

Lauren B. Stadler

Curriculum Vitae

Department of Civil and Environmental Engineering, Rice University
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Appointments

Assistant Professor, Rice University
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
A.A. June 2004	<i>Bard College at Simon's Rock</i> , Great Barrington, MA Concentration in Math and Physics

Awards & Honors

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

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.

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., and Love, N. G. Impact of microbial physiology and microbial community structure on pharmaceutical fate driven by dissolved oxygen concentration in nitrifying bioreactors. In preparation for submission to *Water Research*.

Stadler, L.B., Delgado Vela, J., and Love, N. G. Elucidating the impact of microbial community diversity on pharmaceutical transformations in activated sludge. In preparation for submission to *ISME Journal*.

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: Water Research and Technology*.

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., Salvesson, 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 L. Smith and Lauren B. Stadler

Funded (\$500,000)

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

Submitted to National Science Foundation

PIs: Qilin Li, Lauren Stadler, Leonardo Duenas-Osorio, and Pedro Alvarez

Pending (\$410,000)

Research & Work Experience

Pharmaceutical Fate in Low Oxygen Wastewater Treatment <i>2009-present</i>	Investigating the impact of low oxygen wastewater treatment on pharmaceutical fate and microbial community characteristics via a combination of low oxygen enrichments, pharmaceutical batch experiments, and molecular methods to study oxygen-utilizing enzymes. (PI: Nancy Love)
Low Energy Nitrogen Removal Downstream of Mainstream Anaerobic Wastewater Treatment <i>2012-present</i>	Evaluating a membrane biofilm reactor and granular sequencing batch reactor for nitrogen removal from anaerobically treated domestic wastewater containing dissolved methane, sulfides, and ammonia. (PIs: Nancy Love, Lutgarde Raskin, Steven Skerlos, Charles Bott, and Andy Salvesson)
Life Cycle Assessment of Wastewater Energy Recovery Technologies <i>2011-2013</i>	Performed process modeling, life cycle assessment, and life cycle costing to evaluate and compare technologies for energy recovery from wastewater. (PIs: Steven Skerlos, Lutgarde Raskin, and Nancy Love)
Excellence in Higher Education for Liberian Development (USAID grant) <i>2011</i>	Developed engineering design curriculum for summer enrichment program for entering freshmen and sophomore engineering and agriculture students from the University of Liberia and Cuttington University, Liberia. (PIs: Herbert Winful and Cinda-Sue Davis)
Fulbright Research: Nutrient Scavenging Potential of Algae Isolated from Domestic Wastewater in New Delhi <i>2009-2010</i>	Isolated, purified and identified algae from wastewater effluents in New Delhi, India. Studied nutrient scavenging potential of native waste-grown algae and analyzed nutrient and protein value of waste-grown algae cultures. (PI: Dolly Wattal Dhar)
Oswald Engineering Associates, Wastewater Engineer <i>2007-2009</i>	Performed preliminary design and drafting work for several municipal and industrial wastewater algal pond systems in the U.S. and India. Designed and performed all drafting work for improvements to a 1.5 MGD municipal wastewater algae pond system in Delhi, CA. (Supervisor: F. Bailey Green)
SAIC, Inc., Systems Engineer <i>2006-2007</i>	Designed technology and methodologies to enable a faster, cheaper, and more reliable systems integration of software and hardware. (Supervisor: Seana Gallagher)

Teaching & Mentorship

Instructor , Cuttington University, Liberia <i>Summer 2011</i>	Developed engineering design curriculum and taught 1-month college preparatory classes to entering freshmen and sophomore engineering and agriculture students.
Guest Lecturer , Environmental Process Engineering <i>Winter 2013</i>	Lectured several classes on wastewater process design, developed in-class exercises and example problems.
Graduate Student Mentor <i>2011-present</i>	Peer mentored a Ph.D. student pursuing research on methanotrophs in wastewater treatment and pharmaceutical biotransformation.
Undergraduate Student Advisor <i>2011-present</i>	Advised three undergraduate students performing directed research on low oxygen wastewater treatment.

Professional Service

Editorial Board, Michigan Journal of Sustainability, 2013 – 2015

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

Manuscript reviewer

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

Membership

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

Registered Engineer in Training, California