allocation including Water Reuse Options" (2010)

Becca Trietch, "Biohydrogen Production in Reverse Micelles" (2010)

Harry Ross, "UV Water Purification for Sub-Saharan Africa" (2011)

Benjamin Lash, "UV Water Purification for Sub-Saharan Africa" (2011)

Matthew Spaulding, "Arsenic Sorption of Titanium Dioxide Impregnated Chitosan Beads" (2012)

Annie Pope, "A State-by-State Analysis of Wastewater Reuse Standards and Correlation with Environmental Behavior" (2012)

Megan Altizer, "Biodegradation of Chitosan Impregnated Beads" (2012)

Lucjan Zolnierowski, "The Role of Copper in Selective Sorption of Arsenic" (2013)

Nicholas Billmyer, "Synthesis of Nano-Hematite for Controlled Properties" (2014)

COURSES TAUGHT

Aquatic Chemistry (UVA)

Green Engineering and Sustainable Design (UVA; Yale)

Greening Business Operations (Yale)

Introduction to Environmental Engineering (Yale)

Science to Solutions (Yale)

Water for the World (Yale)

REFEREED JOURNAL PUBLICATIONS

1. Yamani, J. S.; Lounsbury, A. W; **Zimmerman, J. B.** "Towards a selective adsorbent for arsenate and selenite in the presence of phosphate: Assessment of adsorption efficiency, mechanism, and binary separation factors of the chitosan-copper complex" *Water Research*, 2016, *in press*.
2. Silva, C.; Soh, L.; Barberio, A.; **Zimmerman, J. B.**; Seider, W. D. "Phase equilibria of triolein to biodiesel reactor systems," *Fluid Phase Equilibria*, 409, 171-192, 2016.
3. Soh, L.; Chen, C. C.; Kwan, T. A.; **Zimmerman, J. B.**; "Role of CO₂ in Mass Transfer, Reaction Kinetics, and Inter-Phase Partitioning for the Transesterification of Triolein in an Expanded Methanol System with Heterogeneous Acid Catalyst", *ACS Sustainable Chemistry and Engineering*, 3(11), 2669-2677, 2015.
4. Gilbertson, L. M.; Wender, B. A.; **Zimmerman, J. B.**; Eckelman, M. J., "Coordinating modeling and experimental research of engineering nanomaterials to improve life cycle assessment studies", *Environmental Science: Nano*, 2015, *in press*.
5. Powell, J. T.; Townsend, T. G.; **Zimmerman, J. B.**, "Estimates of Solid Waste Disposal Rates and Reduction Targets for Landfill Gas Emissions", *Nature Climate Change*, 2015, *in press*.
6. **Zimmerman, J. B.**; Anastas, P. T., "Toward designing safer chemicals," *Science* 347 (6219), 215-215, 2015.
7. Kostal, J.; Voutchkova-Kostal, A.; Anastas, P. T.; **Zimmerman, J. B.** "Identifying and designing chemicals with minimal acute aquatic toxicity", *Proceedings of the National Academies*, 112, 20, 6289-6294, 2015.
8. **Zimmerman, J. B.**; Anastas, P. T., "Toward substitution with no regrets," *Science* 347 (6227), 1198-1199, 2015.
9. Mo, W.; Soh, L.; Werber, J. R.; Elimelech, M.; **Zimmerman, J. B.**, "Application of Membrane Dewatering for Algal Biofuel", *Algal Research*, 11, 1-12, 2015.
10. Hicks, A. L.; Gilbertson, L. M.; Yamani, J. S.; Theis, T. L.; **Zimmerman, J. B.**, "Life Cycle Payback Estimates for Nanosilver Enabled Textiles under Different Silver Loading, Release, and Laundering Scenarios Informed by Literature Review", *Environmental Science and Technology*, 49, 13, 7529-7542, 2015.
11. Azoz, S.; Gilbertson, L. M.; Hashmi, S. M.; Han, P.; Sterbinsky, G.E.; Kanaan, S. A.; **Zimmerman, J. B.**; Pfefferle, L. D., "Enhanced Dispersion and Electronic Performance of Single-Walled Carbon Nanotube thin Films without Surfactant: A Comprehensive Study of Various Treatment Processes", *Carbon*, 93, 1008-1020, 2015.
12. Gilbertson, L.; **Zimmerman, J. B.**; Plata, D.; Hutchison, J.; Anastas, P. T., "Designing Nanomaterials to Maximize Performance and Minimize Undesirable Implications Guided by the Principles of Green Chemistry," *Chemical Society Reviews*, 44, 5758-5777, 2015.
13. Gilbertson, L.; Melnikov, F.; Wehmas, L.C.; Anastas, P.T.; Tanguay, R.; **Zimmerman, J. B.**, "Toward safer multi-walled carbon nanotube design: Establishing a statistical model that relates surface charge and embryonic zebrafish mortality," *Nanotoxicology*, 0, 1-10, 2015.
14. Azoz, S.; Exarhos, A. L.; Marquez, A.; Gilbertson, L. M.; Nejati, S.; Cha, J. J.; **Zimmerman, J. B.**; Kikkawa, J. M.; Pfefferle, L. D., "Highly Conductive Single-Walled Carbon Nanotube Thin Film Preparation by Direct Alignment on Substrates from Water Dispersions," *Langmuir*, 31, 3, 1155-1163, 2015.
15. Wang, R.; **Zimmerman, J. B.** "Economic and Environmental Assessment of Office Building Rainwater Harvesting Systems in Various US Cities", *Environmental science & technology*, 49 (3), 1768-1778, 2015.
16. **Zimmerman, J. B.**; Anastas, P.T.; Miller, G.W., "Green Chemistry as a Leadership Opportunity for Toxicology: We Must Take the Wheel", *Toxicological Sciences*, 141(1), 4-5, 2014.

17. Kermanshahi-pour, A.; Sommer, T.J.; Anastas, P.T.; **Zimmerman, J.B.**, "Enzymatic and Acid Hydrolysis of *Tetraselmis suecica* for Polysaccharide Characterization", *Bioresource Technology*, 173, 415-421, 2014.
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CONFERENCE PROCEEDINGS and POSTERS / CONFERENCE and SEMINAR PRESENTATIONS

Lounsbury, A. W.; Billmeyer, N.; Yamani, J. S.; Peak, D.; **Zimmerman, J. B.**, "In-situ ATR-FTIR observation of selenate reduction by photocatalytic nano-metal oxides, American Chemical Society National Meeting 2015, Boston, Massachusetts, August 16-20, 2015.

Gilbertson, L. M.; **Zimmerman, J. B.**, "Sustainability by Design: Development of an Engineered Nanomaterials Selection Framework that Includes Property, Function and Hazard Criteria", poster, Gordon Research Conference in Environmental Nanotechnology, Mount Snow, West Dover, VT, June 21–26, 2015.

Wang, R.; **Zimmerman, J. B.**, "The water footprints: From consumption perspective to consumer empowerment", Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference, New Haven, CT, June 13-16, 2015.

Lounsbury, A. W.; Billmeyer, N.; Yamani, J. S.; Johnston, C.; Larese-Casanova, P.; Peak, D.; **Zimmerman, J. B.**, "Impact of nanoparticle size, shape, and crystallinity on Selenate and Selenite adsorption", Association of Environmental Engineering & Science Professors (AEESP) Research and Education Conference, New Haven, CT, June 13-16, 2015.

Gilbertson, L. M.; **Zimmerman, J. B.**, "Development of a Pre-Screening Tool to Quantify Impact and Benefit Tradeoffs of Emerging Technologies", Association of Environmental Engineering and Science Professors (AEESP) Conference, Yale University, New Haven, CT, June 13–16, 2015.

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Mellor, J.E., Zimmerman, J. B., “A Systems Approach to Climate, Water and Diarrhea in Hubli-Dharward, India”, American Geophysical Union Fall Meeting, San Francisco, CA, December 15-17, 2014.

Gilbertson, L. M.; Tanguay, R.; **Zimmerman, J. B.**, “Towards the Development of a Model that Informs Safer Carbon Nanotube Design: Using Zebrafish Mortality to Evaluate Carbon Nanotube Ecotoxicity Potential”, Sustainable Nanotechnology Organization Conference, Boston, MA, November 2-4, 2014.

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Lounsbury, A.; Yamani, J.; Larese-Casanova, P.; **Zimmerman, J. B.** “Identification of physicochemical properties associated with enhanced anionic adsorption of Se via nano- α - Al_2O_3 and nano- α - Fe_2O_3 ”, Poster presented at ACS National Meeting San Francisco, CA, August 10–14, 2014

Gilbertson, L. M.; **Zimmerman, J. B.**, “Towards Tailored Functional Design of Multi-Walled Carbon Nanotubes (MWNTs): Electrochemical and Antimicrobial Activity Enhancement via Oxidation and Selective Reduction”, American Chemical Society National Meeting, San Francisco, CA, August 10–14, 2014.

Lounsbury, A.; Yamani, J.; Larese-Casanova, P.; **Zimmerman, J. B.** “Understanding physicochemical properties associated with improved Se remediation from aqueous systems via nano- α - Al_2O_3 and nano- α - Fe_2O_3 ,” Poster at the Gordon Research Conference in Environmental Sciences: Water, Holderness, NH, June 22–27, 2014.

Gilbertson, L. M.; **Zimmerman, J. B.**, “Impact of Oxygen Functional Groups on Multi-Walled Carbon Nanotube (MWNT) Reactivity: Potential Environmental Implications. Poster at the Gordon Research Conference in Environmental Sciences: Water, Holderness, NH, June 22–27, 2014.

Zimmerman, J. B. (invited), “Mitigating Arsenic Risk through Novel Green Sorbents”, National Institutes of Environmental Health Sciences, Research Triangle Park, North Carolina, March 4, 2014.

Zimmerman, J. B. (invited), “Designing Safer Molecules and Materials”, Department of Civil and Environmental Engineering, Worcester Polytechnic Institute, Worcester, MA, February 25, 2014.

Zimmerman, J. B. (invited), “The Water-Energy Nexus: Life Cycle Impacts of Urban Water Infrastructure Systems”, Department of Civil and Environmental Engineering, University of South Florida, February 27, 2014.

Zimmerman, J. B. (invited), “Fundamental Needs in Advancing Supercritical Fluids Implementation in Establishing an Integrated Biorefinery”, NSF-Supported Workshop on Supercritical Fluids and Energy”, Campanias, Brazil, December 8-11, 2013.

Gilbertson, L.; Fairbrother, H.; **Zimmerman, J. B.**, “Realizing Comparable Oxidative and Cytotoxic Potential of Single- and Multi-Walled Carbon Nanotubes through Annealing”, 2nd Annual Conference of Sustainable Nanotechnology Organization, Long Beach, CA, November 3 – 5, 2013.

Soh, L.; Beckman, E. J.; **Zimmerman, J. B.**, “Establishing the role of carbon dioxide for extractions and processing in an integrated biorefinery”, American Chemical Society National Meeting, Indianapolis, IN, September 8-12, 2013.

Soh, L.; **Zimmerman, J. B.**, “The Role of Supercritical Carbon Dioxide in the Algal Biorefinery”, Association of Environmental Engineering and Science Professors, Golden, CO, July 14-16, 2013.

Soh, L.; **Zimmerman, J. B.**, “Establishing the Role of Carbon Dioxide in Super- and Sub-Critical Systems to Enable the Integrated Biorefinery”, Annual Green Chemistry and Engineering Conference, Washington, DC, June 18-20, 2013.

Yamini, J.; Lounsbury, A. W.; **Zimmerman, J. B.**, “Sustainable Remediation of Inorganic Contaminants from Wastewater: A novel nano-metal oxide impregnated chitosan sorbent”, Annual Green Chemistry and Engineering Conference, Washington, DC, June 18-20, 2013.

Kostal, J.; Anastas, P. T., **Zimmerman, J. B.**, "Improved design guidelines for minimal aquatic ecotoxicity based on octanol/water partition and frontier orbital energies", Annual Green Chemistry and Engineering Conference, Washington, DC, June 18-20, 2013.

Wang, R.; **Zimmerman, J.B.** "Exploring the Water-Energy Nexus in an Interconnected, Dynamic, and Uncertain World", 31st International Conference of the System Dynamics Society, Cambridge, MA, July 21-25, 2013.

Zimmerman, J. B. (invited), "Nano – Greener Living, Better Design", Gordon Research Conference: Environmental Nanotechnology, Stowe, VT, June 25, 2013.

Lounsbury, A. W.; Yamani, J. S.; Sommer, T.; **Zimmerman, J. B.** "Improved Selenium Remediation from Aqueous systems using nano-iron oxide," Gordon Research Conference: Environmental Nanotechnology, Stowe, VT, June 25, 2013.

Pasquini, L.M.; Sekol, R. C.; Taylor, A. D.; Pfefferle, L. D.; **Zimmerman, J. B.** "Impact of Annealing Treatment on the Electrochemical Activity of Multi-Walled Carbon Nanotubes," Gordon Research Conference: Environmental Nanotechnology, Stowe, VT, June 25, 2013.

Soh, Beckman, Zimmerman, Properties and Phase Equilibria for Product and Process Design, Iguazu Falls, Argentina-Brazil, May 26-30, 2013.

Zimmerman, J.B. (invited), "Designing and Demonstrating the Integrated Biorefinery", School of Engineering and Applied Sciences, Harvard University, February 28, 2013.

Zimmerman, J.B., "Designing Benign Chemistries", Society of Environmental Toxicology and Chemistry, Long Beach, CA, November 11-14, 2012.

Pasquini, L.; Elimelech, M.; **Zimmerman, J.B.**, "Understanding the Impact of Single Walled Carbon Nanotube Aggregation on Toxicity to Inform Greener Nano Design", Society of Environmental Toxicology and Chemistry, Long Beach, CA, November 11-14, 2012.

Zimmerman, J.B. (invited), "Green Chemistry and Engineering Principles Applied to Biorefinery Design", Department of Civil and Environmental Engineering, McGill University, Montreal, Canada, October, 19, 2012.

Zimmerman, J.B. (invited), "Design of Safer Chemicals: Physiochemical Property Relationships to Mechanisms for Aquatic Toxicity Endpoints", Center for Green Chemistry, University of California at Berkeley, Berkeley, CA, October 15, 2012.

Zimmerman, J.B. (invited), "Sustainability, Innovation and Pond Scum: Advances towards a Algal Biorefinery", Department of Civil and Environmental Engineering, University of California at Berkeley, Berkeley, CA, October 12, 2012.

Zimmerman, J.B. (invited), "Advancing the Algal Biorefinery through Supercritical Carbon Dioxide", Department of Civil and Environmental Engineering, Arizona State University, Tempe, AZ, September 19, 2012.

Soh, L.; **Zimmerman, J.B.** "One-Pot Algal Biodiesel Production in Supercritical Carbon Dioxide", International Society for Supercritical Fluid, San Francisco, CA, May 13-16, 2012.

Soh, L.; **Zimmerman, J.B. (invited)**. "Algal biodiesel production in super critical carbon dioxide", 243rd American Chemical Society National Meeting, San Diego, CA, March 25-29, 2012.

Zimmerman, J.B. (invited) "Assessments and Innovation to Advance Sustainable Water and Energy Systems", Department of Civil and Environmental Engineering, Duke University, March 22, 2012

Zimmerman, J.B. (invited), "Sustainable Innovation through Green Chemistry and Engineering", Sustainable Chemistry, Chemical Engineering and Materials, SusChEM Workshop, Arlington, VA, January 18-19, 2012.

Voutchkova, A., **Zimmerman, J.B.**, "Towards Rational Design of Safer Chemicals: Property Guide- lines for Reduced Acute Aquatic Toxicity", Society of Environmental Toxicology and Chemistry, Boston MA, November 13 -17, 2011.

Husowitz, B., **Zimmerman, J.B.**, Anastas, P.T., "Acute Aquatic Toxicity: Designing guidelines by Support Vector

Machines”, Society of Environmental Toxicology and Chemistry, Boston MA, November 13 -17, 2011.

Zimmerman, J.B. (invited), “Better Living through Green Chemistry”, 2011 Michigan Green Chemistry and Engineering Conference, Ann Arbor, MI, October 27-29, 2011.

Soh, L., **Zimmerman, J.B.**, “Towards one-pot algal biodiesel using supercritical carbon dioxide”, Algae Biomass Summit, Minneapolis, MN, October 24-27, 2011.

Yamani, J., **Zimmerman, J.B.**, “Metal Oxide Impregnated Chitosan Beads for Arsenic Remediation of Groundwater”, Water Technologies for Emerging Regions (WaTER) Conference, Norman, OK, October 24-25, 2011.

Zimmerman, J.B. (invited), “Better Living through Green Chemistry”, Consumer Specialty Products Association’s (CSPA) Cleaning Products Division: New Horizons 2011 Conference, Ponte Vedra, FL, October 16-19, 2011.

Eckelman, M., Quale, J., Guy, Bradley, **Zimmerman, J.B.** “Two recent LCA studies for buildings: On-site vs off-site construction and Building material reuse”, Greenbuild 2011, Toronto, Canada, October 5, 2011.

Eckelman, M., **Zimmerman, J.B.**, Christensen, P., “Resource Requirements for Urbanization: Three Perspectives on Urban Metabolism”, Greenbuild 2011, Toronto, Canada, October 5, 2011.

Eckelman, M., Fyfe, E., **Zimmerman, J.B.**, “Meta-analysis of LCAs for algal fuels”, Life Cycle Assessment XI, Chicago, IL, October 4, 2011.

Pasquini, L.M., **Zimmerman, J.B.**, “Towards Green Design of Single-Walled Carbon Nanotubes: Decreased Cytotoxicity via Addition of Surface Functional Groups”, 2011 EPA STAR Graduate Fellowship Conference, Washington, DC, September 19-20, 2011.

Zimmerman, J.B. (invited), “Discussion: Increasing Demand for Energy & Strategic Resources”, US Manufacturing Competitiveness Sustainable, Effective and Prosperous, Duke University, Durham, NC, September 20-21, 2011.

Beach, E.S., Brentner, L.B., Eckelman, M.J., **Zimmerman, J.B.** “Algae as a source of biofuels and bio-based chemicals”, Green Technologies for Developing Nations, Montego Bay, Jamaica, August 19 – 20, 2011.

Beach, E.S.; Voutchkova, A.; Husowitz, B. **Zimmerman, J.B.**, “Designing Chemicals for Reduced Toxicity” Paris, France, 2011.

Zimmerman, J.B. (invited), “The Frontiers of Green Chemistry & Green Engineering”, Guangdong Provincial Government Leadership Program, Maurice R. Greenberg Conference Center, Yale University School of Management, New Haven, CT, August 18, 2011.

Nasiri, F., Wang, R. Savage, T., Barawid, N., **Zimmerman, J.B.**, “Municipal Water System Planning and Optimization: Exploring wastewater reclamation and reuse from water utilities’ perspective”, International System Dynamics Society Conference, Washington D.C., July 24-28, 2011.

Nasiri, F., Wang, R., Savage, T, Barawid, N., **Zimmerman, J.B.**, “Water Reuse Planning and Management: A System Dynamics Approach”, International System Dynamics Society Conference, Washington D.C., July 24-28, 2011.

Nasiri, F., Savage, T., Wang, R., **Zimmerman, J.B.**, “A System Dynamic Approach for Urban Water Reclamation-Reuse Planning”, International System Dynamics Society Conference, Washington D.C., July 24-28, 2011.

Fuchs, V., **Zimmerman, J.B.**, State of the science of stormwater management: critical review and necessary steps to develop resilient urban stormwater infrastructure. Conference of the Association for Environmental Engineering and Science Professors, Tampa FL, July 10-12, 2011.

Zimmerman, J.B., “Integrating Sustainable Development into Courses throughout the Engineering Curriculum”, 2011 Association of Environmental Engineering & Science Professors (AEESP) Education & Research Conference, Tampa, FL, July 10-12, 2011.

Soh, L., **Zimmerman, J.B.**, “Biodiesel production potential of algal lipids extracted with supercritical carbon dioxide”, 15th Annual Green Chemistry & Engineering Conference, Washington, DC, June 21-23, 2011.

Voutchkova, A., Kostal, J., Brooks, B., **Zimmerman, J.B.**, “Green Toxicology: Towards molecular design guidelines

for reduced acute aquatic toxicity”, 15th Annual Green Chemistry & Engineering Conference, Washington, DC, June 21-23, 2011.

Pasquini, L. M., Sommer, T. J., Hashmi, S. M., Elimelech, M., **Zimmerman, J. B.**, "Towards Green Design of Single-Walled Carbon Nanotubes: Decreased Cytotoxicity via Addition of Surface Functional Groups", 15th Annual Green Chemistry & Engineering Conference, Washington, DC, June 21-23, 2011.

Matus, K., Beach, E., **Zimmerman, J.B.**, "Green and sustainable innovation in the chemical industry: A survey of practices and perceptions", 15th Annual Green Chemistry & Engineering Conference, Washington, DC, June 21-23, 2011.

Foley, P., Beach, E., **Zimmerman, J.B.**, "Algae as a source of renewable chemicals: Opportunities and challenges", 15th Annual Green Chemistry & Engineering Conference, Washington, DC, June 21-23, 2011.

Zimmerman, J.B. (invited) "Assessment and Sustainable Design of Appropriate Water Treatment Technologies", Princeton Plasma Physics Laboratory, Princeton University, June 14, 2011.

Pasquini, L.M., Sommer, T.J., Hashmi, S.M., Elimelech, M., **Zimmerman, J. B.**, "Towards Green Design of Single-Walled Carbon Nanotubes: Decreased Cytotoxicity via Addition of Surface Functional Groups", Gordon Research Conference: Environmental Nanotechnology, Waterville Valley Resort, NH, May 29 - June 3, 2011.

Zimmerman, J.B. (invited), "Green Chemistry and Engineering: The How of Sustainability", University of New Haven Chemistry Seniors Symposium: Chemistry Makes History, West Haven, CT, April 15, 2011.

Fuchs, V., **Zimmerman, J.B.** "Measuring resilience of green and grey stormwater infrastructure", Engineering Sustainability 2011, Pittsburgh, PA, April 10- 12, 2011.

Nasiri, E., Wang, R. Savage, T, Barawid, N., **Zimmerman, J.B.**, "A System Dynamics Approach for Urban Water Reclamation- Reuse Planning: A Case Study from the Great Lakes Region", Engineering Sustainability 2011, Pittsburgh, PA, April 10- 12, 2011.

Eckelman, M., **Zimmerman, J.B.**, Williams, Kyle, Quale, J., Sloditskie, G. "Comparing the Environmental considerations of modular building versus On-Site Construction". Engineering Sustainability 2011, Pittsburgh, PA, April 10-12, 2011.

Wang, R., Nasiri, F., Savage, T, Barawid, N., **Zimmerman, J.B.**, "Water Reuse Planning and Management: A System Dynamics Approach", Engineering Sustainability 2011, Pittsburgh, PA, April 10-12, 2011.

Zimmerman, J.B. "Assessment and Sustainable Design of Algal Biofuels and Novel Arsenic Sorbent through Green Chemistry and Engineering", Department of Environmental Sciences, Rutgers University, April 6, 2011.

Voutchkova, A., **Zimmerman, J.B.**, Anastas, P.T. "Towards Molecular Design Tools for Minimal Endocrine Disruption", Designing for Minimal Endocrine Disruption, Environmental Health Sciences, San Francisco CA, March 2011.

Soh, L., **Zimmerman, J.B.** "Biodiesel production potential of algal lipids extraction with supercritical carbon dioxide", Green Solvents for Synthesis Conference, Berchtesgaden, Germany, October 10-13, 2010.

Miller, S. M., **Zimmerman, J. B. (invited)** "Water 2010: Domestic and International Research, Technologies, Sustainability, and the Future," WEFTEC, New Orleans, LA, October 2-6, 2010.

Brentner, L.B., Eckelman, M.J., **Zimmerman, J.B.** "Life Cycle Analysis of Algae to Biodiesel: A Model to Guide Process Design", Algal Biomass Summit, Phoenix, Arizona, September 28-30, 2010.

Soh, L., **Zimmerman, J.B.** "Biodiesel production potential of algal lipids extraction with supercritical carbon dioxide", Algal Biomass Summit, Phoenix, Arizona, September 28-30, 2010.

Nasiri, F., Savage, T., Wang, R., Barawid, N., **Zimmerman, J.B.** "An Environmental-Economic Measure of Sustainable Development: Water Reuse Planning and Management: A Systems Dynamics Approach", Decision Analysis and Sustainable Development, Montreal, Quebec, Canada, September 27-28, 2010.

Soh, L., Peccia, J., **Zimmerman, J.B.** "Biodiesel production potential of algal lipids extracted with supercritical carbon dioxide", American Chemical Society Fall 2010 National Meeting and Exposition, Boston, Massachusetts, August 22-26, 2010

Zimmerman, J.B. (invited), "Rational Design of Safer Chemicals, Gordon Research Conference on Green Chemistry, North Carolina, July 25-30, 2010.

Voutchkova, A., Osimitz, T., Emerson, J., **Zimmerman, J.B.** "Aquatic Molecular Design for Hazard Reduction", 14th Annual Green Chemistry and Engineering Conference, Washington, DC, June 21-23, 2010.

Miller, S., **Zimmerman, J.B.** "Toward Implementation of a Novel, Bio-based Arsenic Sorbent", 14th Annual Green Chemistry and Engineering Conference, Washington, DC, June 21-23, 2010.

Brentner, L.B., **Zimmerman, J.B.** "Life cycle analysis of algae biodiesel: a model to guide process design for industrial production", 14th Annual Green Chemistry and Engineering Conference, Washington, DC, June 21-23, 2010.

Foley, P., Beach, E., **Zimmerman, J.B.** "Pursuing Useful, Biologically Derived Small Molecules: C-Glycosides as Surface Active Agents", 14th Annual Green Chemistry and Engineering Conference, Washington, DC, June 21-23, 2010.

Voutchkova, A., Steinfeld, J., Emerson, J., **Zimmerman, J.B.** Anastas, P.T. "Molecular Design Guidelines for Reduced Fresh Water Aquatic Toxicity of Commercial Chemicals", QSAR Workshop, Montreal, Canada, June 2010.

Zimmerman, J.B. (invited). "Meeting Global Water Challenges through Green Chemistry and Engineering", Gordon Research Conference on Environmental Science: Water, New Hampshire, June 20-25, 2010.

Voutchkova, A., Osimitz, T., Emerson, J., **Zimmerman, J.B.** "Application of QSAR approaches to Deriving Molecular Design Rules for Hazard Reduction", 14th International Workshop on Quantitative Structure Activity Relationships, Montreal, Canada, May 24-28, 2010.

Beach E. S., Voutchkova A. M., Foley P. M., **Zimmerman J. B.**, Anastas, P.T. "Green Chemistry: Successes, Challenges and State of the Art", Innovation for Sustainable Production, Bruges, Belgium, April 18-21, 2010.

Miller, S., **Zimmerman, J.B.** "Bio-based Arsenic Sorbent", American Chemical Society Spring 2009 National Meeting and Exposition, San Francisco, California, March 21-25, 2010.

Voutchkova, A., Osimitz, T., Emerson, J., **Zimmerman, J.B.** "Towards Molecular Design for Hazard Reduction-Deriving Fundamental Relationships Between Chemical Properties and Toxicity", 49th Annual Society of Toxicology Meeting, Salt Lake City, Utah, March 15-19, 2010.

Zimmerman, J.B. (invited) "Natural Coagulants and Novel Biomaterials for Arsenic Removal from Water", Department of Geography and Environmental Engineering, Johns Hopkins University, Baltimore, Maryland, March 11, 2010

Beach, E., Anastas, P.T., **Zimmerman, J.B. (invited)** "Applying the Principles of Green Chemistry and Engineering to Worker Health and Safety", American Public Health Association, Philadelphia, Pennsylvania, November 7-11, 2009

Zimmerman, J.B. (invited) "Design of Sustainable, Resilient Infrastructure Systems", US-Japan Workshop on Life Cycle Assessment of Sustainable Infrastructure Materials", Sapporo, Japan, October 21-22, 2009

Miller, S., **Zimmerman, J.B.** "Bio-based Arsenic Sorbent", International WaTER Conference, Norman, Oklahoma, October 26-28, 2009.

Zimmerman, J.B. (invited) "Innovation through Green Chemistry and Green Engineering" Chemical Heritage Foundation Innovation Day, Philadelphia, Pennsylvania, September 15, 2009.

Zimmerman, J.B. (invited, Plenary speaker) "Governance and Infrastructure for Sustainable Water Management", The Role of the Engineers in Meeting the 21st Century's Societal Challenges, Lausanne, Switzerland, July 22, 2009.

Zimmerman, J.B. (invited, Plenary Speaker) “Frontiers in Green Design for Innovation”, Engineering Sustainability 2009: Innovations that Span Boundaries, Pittsburgh, Pennsylvania, April 20, 2009.

Zimmerman, J.B. (invited) “Designing Nanotechnology through the Principles of Green Chemistry and Green Engineering” Advancing the Eco-Responsible Design and Disposal of Engineered Nanomaterials, Houston, Texas, March 9-10, 2009

Miller, S., **Zimmerman, J.B.** “Toward Understanding Opuntia as a Natural Coagulant”, Water Environment Federation Disinfection Conference, Atlanta, GA, February 28-March 3, 2009.

Zimmerman, J.B. (invited) “Aligning human health, environmental and economic goals”, Good Jobs, Green Jobs National Conference, Washington, DC, February 4-6, 2009.

Zimmerman, J.B. (invited) “Designing Safer Chemicals and Systems”, NASA/C3P- 2008 International Workshop on Pollution Prevention and Sustainable Development, San Diego, California, November 18-19, 2008

Beach, E., Anastas, P., **Zimmerman, J.B.** “Green Engineering and Green Jobs”, NIEHS Worker Education and Training Program (WETP) Fall Awardee Meeting and Technical Workshop, Chapel Hill, NC, USA, October 15–17, 2008.

Zimmerman, J.B. (invited) “Nature’s Operating Instructions Meet the Original Instructions: Biomimicry and Traditional Indigenous Knowledge”, Bioneers, San Rafael, California, October 17-18, 2008

Zimmerman, J.B. “Enhancing the Implementation of Natural Coagulants for Water Treatment in Developing Countries through Laboratory and Field Work”, Annual Green Chemistry and Engineering Conference, Washington, DC, June 26-29, 2007.

Zimmerman, J.B. (invited) “Mitigating and Adapting to Water Impacts of Climate Change through Green Engineering”, National Summit on Coping with Climate Change, University of Michigan, May 8-10, 2007.

Zimmerman, J.B. “Integrating Developed and Developing World Knowledge into Global Discussions and Strategies for Sustainability”, Engineering Sustainability, Pittsburgh, Pennsylvania, April 16-17, 2007.

Zimmerman, J.B. (invited) “Sustainable Design through the Principles of Green Engineering, Building a World of Difference”, Black and Veatch, Overland Park, Kansas, April 10-11, 2007.

Beach, E.S., Eghbali, N., Sommer, T.J., **Zimmerman, J.B.**, Anastas, P.T., “Green chemistry education for nontraditional students”, 235th ACS National Meeting, New Orleans, Louisiana, April 6-10, 2008.

Zimmerman, J.B. (invited) “Green Engineering Opportunities for Civil, Construction, and Environmental Engineering”, North Carolina State University, Raleigh, North Carolina, March 16, 2007.

Zimmerman, J.B. (invited) “Designing and Implementing Green Packaging”, Target Corporation’s Sustainable Packaging: From Specifications to Suppliers meeting, Target World Headquarters, Minneapolis, Minnesota, February 26, 2007.

Zimmerman, J.B. (invited) “Identifying the Bullseye for Target’s Sustainability Initiatives”, Target Corporation’s Strategic Management Council Annual meeting, Target World Headquarters, Minneapolis, Minnesota, January 25 – 27, 2007.

Zimmerman, J.B. (invited) “Green Engineering and the Future of Environmental Engineering”, National Science Foundation’s Future of Environmental Engineering Education, Arizona State University, Tempe, Arizona, January 8 – 10, 2007.

Zimmerman, J.B. (invited) “Designing Sustainability into the Mission”, U.S. Army Sustainability and Beyond Course and Workshop, Army War College, Carlisle, Pennsylvania, October 23 – 27, 2006.

Zimmerman, J.B. "Using Sustainability Education to Enable the Increase of Diversity in Science, Engineering, and Technology Related Disciplines", Association of Environmental Engineering and Science Professors Research and Education Conference, Clarkson University, Potsdam, New York, July 23 – 27, 2006.

Zimmerman, J.B. (invited) "Sustainability Science and Policy across Borders", US-German Data Exchange Annex General Meeting, Washington, DC, June 22, 2006.

Zimmerman, J.B. (invited) "Green Chemistry and Engineering: Mission Critical," National Defense Center for Environmental Excellence-Department of Defense Sustainability Partnerships and Planning, Fort Shafter, Honolulu, Hawaii, June 6-7, 2006.

Zimmerman, J.B. (invited) "Sustaining the Mission through Green Engineering," Army Environment Policy Institute's Sustainability Seminar Series, Washington, DC, February 17, 2006.

Zimmerman, J.B. (invited) "Emerging Opportunities for Sustainability: Green Engineering and Policy Innovations," California Polytechnic State University, "Be the Change" Seminar Series, San Luis Obispo, California, January 20, 2006.

Zimmerman, J.B. (invited) "Future Visions of Sustainability Education," National Research Council's Workshop on Green Chemistry and Green Engineering Education, November 6-7, 2005.

Zimmerman, J.B. (invited) "Sustainable Development through Green Engineering," Engineering for Developing Communities, National Academy of Engineering – U.S. Frontiers in Engineering, Niskayuna, New York, September 22-24, 2005.

Zimmerman, J.B. (invited) "Designing Sustainable Infrastructure through Green Engineering" American Society of Civil Engineering – Technical Opportunities for Sustainable Infrastructure, Reston, Virginia, February 24, 2005.

Zimmerman, J.B. (invited) "Green Chemistry and Engineering in the Federal Government" New England Green Chemistry Conference, Dartmouth, Massachusetts, January 13-14, 2005.

Skeros, S.J., Adriaens, P., Hayes, K., Zimmerman, J.B., Zhao, F., (invited/refereed paper) "Ecological Material and Green Manufacturing: Design and Technology for Metalworking Fluid Systems", Proceedings of World Engineering Congress, 2004, Shanghai, China, November 2-6, 2004.

Zimmerman, J.B. "EPA's Initiatives in Education for Sustainability", Sustainability and Higher Education Conference, Portland, Oregon, October 21-23, 2004.

Zimmerman, J. B. (invited keynote) "Green Engineering for Materials Processing", ASM Materials Solutions Conference, Columbus, Ohio, October 18-21, 2004.

Clarens, A.F., Zimmerman, J.B., Landis, H.R., Hayes, K.F., Skeros, S.J., 2004, "Experimental Comparison of Vegetable and Petroleum Base Oils in Metalworking Fluids using the Tapping Torque Test", *Proceedings of the Japan/USA Symposium on Flexible Manufacturing*, Denver, Colorado, July 19-21, 2004.

Zimmerman, J.B., Anastas, P.T. "Case Studies Illustrating the 12 Principles of Green Engineering" New Zealand Society for Sustainability Engineering and Science 2004 Conference, Auckland, New Zealand, July 7-9, 2004.

Zimmerman, J.B. (invited keynote) "Green Engineering: The Next Frontier at NASA" Innovation through Sustainable Design at NASA, Falls Church, Virginia, June 21-24, 2004.

Zimmerman, J.B., Anastas, P.T. "Design through the 12 Principles of Green Engineering: Applications in the Chemical Industry." 5th Green Chemistry Conference, Barcelona, Spain, November 10-12, 2003.

Skeros, S.J., Hayes, K.F., Morrow, W.R., Zimmerman, J.B., "Diffusion of Sustainable Systems through Interdisciplinary Graduate and Undergraduate Education", To appear in the *Proceedings of the ASME: Manufacturing Science and Engineering Division*. Washington, D.C., November, 2003.

Zimmerman J.B., Keoleian, G., Hayes, K., Skerlos, S.J., "Comparative Life Cycle Analysis of Petroleum and Bio Based Metalworking Fluids", 2nd International Symposium of the International Society of Industrial Ecology, Ann Arbor, Michigan, June 29 - July 2, 2003.

Sutherland, J. W., Gunter, K. L., Haapala, K. R., Khadke, K., Skerlos, S. J., **Zimmerman, J. B.**; Olson, W. W.; Sadasivuni, R. "Environmentally Benign Manufacturing: Status and Vision for the Future." North American Manufacturing Conference XXXI, Hamilton, Canada, May 20-24, 2003.

Zimmerman, J.B., Hayes, K. F., Skerlos, S. J. "Investigation of Emulsifier Systems for Petroleum- and Bio-Based Metalworking Fluids for Improved Hardwater Stability." Society of Tribology and Lubrication Engineers, New York, New York, April 28-May 1, 2003.

Zimmerman, J. B., Hayes, K. F., Skerlos, S. J. "Influence of Ion Accumulation on the Emulsion Stability and Machining Performance of Two Semi-Synthetic Metalworking Fluids." American Chemical Society National Meeting, New Orleans, Louisiana, March 23-27, 2003.

Zimmerman, J. B., Hayes, K. F., Skerlos, S. J. "Investigation of High-Performance Vegetable Oil-Based Metalworking Fluids for Hardwater Stability." Green Chemistry and Engineering, Washington, D.C., June 24-27, 2002.

Zimmerman, J. B., Hayes, K. F., Skerlos, S. J. "Statistical Analysis of Metalworking Fluid Evaluation Using Tapping Torque Measurements." Society of Tribology and Lubrication Engineers, Houston, Texas, May 20-23, 2002.

Skerlos, S. J., Adriaens, P., Hayes, K. F., Rihana, A., Kurabayashi, K., Takayama, S., **Zimmerman, J. B.**, Zhao, F. "Challenges to Achieving Sustainable Aqueous Systems: A Case Study in Metalworking Fluids." EcoDesign 2001, Tokyo, Japan, December 2001.

Zimmerman, J. B., Skerlos, S. J., Hayes, K. F. "Implications of Eco-Metrics on Metalworking Fluid Design." International Society for Industrial Ecology, Leiden, the Netherlands, November 2001.

Jeong, H., **Zimmerman, J. B.**, Hayes, K. F. "Impact of Nonaqueous Phase Liquid Mixtures on Solubilization Behavior of Nonionic Surfactants." Proceedings of the Environmental Chemistry Workshop, Midwest Regional Meeting, Kalamazoo, MI, October 2000.

Deitsch, J. J., Smith, J. A., **Zimmerman, J. B.** "Surfactant-Enhanced Desorption of 1,2-DCB from a Peat and Sand Soil." Proceedings of the American Geophysical Union Fall Meeting, San Francisco, CA, 1998.

Cowell, M. A., Kibbey, T. C. G., **Zimmerman, J. B.**, Hayes, Kim F. "Partitioning of Surfactants Between Aqueous and Organic Phases During Aquifer Remediation: Effects of Surfactant/Organic Properties." Proceedings of the Environmental Chemistry Workshop, Midwest Regional Meeting, Ann Arbor, MI, October 1998.

Zimmerman, J. B., Cowell, M. A., Kibbey, T. C. G., Hayes, K. F., "A Quantitative Assessment of the Influence of Surfactant Partitioning into Nonaqueous Phase Liquid (NAPL) Contaminants on Solubilization Efficiency in Surfactant-Enhanced Aquifer Remediation." Proceedings of EnviroMEET, Irvine, CA, July 1998.

Zimmerman, J. B., Cowell, M. A., Kibbey, T. C. G., Hayes, K. F., "Partitioning of Surfactants into Nonaqueous Phase Liquids: Implications for Remediation." Proceedings of the Environmental Chemistry Workshop, Midwest Regional Meeting, Bloomington, IN, November 1997.

Deitsch, J. J., **Zimmerman, J. B.** "Effect of Surfactants on the Rate of Carbon Tetrachloride and 1,2-Dichlorobenzene Desorption from Soil to Water." Proceedings of the American Chemical Society National Meeting, Las Vegas, Nevada, July 1997.

MEDIA

Trash Talk: Uncovering the Waste in U.S. Landfills, National Public Radio – Science Friday,
<http://www.sciencefriday.com/segment/09/25/2015/trash-talk-uncovering-the-waste-in-u-s-landfills.html>

US may be Drastically Underestimating Landfill Emissions, The Guardian, September 21, 2015,
<http://www.theguardian.com/environment/2015/sep/21/us-may-be-drastically-underestimating-landfill-emissions-study>

How Your Trash Is Contributing to Climate Change, Time, September 21, 2015, <http://time.com/4042559/trash-climate-change-landfill/>

Study: Twice as Much Trash Put in Landfills than Estimated, U.S. News & World Report, September 21, 2015, <http://www.usnews.com/news/science/news/articles/2015/09/21/study-twice-as-much-trash-put-in-landfills-than-estimated>

12 Things to Know About How the Latest Landfill Disposal Study Stacks Up, Waste 360, <http://waste360.com/emissions/12-things-know-about-how-latest-landfill-disposal-study-stacks>

Yale Project Leads the Way to Find Safer Chemicals, The New Haven Register, October 25, 2013, <http://www.nhregister.com/general-news/20131025/yale-project-leads-the-way-to-find-safer-chemicals>

Engineers Develop Sustainable Technique to Remove Arsenic from Water Supplies, The New Haven Independent, July 12, 2012, http://www.newhavenindependent.org/index.php/archives/entry/add_beads_remove_arsenic_shrimp_shells_deliver_clean_water/

A One-Pot Approach to Algae Biodiesel, BIODIESEL Magazine, September 8, 2011, <http://www.biodieselmagazine.com/articles/8037/a-one-pot-approach-to-algae-biodiesel>

How to design a safer chemical, Nature, July 29, 2011, <http://www.nature.com/news/2011/110729/full/news.2011.448.html>

Better by Design, Science News, 179 (7), March 26, 2011, http://www.sciencenews.org/view/feature/id/70925/title/Better_by_Design
Yale Chemists Use Seafood Waste to Remove Arsenic from Groundwater, environment Yale, Fall 2010, <http://environment.yale.edu/magazine/fall2010/yale-chemists-use-seafood-waste-to-remove-arsenic-from-groundwater/P0/>

A Formula for Building a Green Chemistry Future, GreenBiz.com, April 23, 2010, <http://www.greenbiz.com/blog/2010/04/23/formula-building-green-chemistry-future?page=0%2C1>
Sustainable Nanotech, Chemical & Engineering News, 87(15), April 13, 2009, <http://pubs.acs.org/cen/government/87/8715gov2.html>

Nine-and-a-Half Technologies that could change the world, Quirks and Quarks, a program of the Canadian Broadcast Company, March 28, 2009, <http://www.cbc.ca/quirks/archives/08-09/qq-2009-03-28.html>

Fluorescent Bulbs Trade Off Energy Savings For Mercury, Chemical & Engineering News, 86(41), October 13, 2008, <http://pubs.acs.org/subscribe/journals/cen/86/i41/html/8641scic5.html>

Study Suggests Energy Saving Light Bulbs May Increase Mercury Pollution, Connecticut Public Broadcasting Network, October 1, 2008, <http://www.cpbm.org/article/study-suggests-energy-saving-light-bulbs-may-increase-mercury-pollution?mini=calendar/2008/12/all&>

Calling All Chemists, Chemical & Engineering News, 86(33), August 18, 2008, <http://pubs.acs.org/cen/coverstory/86/8633cover3.html>

Water Desalination: Freshwater from the Sea, American Chemical Society Global Challenges/Chemistry Solutions Series podcast, <http://web.1.c2.audiovideoweb.com/1c2web3536/GlobalChallengesEp2.mp3>
Supplying Safe Drinking Water, American Chemical Society Global Challenges/Chemistry Solutions Series podcast, <http://web.1.c2.audiovideoweb.com/1c2web3536/GlobalChallengesEp1Final.mp3>

Students shine at sustainable design contest Six university teams win EPA awards, dozens participated on National Mall, MSNBC, May 12, 2006, <http://www.msnbc.msn.com/id/12755712/>

Students awarded for 'sustainable designs', MSNBC, May 18, 2005, <http://www.msnbc.msn.com/id/7898196/>