

Lauren B. Stadler

Curriculum Vitae

Department of Civil and Environmental Engineering, Rice University
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(713) 348-3307 lauren.stadler@rice.edu

Appointments

Assistant Professor, Rice University (January 2016 – present)
Graduate Student Researcher, University of Michigan, Ann Arbor (2010 – 2015)
U.S. Fulbright Research Scholar, Indian Agricultural Research Institute (2009 – 2010)
Wastewater Engineer, Oswald Engineering Associates (2007 – 2009)
Systems Engineer, SAIC, Inc. (2006 – 2007)

Education

Ph.D. December 2015	<i>University of Michigan</i> , Ann Arbor, MI Environmental Engineering Advisor: Nancy G. Love Dissertation: Elucidating the Impact of Low Oxygen Wastewater Treatment on Pharmaceutical Fate
M.S.E. December 2012	<i>University of Michigan</i> , Ann Arbor, MI Environmental Engineering
B.S. May 2006	<i>Swarthmore College</i> , Swarthmore, PA Engineering

Awards & Honors

2016	CH2M/AEESP Outstanding Doctoral Dissertation Award
2015	<i>Environmental Science & Technology Letters</i> Best Paper Award
2011 -2014	National Science Foundation Graduate Research Fellow
2013-2015	Dow Sustainability Doctoral Fellow
2014-2015	Rackham Predoctoral Fellow
2011	Michigan Water Environment Association John P. Hennessey Scholarship
2010-2015	Rackham Merit Fellow
2009-2010	Fulbright Scholar
2002-2004	Elizabeth Blodgett Hall Merit Scholar

Publications

Peer-Reviewed Journal Articles

- Stadler, L.B.**, and Love, N. G. (2016) Impact of microbial physiology and microbial community structure on pharmaceutical fate driven by dissolved oxygen concentration in nitrifying bioreactors. *Water Research*, 104, 189-199.
- Delgado Vela, J., **Stadler, L.B.**, Martin, K. J., Raskin, L., Bott, C. B., and Love, N. G. (2015) Prospects for Biological Nitrogen Removal from Anaerobic Effluents during Mainstream Wastewater Treatment. *Environmental Science & Technology Letters*, 2 (9), 234-244. (*2015 Best Paper Award*)
- Stadler, L. B.**, Su, L., Moline, C. J., Ernstoff, A. S., Aga, D. S., Love, N. G. (2015) Effect of redox conditions on pharmaceutical loss during biological wastewater treatment using sequencing batch reactors. *Journal of Hazardous Materials*, 282, 106-115.

Smith, A. L.⁺, **Stadler, L. B.**⁺, Cao, L., Love, N. G., Raskin, L., and Skerlos, S. J. (2014) Navigating wastewater energy recovery strategies: A life cycle comparison of anaerobic membrane bioreactor and conventional treatment systems with anaerobic digestion. *Environmental Science & Technology*, 48 (10), 5972-5981.
(*These authors contributed equally to this work)

Rimer, S. P., Alfaro, J. F., **Stadler, L. B.**, Davis, C. S., and Winful, H. G. (2014) Co-curricular programs in Liberia for student pipeline into engineering and agriculture. *International Journal of Engineering Education*, 30 (6B), 1602-1612.

Smith, A. L., **Stadler L. B.**, Love, N. G., Skerlos, S. J., and Raskin, L. (2012) Perspectives on anaerobic membrane bioreactor treatment of domestic wastewater: A critical review. *Bioresource Technology*, 122, 149-159.

Editorials

Stadler, L. B., Ernstoff, A. S., Aga, D., and Love, N. G. (2012) Micropollutant Fate in Wastewater Treatment: Redefining "Removal." Viewpoint in *Environmental Science & Technology*, 46 (19), 10485-10486.

Anticipated Peer-Reviewed Journal Articles

Stadler, L.B., Delgado Vela, J., Jain, S., Dick, G. J., and Love, N. G. Elucidating the impact of microbial community diversity on pharmaceutical transformations in activated sludge. In preparation for submission to *Environmental Science & Technology*.

Stadler, L.B., and Love, N. G. Using oxygen half saturation constants to predict the impact of dissolved oxygen on pharmaceutical biotransformation in activated sludge. In preparation for submission to *Environmental Science & Technology*.

Becker, A. M. Jr., Yu, K., **Stadler, L.B.**, and Smith, A. L. Life Cycle Evaluation of Co-Management of Domestic Wastewater and Food Waste using Anaerobic Membrane Bioreactors. In preparation for submission to *Bioresource Technology*.

Invited Presentations

Stadler, L. B.* Elucidating the Impact of Low Dissolved Oxygen Wastewater Treatment on Pharmaceutical Fate. University of Southern California, Los Angeles, CA, April 15, 2016.

Conference Presentations

Stadler, L. B.*, Delgado Vela, J., and Love, N. G. Impact of low dissolved oxygen and microbial community on pharmaceutical biotransformations during wastewater treatment. Proceedings of the 88th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, September 26 - 30, 2015.

Stadler, L. B.*, Delgado Vela, J.*, and Love, N. G. Elucidating the relationship between wastewater treatment plant microbial diversity and pharmaceutical fate. Association of Environmental Engineering and Science Professors Conference. New Haven, CT, June 13 - 16, 2015.

Stadler, L. B.*, Su, L., Aga, D. S., and Love, N. G. Understanding the impact of low dissolved oxygen treatment on nitrifier community characteristics and micropollutant fate. 4th International Conference on Occurrence, Fate, Effects, and Analysis of Emerging Contaminants in the Environment. Iowa City, IA, August 19 - 22, 2014.

Stadler, L. B.*, Su, L., Aga, D. S., and Love, N. G. Understanding the impact of low dissolved oxygen treatment on nitrifier community characteristics and micropollutant fate. American Chemical Society National Meeting. San Francisco, CA, August 10 - 14, 2014.

Stadler, L. B.*, Smith, A. L.*, Jain, A. K., Martin, K. J., Delgado Vela, J., Puente, P., Cao, L., Frenette, S., Bott, C. B., Rauch-Williams, T., Shimada, T., Salveson, A., Love, N. G., Raskin, L., and Skerlos, S. J. Integrating life cycle assessment and experimental research: Evaluating anaerobic membrane bioreactors in domestic wastewater treatment for energy recovery. Borchardt Conference. Ann Arbor, MI, February 25 – 26, 2014.

Stadler, L. B.*, Smith, A. L.*, Cao, L., Love, N. G., Raskin, L., and Skerlos, S. J. Life cycle comparison of emerging and established wastewater energy recovery systems. In Mainstream Anaerobic Treatment Systems for Energy Neutral Wastewater Management Workshop at the 86th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, October 5 – 9, 2013.

Stadler, L. B.*, Smith, A. L., Cao, L., Love, N. G., Raskin, L., and Skerlos, S. J. Energy recovery from wastewater: Life cycle comparison of carbon removal technologies upstream of autotrophic nitrogen removal. IWA/WEF Nutrient Removal and Recovery 2013: Trends in Resource Recovery and Use, Vancouver, Canada, July 28 – 31, 2013.

Moline, C. J.*, **Stadler, L. B.***, Su, L., Ernstoff, A. S., Dapcic, A. D., Vela, J. D., Aga, D., and Love, N. G. Pharmaceutical fate under varying redox treatment environments. Proceedings of the 85th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), New Orleans, LA, September 29 - October 3, 2012.

Smith, A. L.*, **Stadler, L. B.**, Cao, L., Love, N. G., Raskin, L., and Skerlos, S. J. Performance and environmental impacts of anaerobic membrane bioreactor for low-strength wastewater treatment, Proceedings of the 85th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), New Orleans, LA, September 29 - October 3, 2012. (*presenter)

Poster Presentations

Stadler, L. B.*, Delgado Vela, J., and Love, N. G. Elucidating the relationship between wastewater treatment plant microbial diversity and pharmaceutical fate. American Chemical Society 115th General Meeting, New Orleans, LA, May 30 – June 2, 2015.

Stadler, L. B.*, Su, L., Aga, D. S., and Love, N. G. Impact of dissolved oxygen concentration on pharmaceutical biotransformations during wastewater treatment. Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, November 15, 2013. (*1st place in Civil & Environmental Engineering track poster competition*)

Stadler, L. B.*, Su, L., Aga, D. S., and Love, N. G. Impact of redox environment and microbial populations on pharmaceutical biotransformation during wastewater treatment. Proceedings of the 86th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, October 5 – 9, 2013.

Cook, S. M.*, Delgado Vela, J., and **Stadler, L. B.*** Advancing the success of service learning projects from the classroom to the field. Proceedings of the 86th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL, October 5 – 9, 2013.

Stadler, L. B.*, Smith, A. L., Cao, L., Love, N. G., Raskin, L., and Skerlos, S. J. Life cycle comparison of emerging and established wastewater energy recovery systems. Association of Environmental Engineering & Science Professors 50th Anniversary Conference. Golden, CO, July 14 – 16, 2013.

Cook, S. M.*, Delgado Vela, J., and **Stadler, L. B.*** Advancing the success of service learning projects from the classroom to the Field. association of Environmental Engineering & Science Professors 50th Anniversary Conference. Golden, CO, July 14 – 16, 2013.

Delgado Vela, J.*, **Stadler, L.B.**, and Love, N. G. Elucidating biotransformation of pharmaceuticals by methanotrophic bacteria. Association of Environmental Engineering & Science Professors 50th Anniversary Conference. Golden, CO, July 14 – 16, 2013.

Stadler, L. B.*, Su, L., Stevens, L., Delgado Vela, J., Aga, D. S., and Love, N. G. Impact of redox environment and microbial populations on pharmaceutical biotransformation. IWA 5th International Conference on Microbial Ecology and Water Engineering, Ann Arbor, MI, July 7 – 10, 2013.

Stadler, L. B.*, Moline, C. J., Ernstoff, A. S., Su, L., Dapcic, A. D., Aga, D., and Love, N. G. Pharmaceutical fate in biological treatment reactors across varying redox environments. Gordon Research Conference, Environmental Science: Water. Holderness, NH, June 25 – 29, 2012.

Rimer S. P.*, **Stadler, L. B.**, and Alfaro J. F. Excellence in higher education for Liberian development. Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, November 11, 2011. (*2nd place in Civil & Environmental Engineering track poster competition*)

Stadler, L. B.*; Dhar, D.W. Nitrogen and phosphorous scavenging potential in microalgae isolated from treated municipal wastewater effluents in New Delhi. Engineering Graduate Symposium, University of Michigan, Ann Arbor, MI, November 12, 2010.

Published Reports

Skerlos, S.J., Raskin, L., Love, N.G., Smith, A. L., **Stadler, L. B.**, and Cao, L. 2013. Challenge projects on low energy treatment schemes for water reuse, Phase 1 (WateReuse-10-06D). WateReuse Research Foundation, Alexandria, Virginia.

Love, N.G., Aga, D. S., Moline, C. J., Ernstoff, A. S., **Stadler, L. B.**, and Su, L. 2012. Pharmaceutical fate under varying redox biological treatment environments. Water Environment Research Foundation Final Report U1R09, IWA Publishing, London, United Kingdom.

Proposals

Mitigating Human Health Risks and Enhancing Water Sustainability: Evaluating Antibiotic Resistance in Anaerobic Wastewater Treatment

Submitted to U.S. Department of Agriculture, Water for Agriculture
PIs: Adam Smith (USC) and Lauren Stadler
Funded (\$500,000), beginning August 2016

Collaborative Research: Developing Quantitative Modeling Tools for Design and Performance Assessment of Integrated Water Management Systems

Submitted to National Science Foundation, October 2015
PIs: Qilin Li, Pedro Alvarez, Leonardo Duenas-Osorio, Lauren Stadler, and Yuefeng Xie
Not funded

INFEWS/T3: Re-envisioning wastewater treatment plants as biosynthesis factories for sustainable feed production

Submitted to National Science Foundation, March 2016
PIs: Lauren Stadler, Adam Smith (USC), Kenneth Medlock, and Todd Callaway (USDA)
Not funded (\$995,081)

INFEWS/T3: Enabling Integrated Management of Food, Energy and Water Using a Complex Adaptive Systems Framework for Sustainable and Resilient Metropolitan Regions

Submitted to National Science Foundation, March 2016
PIs: Qilin Li, Leonardo Duenas-Osorio, Laura Schaefer, and Lauren Stadler
Not funded (\$2,999,887)

Elucidating algae-bacteria community dynamics in bioreactors for nutrient removal from wastewater

Submitted to InterDisciplinary Excellence Awards (IDEA), Rice University
PIs: Meenakshi Bhattacharjee, Evan Siemann, and Lauren Stadler
Pending (\$74,762)

Anticipatory LCA of Nano-enabled Technologies for Water Treatment

Submitted to: NEWT Seed Grant
PIs: Lauren Stadler and Julie Zimmerman (Yale University)
Funded

INFEWS/N/P/H2O: Re-envisioning wastewater treatment plants as biosynthesis factories for sustainable feed production

In preparation for submission to National Science Foundation, October 2016
PIs: Lauren Stadler and Adam Smith (USC)
Requesting (\$330,000)

Assessing the maintenance, transfer, and loss of antibiotic resistance among wastewater microbial communities

In preparation for submission to National Science Foundation, October 2016
PIs: Lauren Stadler, Joff Silberg, and Caroline Masiello
Requesting (\$330,000)

Advancing Energy Positive Waste Treatment in Houston: Anaerobic Membrane Bioreactor Treatment of 'One Bin for All' Organic Solid Waste and Domestic Wastewater

In preparation for submission to Energy and Environment Award, Rice University
PI: Lauren Stadler
Requesting (\$50,000)

Teaching

Environmental Microbiology and Microbial Ecology

Dept. Civil and Environmental Engineering, Rice University
Fall 2016

Upper-level undergraduate and graduate course on the fundamentals of microbiology and microbial ecology and their importance in natural and engineered systems.

Environmental Process Engineering

Dept. Civil and Environmental Engineering, Rice University
Spring 2017

Introduction to the analysis, characterization and principles of physical, chemical and biological processes, operations and reactor configurations commonly used for water quality control.

Instructor, Cuttington University, Liberia
Summer 2011

Developed engineering design curriculum and taught 1-month college preparatory classes to entering freshmen and sophomore engineering and agriculture students.

Professional Service

Civic Scientist Outreach Speaker, Rice University's Baker Institute for Public Policy, Furr High School speaker and activity leader, 2016 – present.

Editorial Board, Michigan Journal of Sustainability, 2013 – 2015

IWA 5th International Conference on Microbial Ecology and Water Engineering, Student Program Committee Member and Session Co-Chair of Nitrogen Transformations, July 2013

Manuscript reviewer

Environmental Science & Technology
Environmental Science & Technology: Letters
Water Research
MicrobiologyOpen

Journal of Hazardous Materials
Science of the Total Environment
Water Science & Technology
Aquatic Microbial Ecology
Environmental Engineering and Management
Environmental Science and Pollution Research

Membership

Water Environment Federation
International Water Association
Association of Environmental Engineering and Science Professors
Michigan Water Environment Association
Society of Women Engineers

Registered Engineer in Training, California

Advising

Postdoctoral advisees

Jian Li, August 2016 – present

Ph.D. Advisees

Andrew Brower, August 2016 – present

Eric Rice, August 2016 - present

Ph.D. Committees

Jonathan Dornell, Biosciences, Rice University (2016)

Lacey Pile, Earth Science, Rice University (expected 2017)

Quazi Rasool, Civil and Environmental Engineering, Rice University (TBD)

Julia Vidonish, Civil and Environmental Engineering, Rice University (TBD)

Master's Committees

Mikaela Mahoney, Civil and Environmental Engineering, Rice University (2016)