

## RESUME – David A. Ladner

### PERSONAL DATA

Professor  
Department of Environmental Engineering and Earth Sciences  
163 Rich Environmental Engineering Laboratory  
342 Computer Court  
Anderson, SC 29625  
864-656-5572  
[ladner@clemson.edu](mailto:ladner@clemson.edu)  
<http://cecas.clemson.edu/ladnergrou>

### EDUCATION

Ph.D., University of Illinois at Urbana-Champaign, 2009, Environmental Engineering  
M.S., University of Illinois at Urbana-Champaign, 2005, Environmental Engineering  
B.S., New Mexico Institute of Mining and Technology, 2003, Environmental Engineering

### PROFESSIONAL EXPERIENCE

Clemson University, 2023-present, Professor of Environmental Engineering  
Clemson University, 2016-2023, Associate Professor of Environmental Eng.  
Clemson University, 2010-2016, Assistant Professor of Environmental Eng.  
Arizona State University, 2009-2010, Postdoctoral Research Associate

### MEMBERSHIPS

Member, American Water Works Association, AWWA (2005- )  
Member, North American Membrane Society, NAMS (2007- )  
Member, Association of Environmental Engineering and Science Professors,  
AEESP (2009- )  
Member, American Chemical Society, ACS (2011-2023)  
Member, International Water Association, IWA (2010-2011)  
Member, Water Environment Association, WEF (2018- )  
Member, American Membrane Technology Association, AMTA (2019- )

### PROFESSIONAL ACTIVITIES

Member, Student Services Committee, AEESP (2009-2017)  
Member, University Student Activities Committee, AWWA (2012-present)  
Vice-Chair, Student Services Committee, AEESP (2011-2012)  
Chair, Student Services Committee, AEESP (2012-2015)  
Chair, Publications Committee, AEESP (2021-present)  
Chair, Conference Organizing Committee, AMTA/AWWA (2023-present)  
Junior Trustee, SC American Water Works Association (SCAWWA) (2022-2023)  
Senior Trustee, SC American Water Works Association (SCAWWA) (2023-present)

## PUBLICATIONS

### **Refereed Journal Publications and Book Chapters**

*(This list with hyperlinks is available at <https://cecas.clemson.edu/ladnergrouppublications/>)*

#### **At Clemson**

50. Bowman, C.; Best Lazar, K.; Carraway, E.; Ladner, D.A.; Whitmire, S. "Fluvial Concentrations of Microplastics in a Suburban Micro-Watershed: Sampling Methodology and Analysis." *Environmental Engineering Science* 2024, in press.
49. Alayande, A.B.; Qi, W., Karthikeyan, R.; Popat, S.C.; Ladner, D.A.; Amy, G. "Use of reclaimed municipal wastewater in agriculture: Comparison of present practice versus an emerging paradigm of anaerobic membrane bioreactor treatment coupled with hydroponic controlled environment agriculture." *Water Research* 2024, 265, 122197.
48. Hadiuzzaman, M.; Mirza, N.; Brown, S.P.; Ladner, D.A.; Salehi, M. "Lead (Pb) deposition onto new and biofilm-laden potable water pipes." *Chemosphere* 2023, 342, 140135.
47. Qi, W.; Ladner, D.A. "Automated testing apparatus for ceramic membrane filtration of high-strength industrial wastewater." *Journal of Environmental Engineering* 2023, 149, 04023063.
46. Hadiuzzaman, M.; Ladner, D.A.; Salehi, M. "Impact of the surface aging of potable water plastic pipes on their lead deposition characteristics." *Environmental Science: Water Research & Technology* 2023, 9, 2501.
45. Zhou, Z.; Ladner, D.A. "Computational modeling of discrete-object feed spacers attached directly onto reverse osmosis membranes for enhanced module packing capacity and improved hydrodynamics." *Separation and Purification Technology* 2022, 300, 121727.
44. Xie, A.; Ladner, D.A.; Popat, S.C. "Electrocoagulation-electroflotation for primary treatment of animal rendering wastewater to enable recovery of fats." *Chemical Engineering Journal* 2022, 431, 133910.
43. Tow, E.W.; Erson, M.S.; Kum, S.; Lee, T.; Speth, T.F.; Owen, C.; Bellona, C.; Nadagouda, M.N.; Mikelonis, A.M.; Westerhoff, P.; Mysore, C.; Frenkel, V.S.; deSilva, V.; Walker, W.S.; Safulko, A.K.; Ladner, D.A. "Managing and

treating per- and polyfluoroalkyl substances (PFAS) in membrane concentrates.” *AWWA Water Science* 2021, 3, e1233. Open access.

42. Ling, B.; Xie, P.; Ladner, D.A.; Battiato, I. “Dynamic modeling of fouling in reverse osmosis membranes.” *Membranes* 2021, 11, 349. Open access.

41. Abdulhamid, M.A.; Park, S.H.; Zhou, Z.; Ladner, D.A.; Szekely, G. “Surface engineering of intrinsically microporous poly(ether-ether-ketone) membranes: From flat to honeycomb structures.” *Journal of Membrane Science* 2021, 621, 118997.

40. Xie, P.; Cath, T.Y.; Ladner, D.A. “Mass transport in osmotically driven membrane processes.” *Membranes* 2021, 11, 29.

39. Zhou, Z.; Ling, B.; Battiato, I.; Husson, S.M.; Ladner, D.A. “Concentration polarization over reverse osmosis membranes with engineered surface features.” *Journal of Membrane Science* 2021, 617, 118199.

38. Malakian, A.; Zhou, Z.; Messick, L.; Spitzer, T.N.; Ladner, D.A.; Husson, S.M. “Understanding the role of pattern geometry on nanofiltration threshold Flux.” *Membranes* 2020, 445. Open access.

37. Idarraga-Mora, J.A.; O’Neal, A.; Pfeiler, M.E.; Ladner, D.A.; Husson, S.M. “Effect of mechanical strain on the transport properties of thin-film composite membranes used in osmotic processes.” *Journal of Membrane Science* 2020, 615, 118488.

36. do Carmo, J.; Justino, N.M.; Matias, M.S.; Puerari, R.C.; Matias, W.G.; Ladner, D.A.; Vicentini, D.S.; Hassemer, M.E.N. “Membrane adsorption with polyacrylonitrile prepared with superfine powdered activated carbon, case study: separation process applied in water treatment containing diclofenac.” *Environmental Technology* 2020, 1-11.

35. Clabeaux, R.; Carbajales-Dale, M.; Ladner, D.A.; Walker, T. “Assessing the carbon footprint of a university campus using a life cycle assessment approach.” *Journal of Cleaner Production* 2020, 273, 122600.

34. Partlan, E.; Ren, Y.; Apul, O.G.; Ladner, D.A.; Karanfil, T. “Adsorption kinetics of synthetic organic contaminants onto superfine powdered activated carbon.” *Chemosphere* 2020, 253, 126628.

33. Xie, P.; Murdoch, L.C.; Ladner, D.A. "Mitigating membrane fouling with sinusoidal spacers." *Desalination and Water Treatment* 2019, 168, 56-64.
32. Idarraga-Mora, J.A.; Childress, A.S.; Friedel, P.S.; Ladner, D.A.; Rao, A.; Husson, S. "Role of Nanocomposite Support Stiffness on TFC Membrane Water Permeance." *Membranes* 2018, 8, 111.
31. Roehl, E.A.; Ladner, D.A.; Daamen, R.C.; Cook, J.B., Safarik, J.; Phipps, D.W.; Xie, P. "Modeling fouling in a large RO system with artificial neural networks." *Journal of Membrane Science* 2018, 552, 95-106.
30. Idarraga-Mora, J.A.; Ladner, D.A.; Husson, S.M. "Thin-film composite membranes on polyester woven mesh with variable opening size for pressure-retarded osmosis." *Journal of Membrane Science* 2017, 549, 251-259.
29. Salehi, M.; Rodriguez, R.; Boettcher, A.; Powers, S.; Geitner, N.; Ladner, D.A.; Rikard, S.; Whelton, A.J. "Impact of dispersant on early life stages of the water flea *Daphnia magna* and the eastern oyster *Crassostrea virginica*." *Journal of Applied Toxicology* 2017, 37, 1464-1470.
28. Bai, L.; Li, C.; Korte, C.; Huibers, B.M.J.; Pales, A.R.; Liang, W.; Ladner, D.A.; Daigle, H.; Darnault, C.J.G. "Effects of silica-based nanostructures with raspberry-like morphology and surfactant on the interfacial behavior of light, medium, and heavy crude oils at oil-aqueous interfaces." *Applied Nanoscience* 2017, 7, 947-972.
27. Huang, X.; Andry, S.; Yaputri, J.; Kelly, D.; Ladner, D.A.; Whelton, A.J. "Crude oil contamination of plastic and copper drinking water pipes." *Journal of Hazardous Materials* 2017, 339, 385-394.
26. Huibers, B.M.J.; Pales, A.R.; Bai, L.; Li, Chunyan; Mu, L.; Ladner, D.A.; Daigle, H.; Darnault, C.J.G. "Wettability alteration of sandstones by silica nanoparticle dispersions in light and heavy crude oil." *Journal of Nanoparticle Research* 2017, 19, 323.
25. Apul, O.G.; Hoogesteijn von Reitzenstein, N.H.; Schoepf, J.; Ladner, D.A.; Hristovski, K.D.; Westerhoff, P. "Superfine powdered activated carbon incorporated into electrospun polystyrene fibers preserve adsorption capacity." *Science of The Total Environment* 2017, 592, 458-464.

24. Johnson, T.A.; Rehak, E.A.; Sahu, S.P.; Ladner, D.L.; Cates, E.L. "Bacteria Inactivation via X-ray-Induced UVC Radioluminescence: Toward in Situ Biofouling Prevention in Membrane Modules." *Environmental Science & Technology* 2016, 50, 11912-11921.
23. Ersan, M.S.; Ladner, D.A.; Karanfil, T. "The control of N-nitrosodimethylamine, Halonitromethane, and Trihalomethane precursors by Nanofiltration." *Water Research* 2016, 105, 274-281.
22. Amaral, P.; Partlan, E.; Li, M.; Lapolli, F.; Mefford, O.T.; Karanfil, T.; Ladner, D.A. "Superfine powdered activated (S-PAC) coatings on microfiltration membranes: Effects of milling time on contaminant removal and flux." *Water Research* 2016, 100, 429-438.
21. Partlan, E.; Davis, K.; Ren, Y.; Apul, O.G.; Mefford, O.T.; Karanfil, T.; Ladner, D.A. "Effect of bead milling on chemical and physical characteristics of activated carbons pulverized to superfine sizes." *Water Research* 2016, 89, 161-170.
20. Wang, B.; Geitner, N.K.; Davis, T.P.; Ke, P.C.; Ladner, D.A.; Ding, F. "Deviation From the Unimolecular Micelle Paradigm of PAMAM Dendrimers Induced by Strong Inter-Ligand Interactions." *The Journal of Physical Chemistry C* 2015, 119, 19475-19484.
19. Ersan, M.S.; Ladner, D.A.; Karanfil, T. "N-Nitrosodimethylamine (NDMA) Precursors Leach from Nanofiltration Membranes." *Environmental Science & Technology Letters* 2015, 2, 66-69.
18. Geitner, N.K.; Wang, B.; Andorfer, R.; Ladner, D.A.; Ke P.C.; Ding, F. "Structure-Function Relationship of PAMAM Dendrimers as Robust Oil Dispersants." *Environmental Science & Technology* 2014, 48, 12868-12875.
17. Steele, M.M.; Anctil, A.; Ladner, D.A. "Integrating algaculture into small wastewater treatment plants: Process flow options and life cycle impacts." *Environmental Science: Processes & Impacts* 2014, 16, 1387-1399.
16. Xie, P.; Murdoch, L.C.; Ladner, D.A. "Hydrodynamics of sinusoidal spacers for improved reverse osmosis performance." *Journal of Membrane Science* 2014, 453, 92-99.

15. Geitner, N.K.; Powell, R.R.; Bruce, T.; Ladner, D.A.; Ke, P.C. “Effects of dendrimer oil dispersants on *Dictyostelium discoideum*.” RSC Advances 2013, 3, 25930-25936.
14. Ellerie, J.R.; Apul, O.; Karanfil, T.; Ladner, D.A. “Comparing graphene, carbon nanotubes, and superfine powdered activated carbon as adsorptive coating materials for microfiltration membranes.” Journal of Hazardous Materials 2013, 261, 91-98.
13. Lewis, D.O.; Ladner, D.A.; Karanfil, T. “Source water and microfiltration plant manganese control study.” Journal American Water Works Association 2013, 105, E480-E495.
12. Ladner, D.A.; Bolyard S.C.; Apul, D.; Whelton, A.J. “Navigating the academic job search for environmental engineers: Guidance for job seekers and mentors.” Journal of Professional Issues in Engineering Education and Practice 2013, 139, 211-217. Open “final draft” [here](#).
11. Smith, M.; Barnard, C.; Ladner, D.A. “Functionalized nanoparticles as removable membrane coatings.” Ch. 11 in Novel Solutions to Water Pollution, S. Ahuja, and K. Hristovski, eds., ACS Symposium Series, American Chemical Society, Washington, D.C., 2013, 1123, 189–203.
10. Geitner, N.K.; Bhattacharya, P.; Steele, M.; Chen, R.; Ladner, D.A.; Ke, P.C. “Understanding dendritic polymer-hydrocarbon interactions for oil dispersion.” RSC Advances 2012, 2, 9371-9375.
9. Bhattacharya, P.; Conroy, N.; Rao, A.M.; Powell, B.A.; Ladner, D.A.; Ke, P.C. “PAMAM dendrimer for mitigating humic foulant.” RSC Advances 2012, 2, 7997-8001.

**At Clemson, based on PhD and postdoctoral work**

8. Kiser, M.A.; Ladner, D.A.; Hristovski, K.D.; Westerhoff, P. “Nanomaterial transformation and association with fresh and freeze-dried wastewater activated sludge: Implications for testing protocol and environmental fate.” Environmental Science and Technology 2012, 46, 7046–7053.

7. Ladner, D.A.; Steele, M.; Weir, A.; Hristovski, K.; Westerhoff, P. "Functionalized nanoparticle interactions with polymeric membranes." *Journal of Hazardous Materials* 2012, 211-212:288-295.
6. Reed, R.; Ladner, D.; Higgins, C.P.; Westerhoff, P.; Ranville, J. "Solubility of nano-zinc oxide in environmentally and biologically important matrices." *Environmental Toxicology and Chemistry* 2012, 31, 93–99.
5. Vardon, D.R.; Clark, M.M.; and Ladner, D.A. "The potential of laser scanning cytometry for early warning of algal blooms in desalination plant feedwater." *Desalination* 2011, 277, 193-200.

#### **Prior to Clemson**

4. Ladner, D.A.; Vardon, D.R.; Clark, M.M. "Effects of shear on microfiltration and ultrafiltration fouling by marine bloom-forming algae." *Journal of Membrane Science* 2010, 356, 33-43.
3. Ba, C.; Ladner, D.A.; Economy, J. "Using polyelectrolyte coatings to improve fouling resistance of a positively charged nanofiltration membrane." *Journal of Membrane Science* 2010, 347, 250-259.
2. Ladner, D.A.; Subramani, A.; Kumar, M.; Adham, S.S.; Clark, M.M. "Bench-scale evaluation of seawater desalination by reverse osmosis." *Desalination* 2010, 250, 490-499.
1. Ladner, D.A.; Lee, B.W.; Clark, M.M. "Laser scanning cytometry for enumeration of fluorescent microspheres." *Journal American Water Works Association* 2007, 99, 110-117.

#### **Conference Proceedings, Peer-reviewed**

Steele, M.M., Ladner, D.A., Anctil, A. "Net Environmental Benefit Approach to Life Cycle Assessment for Algalculture Integration at Wastewater Treatment Plants." *Proceedings of LCA XIII*, Orlando, FL (October, 2013).

#### **Conference Proceedings, Non-peer-reviewed**

Ladner, D.A.; Larsen, D.E.; Bertoia, C.; Mysore, C.; Raja, P.; Walker, W.S.; Alspach, B. "Evaluating and improving energy efficiency at MF/UF membrane

filtration facilities.” Proceedings of the Membrane Technology Conference, Las Vegas, NV (February, 2022).

Qi, W.; Ladner, D.A. “Energy reduction in ceramic microfiltration using carbon-dioxide-enhanced backwash.” Proceedings of the Membrane Technology Conference, West Palm Beach, FL (July, 2021).

Zhou, Z.; Ladner, D.A. “Computational Fluid Dynamics (CFD) Modeling of Novel Designs For 3D- Printed Spacers in High-Pressure Membrane Modules.” Proceedings of the Membrane Technology Conference, West Palm Beach, FL (July, 2021).

Zuo, Z.; Ladner, D.A.; Weinman, S.; Sarupria, S.; Husson, S.; Battiato, I. “Concentration Polarization Over Reverse Osmosis Membranes With Engineered Surface Features.” Platform presentation at the Membrane Technology Conference, New Orleans, LA (February 27, 2019).

Ladner, D.A.; Zuo, Z.; Ling, B.; Sarupria, S.; Husson, S.; Battiato, I. “Toward Optimized Membrane Unit Processes Via Multi-Scale Modeling.” Platform presentation at the Membrane Technology Conference, New Orleans, LA (February 27, 2019).

Singh, R., Asif, A.A., Venayagamoorthy, G.K., Lakhtakia, A., Abdelhamid, M., Alapatt, G.F., Ladner, D.A. “Emerging Role of Photovoltaics for Sustainably Powering Underdeveloped, Emerging, and Developed Economies.” (Key Note Address) Proceedings of the 2nd International Conference on Green Energy and Technology (ICGET), Dhaka, Bangladesh (September, 2014).

Ellerie, J.R., Ladner, D.A. “Adsorptive activated carbon coatings for ultrafiltration membranes,” Proceedings of the Water Quality Technology Conference (WQTC), American Water Works Association (November, 2011).

## **PRESENTATIONS**

### **Oral presentations**

95. Speth, T.S.; Tow, E.W.; Ersan, M.S.; Kum, S.; Lee, T.; Owen, C.; Bellona, C.; Nadagouda, M.N.; Mikelonis, A.M.; Westerhoff, P.; Mysore, C.; Frenkel, V.S.; deSilva, V.; Walker, W.S.; Safulko, A.K.; Ladner, D.A. “Managing PFAS Treatment Residuals.” Platform presentation at the 20th Annual Drinking



Water Workshop: Small Systems Challenges and Solutions, Cincinnati, OH (September 14, 2023).

94. Qi, W.; Ladner, D.A. “Energy reduction in ceramic microfiltration using supersaturated carbon-dioxide-enhanced backwash.” Platform presentation at the North American Membrane Society (NAMS) annual meeting, Tuscaloosa, AL (May 17, 2023).

93. Ladner, D.A.; Karthikeyan, R.; Amy, G.; Adelberg, J. “Controlled environment agriculture with non-conventional water resources.” Platform presentation at the Clemson University Research Symposium, Clemson, SC (May 10, 2023).

92. Ladner, D.A. “Evaluation of transport phenomena in reverse osmosis via numerical modeling.” Presentation in Transport Phenomena course at Carnegie Mellon University taught by Grigorios Panagakos, online, (April 26, 2023).

91. Mirza N.; Salehi M.; Hadiuzzaman M.; Ladner D.A.; Brown S.P. “Biomarker bacterial taxa from lead-exposed biofilms provides insight into lead-biofilm interactions in premise plumbing pipes.” Platform presentation at the 84th annual Association of Southeastern Biologists meeting, Winston-Salem NC (March 23-26, 2023).

90. Qi, W.; Ladner, D.A. “Automated system for testing membrane filtration of high-strength industrial wastewater, “Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March 13, 2023).

89. Ladner, D.A. “A background on data analytics, machine learning, and artificial intelligence.” Platform presentation in the Membrane Plant Data Analytics Workshop at the AMTA/AWWA Membrane Technology Conference, Knoxville, TN (February 20, 2023).

88. Ladner, D.A. “Clemson University Efforts on Workforce Development and Retention.” WEASC Midyear Meeting, Columbia, SC (December 8, 2022).

87. Larsen, D.E.; Ladner, D.A. “Evaluation of energy use in drinking water treatment systems.” Platform presentation at the South Carolina Water Resources Conference, Columbia, SC (October 20, 2022).

86. Ladner, D.A. “Managing and treating PFAS in membrane concentrates.” Platform presentation at the AMTA/SEDA Technology Transfer Workshop, Durham, NC (July 14, 2022).
85. Ladner, D.A. “Increasing data science skills in environmental engineering students through low-barrier-to-entry Python tools.” Platform presentation at the Association of Environmental Engineering and Science Professors (AEESP) Conference, St. Louis, MO (June 30, 2022). Python notebook presentation.
84. Zhou, Z.; Ladner, D.A. “Computational fluid dynamics (CFD) modeling of 3D-printed spacers and patterned membranes in reverse osmosis and nanofiltration modules.” Platform presentation at the North American Membrane Society (NAMS) annual meeting, Tempe, AZ (May, 2022).
83. Qi, W.; Ladner, D.A. “Automated and field-deployable evaluation of microfiltration/ultrafiltration fouling.” Platform presentation at the North American Membrane Society (NAMS) annual meeting, Tempe, AZ (May, 2022).
82. Ladner, D.A.; Adelberg, J.; Vanegas, D.; Karthikeyan, R.; Amy, G. “South Carolina plant factories: Water reuse and resource capture.” Platform presentation at the Clemson University Water Research Symposium, Clemson, SC (May 9, 2022).
81. Ladner, D.A. “Environmental justice.” Platform presentation at the TigerSphere Workshop, Clemson, SC (May 4, 2022).
80. Ladner, D.A.; Srinivasan, H.L.; Martin, A.; Carbajales-Dale, M. “Energy costs and demands in wastewater treatment.” Webinar for the East Carolina University Center for Sustainable Energy and Environmental Engineering, Virtual (April 4, 2022).
79. Ladner, D.A.; Larsen, D.E.; Bertoia, C.; Mysore, C.; Raja, P.; Walker, W.S.; Alspach, B. “Batting average or wins above replacement? Evaluating membrane drinking water treatment plant statistics.” Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March 2022).
78. Ladner, D.A. “Per- and polyfluoroalkyl substances (PFAS): Management and treatment in drinking water and wastewater.” Anderson Area Chamber of

Commerce Water Resources Committee Meeting, Anderson, SC (February 15, 2022).

77. Tow, E.W.; Ersan, M.S.; Kum, S.; Lee, T.; Speth, T.S.; Owen, C.; Bellona, C.; Nadagouda, M.N.; Mikelonis, A.M.; Westerhoff, P.; Mysore, C.; Frenkel, V.S.; deSilva, V.; Walker, W.S.; Safulko, A.K.; Ladner, D.A. “Managing and treating PFAS in membrane concentrates.” Platform presentation at the Membrane Technology Conference, Las Vegas, NV (February 23, 2022).

76. Ladner, D.A.; Larsen, D.E.; Bertoia, C.; Mysore, C.; Raja, P.; Walker, W.S.; Alspach, B. “Evaluating and improving energy efficiency at MF/UF membrane filtration facilities.” Platform presentation at the Membrane Technology Conference, Las Vegas, NV (February 22, 2022).

75. Ladner, D.A.; Srinivasan, Harish L.; Martin, A.; Carbajales-Dale, M. “Assessing energy use in wastewater treatment operations to identify cost-savings.” Platform presentation at the WEASC Industrial Pretreatment Workshop, Columbia, SC (December 1, 2021).

74. Ladner, D.A. “Understanding and improving membrane unit processes via numerical modeling.” Invited seminar for the Chemical Engineering department at the King Abdullah University of Science and Technology (KAUST), Virtual, (November 22, 2021).

73. Ladner, D.A.; Srinivasan, H.L.; Martin, A.; Carbajales-Dale, M. “Energy assessment at water resource recovery facilities.” Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (August 9, 2021). Slides.

72. Zhou, Z.; Ladner, D.A. “Computational Fluid Dynamics (CFD) Modeling of Novel Designs For 3D-Printed Spacers in High-Pressure Membrane Modules.” Platform presentation at the Membrane Technology Conference, West Palm Beach, FL (July, 2021).

71. Malakian, A.; Zhou, Z.; Messick, L.; Spitzer, T.N.; Ladner, D.A.; Husson, S.M. “Designing patterned membranes for improved control over colloidal fouling.” Platform presentation at the American Chemical Society (ACS) Spring National Meeting, Virtual, (April, 2021).  
<https://acs.digitellinc.com/acs/sessions/5691/view>

70. Ling, B.; Ladner, D.A.; Battiato, I. “Rough or wiggly? Membrane topology and morphology for fouling control.” Platform presentation at the North American Membrane Society (NAMS) annual meeting, Online (May, 2020). See abstract on page 100 of the NAMS 2020 Program Book.

69. Idarraga-Mora, J.; Childress, A.; Friedel, P.; Lemelin, M.; O’Neal, A.; Pfeiler, M.; Weinman, S.; Rao, A.; Ladner D.A.; Husson, S.M. “Mechanical properties of thin-film composite membranes and the roles they play on transport in osmotic processes.” Platform presentation at the North American Membrane Society (NAMS) annual meeting, Online (May, 2020). See abstract on page 112 of the NAMS 2020 Program Book.

68. Ladner, D.A. “Introduction to SC E3 and Clemson University’s Sustainable Manufacturing Initiatives.” Platform presentation at the Sustainable Manufacturing Forum, CUICAR, Greenville, SC (March 12, 2020).

67. Husson, S.M.; Berge, N.D.; Furrer, J.; Andersen, B.; Popat, S.; Ladner, D.A.; Amy, G.L.; Norman, S.R. “AnMBRs as a next-generation technology to address the food-energy-water nexus.” Platform presentation at the SC State EPSCoR Committee Semiannual Meeting, Columbia, SC (March, 2020).

66. Ladner, D.A.; Zhou, Z.; Cash, C.; Kashif, S.B.; Malakian, A.; Ling, B.; Battiato, I.; Husson, S.; Sarupria, S. “Multi-scale modeling for membrane processes in drinking water and wastewater treatment.” Invited talk in the Department of Civil and Environmental Engineering, University of Memphis (October 29, 2019).

65. Ladner D.A.; Carbajales-Dale, M.; Carraway, E.; Litherland, P. “Energy assessment at industrial and municipal wastewater treatment plants.” Platform presentation at the American Chemical Society (ACS) Fall National Meeting, San Diego, CA (August, 2019).

64. Zhou, Z.; Kananizadeh, N.; Sarupria, S.; Weinman, S.; Husson, S.M.; Battiato, I.; Ladner, D.A. “Concentration polarization modeling for high-pressure membranes with engineered surface features.” Platform presentation at the North American Membrane Society (NAMS) annual meeting, Pittsburgh, PA (May 13, 2019)

63. Idarraga-Mora, J.A.; O’Neal, A.; Pfeiler, M.; Ladner, D.A.; Husson, S. “Incorporating membrane deformation into the boundary layer equation to model water and reverse salt flux in osmotic processes.” Platform presentation

at the North American Membrane Society (NAMS) annual meeting, Pittsburgh, PA (May 13, 2019). Download abstract.

62. Martin, A.; Cash, C.J.; Ladner, D.A. “Computational modeling to improve chlorinator design in a Haitian drinking water system.” Platform presentation at the Association of Environmental Engineering and Science Professors (AEESP) by-annual meeting, Tempe, AZ (May, 2019).

61. Basha, R.; Owen, D.; Phillips, C.; Townsend, C.; Vaughn, D.; Ladner, D.A. “Improving sanitation in the Black Belt of rural Alabama.” Platform presentation at the Clemson University Research Symposium, Clemson, SC (May, 2019). Download slides.

60. Husson, S.M.; Berge, N.D.; Furrer, J.; Andersen, B.; Popat, S.; Ladner, D.A.; Amy, G.L.; Norman, S.R. “AnMBRs as a next-generation technology to address the food-energy-water nexus.” Platform presentation at the SC State EPSCoR Meeting, Greenville, SC (April 12, 2019).

59. Ladner, D.A.; Zhou, Z.; Cash, C.; Kashif, S.B.; Malakian, A.; Ling, B.; Battiato, I.; Husson, S.; Sarupria, S. “Toward Optimized Membrane Unit Processes Via Multi-Scale Modeling.” Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March 12, 2019). Download slides.

58. Ladner, D.A. “Understanding and improving membrane unit processes via numerical modeling.” Invited talk in the Department of Civil and Environmental Engineering, Texas A&M University (February 11, 2019).

57. Guerrero, V.; Partlan, E.; Ladner, D.A. “Effects of dissolved CO<sub>2</sub> on organic and inorganic fouling and cleaning of RO membranes.” Platform presentation at the Membrane Technology Conference, West Palm Beach, FL (March, 2018). [Won one of two awards for best student presentation.]

56. Ladner, D.A.; Song, L.; Griffis, H.M.; Ross, M.; Tasian, G. “Correlating Drinking Water Quality with Kidney Stone Incidence in South Carolina.” Platform presentation at Clemson University’s GIS Day, Clemson, SC (November, 2017).

55. Zhou, Z.; Weinman, S.T.; Sarupria, S.; Husson, S.M.; Ladner, D.A. “CFD simulation of fluid and fouling profiles for membranes with engineered surface

features.” Platform presentation at the International Congress on Membranes and Membrane Processes (ICOM), San Francisco, CA (July, 2017).

54. Ladner, D.A.; Song, L.; Griffis, H.M.; Landa, E.R.; Tasian, G.E. “Correlating Drinking Water Quality with Kidney Stone Incidence in South Carolina.” Platform presentation at the Association of Environmental Engineering and Science Professors (AEESP) by-annual meeting, Ann Arbor, MI (June, 2017).

53. Ladner, D.A. “CFD simulation of fluid profiles for membranes with engineered surface features.” Platform presentation at the Clemson University Research Symposium, Clemson, SC (May, 2017).

52. Sharmin, R.; Ladner, D.A. “Computational fluid dynamics (CFD) models for simulating foulant reduction by patterned RO and NF membranes.” Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2017).

51. Ladner, D.A. “Exploring and optimizing membrane treatment facilities.” Platform presentation at the Technology Transfer Conference, Greenville, SC (January, 2017).

50. Ladner, D.A. “Membrane processes in drinking water treatment: MF to RO and PVDF to polyamide.” Platform presentation at the Technology Transfer Conference, Greenville, SC (January, 2017).

49. Huibers, B.M.J.; Pales, A.R.; Bai, L.; Li, C.; Mu, L.; Ladner, D.A.; Daigle, H.; Darnault, C.J.G. “Wettability Alteration of Sandstones by Silica Nanoparticle Dispersions.” Platform presentation at the American Geophysical Union (AGU) Fall General Assembly, San Francisco, CA (December, 2016).

48. Huang, X.; Whelton, A.J.; Andry, S.; Yaputri, J.; Kelly D. “Crude oil Contamination and Recovery of Water Distribution System Pipes.” Platform presentation at the Water Quality Technology Conference (WQTC), Indianapolis, IN (November, 2016).

47. Ladner, D.A.; Alexander, K.; Bui, K.; Dove, M.; Fulton, H.; Fuqua, M.; Gunderman, M.; Hunter, M.; Mettlen, H.; Konczal, P.; Lindsay, S.; McClure, K.; Nguyen, D.; Nguyen, S.; Shugart, R.; Williams, H.; Worrall, S. “Mapping South Carolina drinking water quality for alignment with health-record databases in epidemiological studies.” Platform presentation at GIS Days, Clemson, SC (November, 2016).

46. Quinter, K.; Tidwell, V.; Carraway, E.; Ladner, D.A. “Integrated water-energy planning in the Eastern Interconnection.” Platform presentation at the South Carolina Water Resources Conference, Columbia, SC (October, 2016).
45. Ladner, D.A.; Holtmann, K.; Al-Dulaimi, R.; Bui, K.; Degen, J.; Dove, M.; Gallimore, N.; Knapp, M.; Markley, A.; Mettlen, H.; Shugart, R.; Vatalaro, A. “Mapping South Carolina drinking water quality for alignment with health-record databases in epidemiological studies.” Platform presentation at the South Carolina Water Resources Conference, Columbia, SC (October, 2016).
44. Apul, O.G.; von Reitzenstein, N.H.; Ladner, D.A.; Hristovski, K.D.; Westerhoff, P. “Development of novel non-woven fabrics by co-spinning of superfine powdered activated carbon and polystyrene.” Platform presentation at the American Chemical Society (ACS) Fall National Meeting, Philadelphia, PA (August, 2016).
43. Quinter, K.M.; Tidwell, V.; Carraway, E.; Ladner, D.A. “Integrated energy-water planning in the Eastern Interconnection.” Platform presentation at the American Chemical Society (ACS) Fall National Meeting, Philadelphia, PA (August, 2016).
42. Ladner, D.A.; Xie, P. “The Power of Hydrodynamics.” Platform presentation at the Membranes: Materials & Processes Gordon Research Conference (GRC), New London, NM (August, 2016).
41. Partlan, E.; Amaral, P.; Brown, M.; Ladner, D.A. “Microfiltration membranes coated with superfine powdered activated carbon (S-PAC) for the removal of trace contaminants.” Platform presentation at the AWWA Annual Conference and Exposition, Chicago, IL (June, 2016).
40. Ladner, D.A.; Xie, P. “Multiphysics modeling of membrane processes.” Platform presentation at the Clemson University Research Symposium, Clemson, SC (May, 2016).
39. Liu, J.; Ladner, D.A. “Bench-scale automatic ceramic membrane filtration system.” Platform presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2016).
38. Roehl, E.A.; Ladner, D.A.; Daamen, R.C.; Cook, J.B. “Empirical Modeling of a Reverse Osmosis System to Quantify Causes of Fouling.” Platform

presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2016).

37. Ladner, D.A.; Tu, Y.; Steele, M.; Carpenter, K.; Bourne, K.; Brown, M.; Geitner, N.; Wang, B.; Ke, P.C.; Ding, F.; Salehi, M.; Whelton, A.; Powers, S. "Disseminating Oil Spill Knowledge through an Exhibit at the Estuarium." Platform presentation at the Oil Spill and Ecosystem Science Conference, Tampa, FL (February, 2016).

36. Partlan, E.; Li, M.; Ayerle, P.; Ladner, D.A. "Membrane Filtration of Colloidal Activated Carbon: Considerations for Optimization of Head Loss Reduction and Small Molecule Adsorption." Platform presentation at the Membrane Technology Conference & Exposition, San Antonio, TX (February, 2016).

35. Xie, P.; Murdoch, L.; Ladner, D.A. "Comparison of computational fluid dynamics (CFD) and experimental data for fouling mitigation with sinusoidal reverse osmosis spacers." Platform presentation at the Membrane Technology Conference & Exposition, San Antonio, TX (February, 2016).

34. Partlan, E.; Davis, K.; Ren, Y.; Apul, O.; Mefford, O.T.; Karanfil, T.; Ladner, D.A. "Effects of Bead Milling on Activated Carbon Characteristics: Trends in Superfine PAC." Platform presentation at the Water Quality Technology Conference, Salt Lake City, UT (November, 2015).

33. Ladner, D.A.; Amaral, P.; Partlan, E.; Li, M.; Davis, K.; Ren, Y.; Karanfil, T. "Effects of S-PAC milling on membrane coating performance in microfiltration." Platform presentation at the Water Quality Technology Conference, Salt Lake City, UT (November, 2015).

32. Ladner, D.A. "Environmental Engineering on Planet Earth." Keynote lecture at the SURI closing ceremony, Benedict College, Columbia, SC (July, 2015).

31. Ladner, D.A.; Carpenter, K.; Bourne, K.; Tu, Y.; Wang, B.; Geitner, N.K.; Ke, P.C.; Ding, F.; Powers, S.; Salehi, M.; Whelton, A.J. "Toward biocompatible oil spill dispersants through dendritic polymers." Platform presentation at the Association of Environmental Engineering and Science Professors (AEESP) biannual conference, New Haven, CT (June, 2015).



30. Xie, P.; Murdoch, L.C.; Ladner, D.A. "Fouling mitigation in reverse osmosis with sinusoidal spacers and visualization of the membrane fouling process with modeling." Platform presentation at the North American Membrane Society (NAMS) annual meeting, Boston, MA (June, 2015).
29. Steele, M.; Sims, R.; Ladner, D.A.; Anctil, A. "Toward sustainability in wastewater treatment: Comparing life cycle impacts of algaculture and conventional systems." International Symposium on Sustainable Systems and Technology, Dearborn, MI (May 2015).
28. Ersan, M.; Ladner, D.A.; Karanfil, T. "The Removal of DBP Precursors Using Nanofiltration." Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).
27. Partlan, E.T.; Ladner, D.A. "Superfine carbon and microfiltration for adsorption of trace contaminants: Effects of water quality, chemical addition, and system configuration." Platform presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).
26. Partlan, E.; Matsui, Y.; Ladner, D.A. "Aggregation of superfine carbon for improved filtration performance." Platform presentation at the Membrane Technology Conference and Exposition, Orlando, FL (March, 2015).
25. Li, M.; Partlan, E.T.; Ladner, D.A. "Effects of natural organic matter on contaminant removal by superfine powdered activated carbon coupled with microfiltration membranes." Platform presentation at the Water Quality Technology Conference (WQTC), New Orleans, LA (November, 2014).
24. Steele, M.; Sims, R.; Ladner, D.A.; Anctil, A. "Algaculture at wastewater treatment plants: feasibility and life cycle impacts." Platform presentation at Algal Biomass, Biofuels, and Bioproducts, Santa Fe, NM (June, 2014).
23. Xie, P.; Murdoch, L.; Ladner, D.A. "Sinusoidal spacers for mitigating fouling in reverse osmosis." Platform presentation at the North American Membrane Society Annual Meeting, Houston, TX (June, 2014).
22. Ladner, D.A.; Li, M.; Partlan, E.T.; Karanfil, T. "Effects of super-fine powdered activated carbon on microfiltration membranes." Platform presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2014).

21. Partlan, E.T.; Ladner, D.A. "Removal of inorganic scale from reverse osmosis membranes using dissolved CO<sub>2</sub>." Platform presentation at the AWWA/AMTA Membrane Technology Conference & Exposition, Las Vegas, NV (March, 2014).
20. Ladner, D.A.; Tu, Y.; Xie, P.; Ulmer, R.; Goins, R.; Geitner, N.K.; Ke, P.C.; Salehi, M.; Powers, S.; Whelton, A.J. "Dendritic polymers as oil spill dispersants: Effectiveness and toxicity compared to Corexit 9500." Platform presentation at the Gulf of Mexico Oil Spill & Ecosystem Science Conference, Mobile, AL (January, 2014).
19. Geitner, N.K.; Powell, R.; Bruce, T.; Ladner, D.A.; Ding, F.; Ke, P.C. "The effects of dendrimer oil dispersants on *Dictyostelium discoideum*." Platform presentation at the Sustainable Nanotechnology Organization Conference, Santa Barbara, CA (November, 2013).
18. Ladner, D.A.; Partlan, E.T.; Li, M.; Crumbley, A.M.; Bilchak, C.R.; Mefford, O.T.; Karanfil, T. "Interactions of Super-Fine Powdered Activated Carbon and Graphene Adsorbents with Microfiltration and Ultrafiltration Membranes." Platform presentation at the Water Quality Technology Conference (WQTC), Long Beach, CA (November, 2013).
17. Ladner, D.A.; Partlan, E.T.; Li, M.; Apul, O.; Mefford, O.T.; Karanfil, T. "Balancing adsorption kinetics and NOM competition with energy requirements for small-particle adsorbent-membrane systems." Platform presentation at the Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference, Golden, CO (July, 2013).
16. Xie, P.; Ladner, D.A. "Reducing concentration polarization with sinusoidal spacers: Computational modeling and experimental verification." Platform presentation at the North American Membrane Society annual meeting, Boise, ID (June, 2013).
15. Steele, M.M.; Ladner, D.A.; Anctil, A. "Net environmental benefit LCA: Integrating algae at WWTPs." Platform presentation at the Algal Biomass Biofuels and Bioproducts conference, Toronto, ON, Canada (June, 2013).
14. Ladner, D.A.; Carey, D.; Mobley, C. "Deploying QR codes to educate water consumers about the water-energy nexus through their mobile devices."

Platform presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2013).

13. Xie, P.; Ladner, D.A. "Sinusoidal Spacers for Concentration Polarization Mitigation in RO Desalination." Platform presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2013).

12. Ladner, D.A. "Composite nanoparticles and dendritic polymers as regenerable membrane coatings for trace contaminant removal and fouling control." Invited presentation at the University of South Alabama, Department of Civil Engineering, Mobile, AL (November, 2012).

11. Ladner, D.A.; Ellerie, J.; Smith, M.A.; Richards, C.; Baker, D.; Karanfil, T.K. "Carbonaceous nanomaterials, composite inorganic/organic nanoparticles, and dendritic polymers as regenerable membrane coatings for trace contaminant removal and fouling control." Platform presentation at the American Chemical Society Fall National Meeting, Philadelphia, PA (August, 2012).

10. Smith, M.; Ladner, D.A. "Composite nanoparticles as regenerable coatings on reverse osmosis membranes." Platform presentation at the 22nd North American Membrane Society Annual Meeting, New Orleans, LA (June, 2012).

9. Ellerie, J.; Ladner, D.A. "Adsorptive carbon coatings for ultrafiltration membranes." Platform presentation at the American Water Works Association Annual Conference and Exhibition, Dallas, TX (June, 2012).

8. Xie, P.; Ladner, D.A. "Sinusoidal- and helical-flow spacers for fouling mitigation and energy reduction in RO desalination." Platform presentation at the American Water Works Association Annual Conference and Exhibition, Dallas, TX (June, 2012).

7. Smith, M.; Barnard, C.; Ladner, D.A. "Functionalized nanoparticles as removable membrane coatings," Platform presentation at the American Chemical Society Fall National Meeting, Denver, CO (August, 2011).

6. Ladner, D.A.; Steele, M.M.; Weir, A.; Hristovski, K.; and Westerhoff, P. "Nanoparticle rejection by microfiltration and ultrafiltration membranes," Platform presentation at the International Conference on the Environmental Implications of Nanotechnology, Los Angeles, CA (May, 2010).

5. Ladner, D.A.; Jurevis, J.D.; and Clark, M.M. "Characterization of a highly fouling fraction of algogenic organic matter in low- and high-pressure membrane filtration," Platform presentation at the Water Quality Technology Conference, American Water Works Association, Seattle, WA (November, 2009).

4. Ladner, D.A.; Vardon, D.R.; and Clark, M.M. "Effects of shear on microfiltration and ultrafiltration fouling by bloom-forming algae in a seawater desalination treatment train," Platform presentation at the Membrane Technology Conference, American Water Works Association, Memphis, TN (April, 2009).

3. Ladner, D.A.; Vardon, D.R.; Kumar, M.; and Clark, M.M. "Fouling by Algogenic Organic Matter in Seawater Reverse Osmosis Desalination," Platform presentation at the Annual Conference and Exhibition, American Water Works Association, Atlanta, GA (July, 2008).

2. Ladner, D.A.; Kumar, M.; Adham, S.S.; and Clark, M.M. "Bench-Scale Studies to Characterize Organic Foulants in Seawater Reverse Osmosis Desalination," Platform presentation at the 17th Annual Meeting of the North American Membrane Society, Chicago, IL (May, 2006)

1. Ladner, D.A.; Thompson, K.; Lee, B.; and Clark, M.M. "Indirect membrane integrity monitoring using online fluorescence based bacteria detection," Platform presentation at the 15th Annual Meeting of the North American Membrane Society, Honolulu, HI (July, 2004).

### **Poster presentations**

72. Qi, W.; Ladner, D.A. "Energy reduction in ceramic microfiltration using supersaturated carbon-dioxide-enhanced backwash." Poster presentation at the North American Membrane Society (NAMS) annual meeting, Tuscaloosa, AL (May 15, 2023).

71. Zhou, Z.; Ladner, D.A. "Computational modeling of patterned membranes and spacers for improved hydrodynamics and fouling reduction in reverse osmosis water treatment processes." Poster presentation at the North American Membrane Society (NAMS) annual meeting, Tuscaloosa, AL (May 15, 2023).

70. Qi, W.; Ladner, D.A. “Lab-scale automated MF/UF system setup.” Poster presentation at the AMTA/AWWA Membrane Technology Conference, Knoxville, TN (February 21, 2023).
69. Smith, Peyton; Thompson, Karinna; Stickler, Andrew; Funk, Claire; Smith, Ada; Della Rocca, Sophia; Villanueva, Anthony; Ladner, David A. “Water Quality Monitoring.” Poster presentation at Clemson University 17th Annual Focus on Creative Inquiry Forum, Clemson, SC. (April, 2022). Download poster.
68. Qi, W.; Ladner, D.A. “Lab-scale automated MF/UF system setup.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March 2022).
67. Larsen, D.; Ladner, D.A.; Bertoia, C.; Mysore, C.; Raja, P.; Walker, W.S.; Alspach, B. “An evaluation of energy consumption comparing conventional water treatment plants to microfiltration and ultrafiltration water treatment plants.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March 2022).
66. Qi, W.; Ladner, D.A. “Membrane Cleaning Using Supersaturated Carbon Dioxide Solution.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (August, 2021).
65. Peng, L.; Ladner, D.A. “Electrostatic interactions between the plastic pipe surface and  $Pb^{2+}$  ions.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (August, 2021).
64. Zhou, Z.; Ladner, D.A. “Novel 3D-printed spacer designs for improved hydrodynamics and reduced energy consumption.” Poster presentation at the International Congress on Membranes and Membrane Processes (ICOM), Virtual (December, 2020).
63. Blanton, B.; Brame, S.; Falta, R.; Henderson, J.K.; Ladner, D.A.; Daigle, H.; Darnault, C. “Enhanced Oil Recovery Using Silica Nanoparticles: Sandpack Flooding Experiments in Sand and a Low Salinity Environment.” Poster presentation at the American Geophysical Union (AGU) Fall Meeting, San Francisco, CA (December 2019). See abstract at the meeting website.
62. Martin, A.; Vaughn, D.E.; Cash, C.J.; Plumblee, J.M.; Ladner, D.A. “Computational Modeling to Optimize Chlorinator Design for a Drinking

Water Treatment System in Rural Haiti.” UNC Water & Health Conference, Chapel Hill, NC (October 10, 2019). Download poster.

61. Zhou, Z.; Weinman, S.T.; Sarupria, S.; Husson, S.M.; Battiato, I.; Ladner, D.A. “Concentration polarization modeling for high-pressure membranes with engineered surface features.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2019). Download poster.

60. Martin, A.C.; Vaughn, D.E.; Ladner, D.A.; Gordon, A.S.; Plumblee, J.M. “Evaluation of Chlorine Disinfection Processes in a Water Treatment and Distribution System in Rural Haiti.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2019). Download abstract. Download poster.

59. Cash, C.; Ladner, D.A. “Get it Twisted: Modeling Helical Flow in a Tubular Membrane for AnMBR.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2019). Download abstract. Download poster.

58. Cash, C.; Ladner, D.A. “Modeling Cake Fouling for AnMBR.” Poster presentation at the Membrane Technology Conference and Exhibition, New Orleans, LA, (February 28, 2019). Download poster.

57. Xie, P.; Ladner, D.A. “Computational Fluid Dynamics Simulations of Osmotically Driven Membrane Processes (OMDPs).” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2018).

56. Partlan, E.; Ladner, D.A. “Activated Carbon Coatings on Microfiltration Membranes as Mini Packed Bed Reactors.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2018).

55. Zuo, Z.; Weinman, S.T.; Sarupria, S.; Husson, S.M.; Battiato, I.; Ladner, D.A. “Concentration polarization modeling for high-pressure membranes with engineered surface features.” Poster presentation at the South Carolina Water Resources Conference, Columbia, SC (October, 2018).

54. Zuo, Z.; Weinman, S.T.; Sarupria, S.; Husson, S.M.; Battiato, I.; Ladner, D.A. “Concentration polarization modeling for high-pressure membranes with

engineered surface features.” Poster presentation at the North American Membrane Society (NAMS) annual meeting, Lexington, KY (June, 2018).

53. Sharmin, R.; Zhou, Z.; Ladner, D.A. “Computational fluid dynamics (CFD) modeling to simulate foulant reduction by patterned RO and NF membranes.” Poster presentation at the Membrane Technology Conference, West Palm Beach, FL (March, 2018).”

52. Qi, Weiming; McKinney, M.; Ladner, D.A. “Automated cleaning system for in-field experiments with ceramic membranes in high strength industrial wastewater treatment.” Poster presentation at the Membrane Technology Conference, West Palm Beach, FL (March, 2018).

51. Sizemore, G.S.; Atkins, I.F.; Bailey, C.B.; Digiacomio, L.C.; Geyer, D.G.; Ressler, E.C. Restrepo, M.C.; Wander, M.L.; Song, L.; Griffis, H.M.; Tasian, G.E.; Ladner, D.A. “Establishing a Database of Groundwater and Surface Water Hardness to test a Kidney Stone Hypothesis in South Carolina.” Poster presentation at the Water Quality Technology Conference (WQTC), Portland, OR (November, 2017).

50. Idarraga-Mora, J.; Friedel, P.; Ladner, D.A.; Husson, S. “Thin-film composite membranes with improved mechanical robustness using small diameter carbon fibers.” Poster presentation at the International Congress on Membranes and Membrane Processes (ICOM), San Francisco, CA (July, 2017).

49. Idarraga-Mora, J.; Childress, A.; Friedel, P.; Rao, A.; Ladner, D.A.; Husson, S. “Fabrication of thin-film composite membranes with improved mechanical robustness for energy generation using helically-coiled carbon nanotubes.” Poster presentation at the International Congress on Membranes and Membrane Processes (ICOM), San Francisco, CA (July, 2017).

48. Zhou, Z.; Ladner, D.A.; Weinman, S.T.; Husson, S.M. “Towards the Discovery of An Innovative Membrane Surface Pattern with Increased Fouling Resistance.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2017).

47. Guerrero, V.; Partlan, E.; Ladner, D.A. “Dissolved CO<sub>2</sub> – An Alternative for Cleaning Inorganic Scale from RO Membranes.” Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2017).

46. Yaputri, J.; Huang, X.; Kelly, D.; Cerrato, S.A.; Ladner, D.A.; Whelton, A.J. "Evaluation of a Rapid Bench-Scale Test to Determine Crude Oil Contamination and Recovery of Plastic Water Distribution Pipes." Poster presentation at the Water Quality Technology Conference (WQTC), Indianapolis, IN (November, 2016).
45. Jacobs, R.; Partlan, E.; Ladner, D.A. "Hydrothermal Carbonization of Glucose for the Production of Particles to Model S-PAC Membrane Breakthrough." Poster presentation at the Clemson University Research Experience for Undergraduates (REU) Poster Session, Clemson, SC (July, 2016).
44. Xie, P.; Ladner, D.A. "Computational Fluid Dynamics Simulations of Forward Osmosis in Drinking Water Treatment." Poster presentation at the AWWA Annual Conference and Exposition, Chicago, IL (June, 2016).
43. Idarraga-Mora, J.; Childress, A.; Ladner, D.A.; Rao, A.; Husson, S. "Mechanical enhancement of thin-film nanocomposite membranes using helically-coiled carbon nanotubes for engineered osmosis." Poster presentation at the North American Membrane Society (NAMS) annual meeting, Bellevue, WA (May, 2016).
42. Malakian, A.; Weinman S.; Monk, R.; Boateng, L.; Sarupria, S.; Ladner, D.A.; Husson, S. "Understanding the roles that patterning and chemistry play on membrane fouling." Poster presentation at the North American Membrane Society (NAMS) annual meeting, Bellevue, WA (May, 2016).
41. Bai, L.; Li, C.; Pales, A.; Huibers, B.; Ladner, D.A.; Daigle, H.; Darnault, C. "Wettability Behavior of Crude Oil-Silica Nanofluids-Sandstone Systems." Poster presentation at EGU 2016, Vienna, Austria (April, 2016).
40. Partlan, E.; Amaral, P.; Li, M.; Ladner, D.A. "Activated Carbon Coatings on Microfiltration Membranes as Mini Packed Bed Reactors." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2016).
39. Xie, P.; Murdoch, C.; Ladner, D.A. "Computational Fluid Dynamics (CFD) Simulations of Forward Osmosis (FO) and Pressure Retarded Osmosis (PRO)." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2016).



38. Holtman, K.; Mettlen, H.; Knapp, M.; Ladner, D.A. "Correlating water quality and kidney stone incidence in South Carolina." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2016).
37. Carpenter, K.; Bourne, K.; Wang, B.; Ding, F.; Ladner, D.A. "Hyperbranched Polymers as Oil Dispersants: Influence of Salinity, pH, and Concentration on Dispersion Effectiveness." Poster presentation at the Oil Spill and Ecosystem Science Conference, Tampa, FL (February, 2016).
36. Sarupria, S.; Husson, S.M.; Ladner, D.A.; Battiato, I. "DMREF: An integrated multiscale modeling and experimental approach to design fouling-resistant membranes." Materials Genome Initiative Annual Meeting, Bethesda, MD (January, 2016).
35. Bai, L.; Li, C.; Darnault, C.J.G.; Korte, C.; Ladner, D.A.; Daigle, H. "Wetting and Interfacial Tension Dynamics of Oil-Nanofluids-Surface Minerals System," Poster presentation at the AGU Fall Meeting, San Francisco, CA (December, 2015).
34. Xie, P.; Murdoch, L.; Ladner, D.A. "Mitigating membrane fouling with sinusoidal spacers." Poster presentation at the Water Quality Technology Conference, Salt Lake City, UT (November, 2015).
33. Xie, P.; Murdoch, C.; Ladner, D.A. "Sinusoidal Spacers for Mitigating Fouling in Reverse Osmosis." Poster presentation at WEFTEC, Chicago, IL (September, 2015).
32. Brown, M.; Amaral, P.; Ladner, D.A. "Evaluating the use of powdered activated carbon associated with microfiltration for the removal of trace contaminants in water treatment." Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).
31. Cai, J.; Ladner, D.A. "Hollow fiber microfiltration bench scale experiments." Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).
30. Steele, M.; Anctil, A.; Ladner, D.A. "Sustainable wastewater treatment in small communities: Comparing life cycle impacts of algaculture and conventional systems." Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).

29. Ersan, M.S.; Ladner, D.A.; Karanfil, T. "Reducing the formation of disinfection byproducts using nanofiltration." Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).
28. Xie, P.; Murdoch, L.; Ladner, D.A. "Sinusoidal Spacers for Mitigating Fouling in Reverse Osmosis." Poster presentation at the South Carolina Environmental Conference (SCEC), Myrtle Beach, SC (March, 2015).
27. Partlan, E.T.; Ladner, D.A. "Microfiltration of superfine carbon for drinking water treatment: Effects of source water characteristics and coagulants." Poster presentation at the Membrane Technology Conference, Orlando, FL (March, 2015).
26. Ersan, M.S.; Ladner, D.A.; Karanfil, T. "The Release of NDMA Precursors from Nanofiltration Membranes and Their Cleaning." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2014).
25. Li, M.; Ladner, D.A. "Effects of Natural Organic Matter on Contaminant Removal by Superfine Powdered Activated Carbon Coupled with Microfiltration Membranes." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2014).
24. Tu, Y.; Xie, P.; Steele, M.M.; Ladner, D.A.; Geitner, N.K.; Ke, P.C.; Ding, F. "Dendritic Polymers as Biocompatible Dispersants for Oil Spill Mitigation." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2014).
23. Xie, P.; Murdoch, L.; Ladner, D.A. "Sinusoidal Spacers for Mitigating Concentration Polarization and Biofouling in Reverse Osmosis." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2014).
22. Geitner, N.K.; Powell, R.R.; Bruce, T.F.; Andorfer, R.E.; Ladner, D.A.; Ding, F.; Ke, P.C. "Effects of Dendrimer Oil Dispersants on *Dictyostelium discoideum*." Poster presentation at the Gulf of Mexico Oil Spill & Ecosystem Science Conference, Mobile, AL (January, 2014).
21. Ladner, D.A.; Xie, P.; Tu, Y.; Geitner, N.K.; Powers, S.; Whelton, A.; Ke, P.C. "Dendritic polymers as oil spill dispersants: Effectiveness and toxicity

compared to Corexit 9500A.” Poster presentation at the Association of Environmental Engineering and Science Professors (AEESP) Education and Research Conference, Golden, CO (July, 2013).

20. Partlan, E.; Ladner, D.A. “Dissolved CO<sub>2</sub> – An alternative for cleaning inorganic scale from RO membranes.” Poster presentation at the North American Membrane Society (NAMS) annual meeting, Boise, ID (June, 2013).

19. Laird, C.; Steele, M.M.; Ladner, D.A. “Bioprospecting to discover local algae for biofuel production.” Poster presentation at the 8th Annual ACC Meeting of the Minds, Winston-Salem, NC (April, 2013).

18. Steele, M.M.; Anctil, A.; Ladner, D.A. “Net Environmental Benefit Approach To Life Cycle Assessment For Algal Integration At Wastewater Treatment Plants.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2013).

17. Li, M.; Ladner, D.A. “Effects of aggregation state on flux reduction by superfine powdered activated carbon on microfiltration membranes.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2013).

16. Partlan, E.; Ladner, D.A. “Dissolved CO<sub>2</sub> – An Alternative for Cleaning Inorganic Scale from RO Membranes.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2013).

15. Tu, Y.; Xie, P.; Geitner, N.K.; Ke, P.C.; Ladner, D.A. “Dendritic polymers as biocompatible oil spill dispersants: molecular interactions and effectiveness.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2013).

14. Ladner, D.A.; Geitner, N.K.; Steele, M.M.; Xie, P.; Bhattacharya, P.; Chen, R.; Whelton, A.; Powers, S.; Ke, P.C.; “Dendritic polymers as biocompatible oil spill dispersants.” Poster presentation at the Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, LA (February, 2013).

13. Steele, M.; Carey, D.; Ladner, D.A. “Mixotrophic growth of *Chlorella protothecoides* for wastewater treatment: Effects of retention time on membrane harvesting, treatment, and productivity.” Poster presentation at The 2nd International Conference on Algal Biomass, Biofuels and Bioproducts, San Diego, CA (June, 2012).

12. Majahan, P.; Sun, Y.; Ladner, D.A. “Enabling renewable-energy driven reverse osmosis desalination using integrated compressed gas energy storage– benchscale experiments and modeling.” Poster presentation at the CleanTech Conference and Showcase 2012, Santa Clara, CA (June, 2012).
11. Carey, D.; Steele, M.; Ladner, D.A. “Algal dewatering by microfiltration: membrane flux improvement with NaCl addition in a stirred filtration unit.” Poster presentation at The 2nd International Conference on Algal Biomass, Biofuels and Bioproducts, San Diego, CA (June, 2012).
10. Mahajan, P.; Sun, Y.; Ladner, D.A. “Enabling wind-energy driven reverse osmosis desalination using integrated compressed gas energy storage– benchscale experiments and modeling.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2012).
9. Xie, P.; Ladner, D.A. “Sinusoidal- and Helical-Flow Spacers for Energy Reduction and Fouling Mitigation in Reverse Osmosis Desalination.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2012).
8. Partlan, E.; Ladner, D.A. “Reverse Osmosis under Transient Power Conditions: A look at membrane concentration polarization behavior when the transmembrane pressure is dynamic.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2012).
7. Carey, D.; Steele, M.; Wolniak, R.; Cotterman, T.; Ladner, D.A. “Algae dewatering by microfiltration: effect of growth stage on filtration and membrane flux improvement by NaCl flocculation.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2012).
6. Steele, M.; Carey, D.; Mistry, P.; Ladner, D.A. “Assessing and reducing energy requirements for membrane-based algal biomass harvesting,” Poster presentation at the AEEESP Education and Research Conference, Tampa, FL (July, 2011).
5. Xie, P.; Ladner, D.A. “Helical-flow reverse osmosis membrane modules for reduced energy consumption and fouling control.” Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2011).

4. Ellerie, J.; Ladner, D.A. "Adsorptive activated carbon coatings on ultrafiltration membranes for trace contaminant removal." Poster presentation at the South Carolina Environmental Conference, Myrtle Beach, SC (March, 2011).
3. Ladner, D.A.; Jurevis, J.A.; Clark, M.M. "Conditioning films formed by algal biopolymers in seawater reverse osmosis desalination," Poster presentation at the 7th Leading Edge Conference on Water and Wastewater Technologies, International Water Association, Phoenix, AZ (June, 2010).
2. Ladner, D.A.; Steele, M.M.; Weir, A.; Hristovski, K.; and Westerhoff, P. "Nanoparticle rejection by microfiltration and ultrafiltration membranes," Poster presentation at the International Conference on the Environmental Implications of Nanotechnology, Los Angeles, CA (May, 2010).
1. Ladner, D.A.; Clark, M.M. "Characterization of Reverse Osmosis Membrane Foulants in Seawater Desalination," Poster presentation at the EPA Graduate Fellowship Conference, Washington, DC, (2006).

## HONORS AND AWARDS

Membrane Treatment Best Paper award from the Journal of the American Water Works Association. Awarded for the paper: Tow, E.W.; Erson, M.S.; Kum, S.; Lee, T.; Speth, T.F.; Owen, C.; Bellona, C.; Nadagouda, M.N.; Mikelonis, A.M.; Westerhoff, P.; Mysore, C.; Frenkel, V.S.; deSilva, V.; Walker, W.S.; Safulko, A.K.; Ladner, D.A. "Managing and treating per- and polyfluoroalkyl substances (PFAS) in membrane concentrates." *AWWA Water Science* 2021, 3, e1233 (2022).

Distinguished Service Award for outstanding service as Chair of the Student Services Committee of AEESP (2016).

Membrane Treatment Best Paper award from the Journal of the American Water Works Association. Awarded for the paper Lewis, D.O., Ladner, D.A., Karanfil, T. "Source water and microfiltration plant manganese control study." *Journal American Water Works Association*, **105**, E480-E495 (2013).

Membership Award from the South Carolina Section of the American Water Works Association (2013).

Certificate of Merit from the American Chemical Society (ACS) for our presentation entitled "Functionalized nanoparticles as removable membrane coatings" at the Fall

2011 meeting in Denver, CO. Graduate student Meg Smith and REU student Carley Barnard were coauthors.

Best Student Paper Award, Membrane Technology Conference, Memphis, TN (2009).

Larson Aquatic Research Support (LARS) Scholarship, American Water Works Association (AWWA) (2005).

Cramer Award, New Mexico Institute of Mining and Technology (2003).

Paige Ashman Award, NMIMT Department of Environmental Engineering (2003).

## **SPONSORED RESEARCH**

“Life cycle analysis to identify methods to prevent waste of energy (electricity, gas, etc.) in rendering processing plants,” Fats and Proteins Research Foundation, Principal Investigator, \$41,000 (\$41,000), (2023-2024).

“A Controlled Environment Agriculture Platform for Cultivation of Salt-Tolerant Crops with Integrated Saline Water Irrigation and Salinity Management,” US Department of Agriculture, Senior Investigator, \$10,000,000 (\$300,000), (2023-2027).

“Dam Sector Regional Risk Resilience Program (DSR3P),” US Army Corp of Engineers, Senior Investigator, \$1,500,000 (\$120,000), (2022-2024).

“PIRE: Climate Resilient Sustainable Food Production: Controlled Environment Hydroponic Agriculture with Novel Wastewater Treatment & Reuse,” National Science Foundation, Principal Investigator, \$1,500,000 (\$195,999), (2022-2024).

“Pollution Prevention in South Carolina Metals Industries,” US Environmental Protection Agency, Co-Principal Investigator, \$212,100, (\$4,242), (2022-2024).

“Computational Fluid Dynamics (CFD) Modeling to Investigate Reverse Osmosis Module Design with Printed Spacers,” Aqua Membranes (industry funding), Principal Investigator, \$25,184 (\$25,184), (2022).

“Methane as a Source of Income for South Carolina Produce Processing Agribusinesses: Economic and Feasibility Study,” SC Department of Agriculture, Principal Investigator, \$50,000 (\$50,000), (2022-2023).

“Reimagining Rendering Wastewater Treatment – Algal Biofilms for Protein Production,” Fats and Proteins Research Foundation, Co-Principal Investigator, \$44,000 (\$13,200), (2022-2023).

Subcontract for “CAREER: An Investigation of Microplastics Fate and Contaminant Transport in Storm Runoff, The Nexus of Environmental Engineering and Material Sciences,” National Science Foundation, Co-Principal Investigator, \$8,180 (\$8,180), (2021-2024).

Subcontract for “Exploring Coupled Physical, Biological and Chemical Processes that Control Lead Fate and Transport through Plastic Plumbing Materials,” National Science Foundation, Co-Principal Investigator, \$8,180 (\$8,180), (2020-2023).

“Pollution Prevention in South Carolina Metals Industries,” US Environmental Protection Agency, Co-Principal Investigator, \$176,000, (\$58,080), (2020-2023).

“Targeted Chemical Application via Membranes for Rendering Plant Wastewater,” Fats and Proteins Research Foundation, Principal Investigator, \$44,000 (\$44,000), (2020-2022).

“Field Evaluation of Membrane Separations in Rendering Facility Wastewater Treatment,” Fats and Proteins Research Foundation, Principal Investigator, \$40,000 (\$40,000), (2019-2020).

“Source Reduction Training for South Carolina Manufacturers,” US Environmental Protection Agency, Co-Principal Investigator, \$212,770 (\$70,214), (2018-2021).

“Anaerobic Membrane Bioreactors as a Next-Generation Technology to Address the Food-Energy-Water Nexus,” SC EPSCOR/IDeA, Co-Principal Investigator, \$300,000, (\$75,000), (2018-2020).

“Pollution Prevention (P2) through an Economy-Energy-Environment (E3) Partnership in South Carolina,” Environmental Protection Agency (EPA), Co-Principal Investigator, \$162,007, (\$32,401), (2016-2017).

Industrial Assessment Center, “Energy Efficiency for the Growing South Carolina Manufacturing Industries,” Department of Energy, Co-Principal Investigator, \$1,605,518, (\$176,607), (2016-2021).

“Development of a Field-Deployable Membrane Bioreactor/Separator for Rendering Facility Wastewater Treatment,” Fats and Proteins Research Foundation (FPRF), Principal Investigator, \$39,911, (\$19,956), (2016-2017).

“DMREF: Collaborative Research: An Integrated Multiscale Modeling and Experimental Approach to Design Fouling-Resistant Membranes,” National

Science Foundation (NSF), Co-Principal Investigator, \$969,089, (\$319,799), (2016-2020).

“Pollution Prevention (P2) through an Economy-Energy-Environment (E3) Partnership in South Carolina,” Environmental Protection Agency (EPA), Co-Principal Investigator, \$160,000, (\$32,000), (2015-2017).

“EAGER: UVC microbial inactivation within model water treatment membrane modules via X-ray-driven radioluminescence,” National Science Foundation (NSF), Co-Principal Investigator, \$64,214, (\$16,054), (2015-2016).

“High-performance membranes for engineered osmosis,” National Science Foundation (NSF), Co-Principal Investigator, \$359,066, (\$35,907), (2015-2019).

“REU Site: Interfaces and Surfaces,” National Science Foundation (NSF), Co-Principal Investigator, \$330,000, (\$10,890), (2015-2018).

“Partnerships for Sustainability: Pollution Prevention Education and Assessment,” Environmental Protection Agency (EPA) Region 4 and Duke Energy, Co-Principal Investigator, \$120,000, (\$30,000), (2014-2016).

“Coupling small-particle adsorbents with membranes for trace-contaminant removal in water treatment,” National Science Foundation (NSF), Principle Investigator, \$325,285, (\$130,114), (2012-2016).

“Dendritic Polymers as Biocompatible Dispersants for Oil Spill Remediation,” Environmental Protection Agency (EPA), Principal Investigator, \$500,000, (\$250,000), (2012-2016).

“QR Codes as a sustainability research tool,” Clemson University Research Grant Committee (URGC), Principal Investigator, \$9,163, (\$4,582), (2012).

“REU Site: Advanced Functional Membranes,” National Science Foundation, Senior Investigator (1 of 5), \$326,731, (\$16,337), (2011-2013).

“Phytoplankton (Red Tide) Fouling of Pretreatment and Reverse Osmosis Membranes in Seawater Desalination,” Funding agreement #04201, U.S. Department of Energy, administered by the Water Research Foundation, Co-principal Investigator, \$150,000, (\$150,000), (2009-2010).

“Characterization of Membrane Foulants in Seawater Reverse Osmosis Desalination.” Funding agreement #05FC811169, U.S. Bureau of Reclamation, (Lead author under PI), \$125,000 (\$100,000), (2005 to 2006).



## **OTHER SPONSORED ACTIVITY**

“Utilization of Dissolved CO<sub>2</sub> for the Prevention and Removal of Foulants from Reverse Osmosis Membranes—Research Fellowship for Erin Partlan,” National Water Research Institute and the American Membrane Technology Association, \$10,000, (\$10,000), (2014-2016).

Post-Doctoral Fellow Support for investigations into “The Society – Water Nexus.” \$50,000, (\$25,000), (2014-2015).

“TIGER: DMREF: Computer Aided Design of Antifouling Membranes for Water Purifications,” Large proposal development grant from the College of Engineering and Science, \$10,000, (\$3,000), (2014-2015).

“Separate growth Environments for Optimization of Nutrient Use in Algal Culturing Systems – Graduate Research Fellowship for Muriel Steele,” National Science Foundation (NSF), \$126,000, (\$126,000), (2012-2015).

“Characterization of Reverse Osmosis Membrane Foulants in Seawater Desalination,” U.S. Environmental Protection Agency STAR Doctoral Fellowship #91678301-0. \$20,000 per year stipend, \$6,000 per year tuition and fees, \$5,000 per year expense allowance, (2006-2009).

## **POSTDOCTORAL SCHOLAR ADVISING**

Tzeng, Jing-Hua, “Partial desalination for cultivation of salt-tolerant crops in controlled environment agriculture,” (September 2023 – present). (Co-advised by Gary Amy).

Adayemi, Abayomi, “Anaerobic membrane bioreactor (AnMBR) for climate resilient sustainable food production in controlled environment hydroponic agriculture,” (August 2023 – present). (Co-advised by Gary Amy).

Boateng, Linkel, “Computer Modeling to Design Fouling-Resistant Membranes,” (November 2015 – December 2016). (Co-advised by Sapna Sarupria and Scott Husson)

Apul, Onur, “Functionalizing dendritic polymers to decrease toxicity for oil spill dispersion applications,” (October 2014 – March 2015).

Singh, Dhananjay, “Development of pressure retarded osmosis (PRO) membranes for energy production with salinity gradients,” (April 2014 – May 2015). (Co-advised by Scott Husson)

## **GRADUATE STUDENT ADVISING**

### **Doctoral Students**

Cash, Colby (PhD), “Modeling membrane fouling for an anaerobic membrane bioreactor,” (Expected August 2025).

Qi, Weiming (PhD), “Switchable dynamic layers on ceramic membranes,” (Expected August 2024).

Zhou, Zuo (PhD), “Computational modeling of patterned membranes and spacers for improved hydrodynamics and fouling reduction in reverse osmosis water treatment processes,” (August 2023).

Partlan, Erin (PhD), “Interactions of superfine powdered activated carbon with microfiltration membranes,” (August 2017).

Xie, Peng, (PhD), “Simulation of reverse osmosis and osmotically driven membrane processes,” (December 2016).

Steele, Muriel M., (PhD), “Quantifying sustainability in wastewater treatment: Examples in algaculture,” (August 2016).

### **Master’s Students**

Larsen, Danielle (MS), “An evaluation of energy consumption comparing conventional water treatment plants to microfiltration and ultrafiltration water treatment plants,” (August 2022).

Peng, Lingyun (MS non-thesis), “Method development for measurement of zeta potential on the inner surface of drinking water pipes,” (May 2022).

Guerrero, Victoria (MS), “Effects of dissolved CO<sub>2</sub> on cleaning of RO membranes,” (August 2018).

- Qi, Weiming (MS), "Ceramic microfiltration of high-strength industrial wastewater using an automated system," (May 2018).
- Batts, Joseph (MS, Co-advisor), "Design of a ceramic membrane lab-on-a-pallet for rendering plant wastewater treatment," (May 2017).
- Carpenter, Kristen (MS), "Hyperbranched polymers as biocompatible oil dispersants: Influence of salinity, pH, and concentration on dispersion effectiveness," (August 2016).
- Brown, Misty (MS), "Desorption kinetics of trace organic contaminants and natural organic matter from superfine powdered activated carbon," (August 2016).
- Quinter, Kayla (MS), "Evaluating water withdrawals and water availability for projected thermoelectric power growth in the Eastern Interconnection of the United States," (August 2016).
- Liu, Jiayu (MS non-thesis), "Automated bench-scale ceramic membrane testing system," (May 2016).
- Cai, Jiankun (MS non-thesis), "Effect of Water Quality Parameters on Membrane Fouling in Algae Harvesting with Crossflow Microfiltration," (December 2015).
- Burdette, Benjamin (MS non-thesis), "Chloride to sulfate mass ratio analysis at the Witty Adkins water treatment plant," (May 2015).
- King, Valton (MS non-thesis), "Energy requirements for algal harvesting from wastewater treatment processes," (May 2015).
- Tu, Ying (MS), "Dendritic polymers as biocompatible oil spill dispersants: Effectiveness and mechanisms with crude oil," (August 2014).
- Li, Mengfei (MS), "Effects of natural organic matter on contaminant removal by superfine powdered activated carbon coupled with microfiltration membranes," (August 2014).
- Sawant, Aniruddha (MS non-thesis), "Hydrothermal carbonization of algae," (May 2014).

Partlan, Erin (MS), "Dissolved carbon dioxide for scale removal in reverse osmosis," (December 2013).

Sun, Ying (MS), "Modifying reverse osmosis for compatibility with wind power," (August 2013).

Zhou, Minjie (MS non-thesis), "Continuous algal culture crossflow filtration," (May 2013).

Mahajan, Pooja (MS), "Reverse osmosis desalination with integrated compressed air energy storage: Conceptual design and modeling," (December 2012).

Smith, Megan, (MS), "Functionalized nanoparticles as removable coatings for reverse osmosis membranes," (August 2012).

Ellerie, Jaclyn, (MS), "Carbonaceous adsorbents as coatings for ultrafiltration membranes," (May 2012).

Carey, Dan (MS non-thesis), "Membrane fouling mechanisms during algal microfiltration: can monovalent salts improve flux?" (May 2012).

Mistry, Pooja (MS non-thesis), "Characterization of Milliken Eminus material for algal biofuel separations," (December 2011).

### **Other Advising**

Sharmin, Rasna (MS), "Exploring computational design of fouling-resistant membranes," (Visiting student from Technical University of Munich; August 2017).

Amaral, P. (PhD, Co-advisor) "Avaliacao da utilizacao de carvao ativado em po supe4rfino (S-CAP) associado a membrana de microfiltracao (MF) na remocao de atrazina de aqua de abastecimento." Federal University of Santa Catarina, (August 2016).

## **TEACHING**

### **Courses Taught (Beginning Fall 2010)**

EES 3030, Water Treatment, F14, F15, F16, F17, F18, F19, F20, F21, F22

EES 4020/6020, Water and Wastewater Treatment, team-taught with David Freedman F11, F12, F13; solo taught S14, S15.

EES 4030 (aka EES 3050 for F14 and after), Water and Wastewater Treatment Laboratory (team-taught with David Freedman), F11, F12, F13, F14, F15, (team-taught with Sudeep Popat) F16, F17, F18, F19, F20, F21.

EES 4750, Environmental Engineering Capstone Design, S13, S14, S15, S16, S17, S18 (team-taught with Sudeep Popat) S19, S20, S21, S22.

EES 4850/6850, Hazardous Waste Management, S11.

EES 4860/6860, Pollution Prevention and Industrial Ecology, F10, F11, F12.

EES 4900 (and ENGR 1900), Leading for our Environment and Future (LEAF) Creative Inquiry (team-taught with Jennifer Goree, Leidy Klotz, Catherine Mobley, and Brenden Kendall), F11, S12, F12, S13.

EES 4900, Kidney Stone Correlations with Water Quality in South Carolina, F15, S16, F16, S17.

EES 4900, Water Quality Monitoring, F17, S18, F18, S19, F19, S20, F20, S21, F21, S22, F22.

EES 8020, Principals of Environmental Engineering, F15, F16, F17, F18, F19, F20, F21, F22.

EES 8830, Special Topic: Membrane Processes, F11.

ENGR 1900, Freshman Engineering Creative Inquiry, F10, F11.

## **UNIVERSITY AND PUBLIC SERVICE**

### **Committees and Activities**

Department: Undergraduate Program Coordinator (2018- )

Undergraduate Advisor and Member of the EnvE Undergraduate Curriculum Committee (2010- )

Member, Faculty Search Committees, (2011-2017)

Theme Leader, Clemson Water Energy Consortium, (2014-2016)

School: Member, Ad-Hoc Bilaws Committee (2022- )  
School Director Search Committee (2021)

University: Member, Academic Integrity Committee (2020- )  
Mentor, Engineers without Borders (2020- )  
Mentor and Design Challenge Lead, Next Engineers (2021- )

**Other Service**

Faculty Advisor, American Water Works Association, Student Chapter (2011-2018)  
Faculty Advisor, American Water Works Association, Water Environment Federation, Combined Student Chapter (2018- )

*Updated October 16, 2024.*