MEAGAN S. MAUTER
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Professor Meagan Mauter holds bachelors degrees in Civil & Environmental Engineering and History from Rice University, a Masters of Environmental Engineering from Rice University, and a Ph.D. in Chemical and Environmental Engineering from Yale University. She completed post-doctoral training in the Belfer Center for Science and International Affairs and the Mossavar Rahmani Center for Business and Government at the Harvard Kennedy School of Government, where she was an Energy Technology Innovation Policy Fellow.

At Carnegie Mellon University, Professor Mauter runs the Water and Energy Efficiency for the Environment (WE^3 Lab) and is jointly appointed in Engineering & Public Policy and Civil & Environmental Engineering. She holds courtesy appointments in Chemical Engineering and Materials Science & Engineering and is a US Department of Energy ORISE Faculty Research Participant at the National Energy Technology Laboratory. Her research probes pathways for meeting water demand in a carbon constrained world by 1) optimizing networks and policies to support the efficient deployment of water treatment capacity, 2) evaluating thermodynamic efficiency and technical feasibility of emerging water desalination technologies with alternative energy or water quality inputs, and 3) developing and modeling membrane materials that maximize performance in emerging separations processes.

EDUCATION

Yale University, New Haven, CT
Ph.D. Chemical and Environmental Engineering, 2011
M.S. and M.Phil. Chemical and Environmental Engineering, 2007

Rice University, Houston, TX
M.E.E. Environmental Engineering, 2006
B.S. Magna Cum Laude, Civil and Environmental Engineering, 2006
B.A. Magna Cum Laude, History, 2006

Middle East Technical University, Ankara, Turkey
Global Engineering Exchange Program, 2004

ACADEMIC APPOINTMENTS

2017-present	Associate Professor, Departments of Civil & Environmental Engineering and Engineering & Public Policy (50/50 joint appointment); Courtesy appointments in Chemical Engineering and Materials Science & Engineering, Faculty Fellow, Wilton E. Scott Institute for Energy Innovation Carnegie Mellon University, Pittsburgh, PA.
2015-present	U.S. Department of Energy (DOE) Faculty Research Participant at the National Energy Technology Laboratory (ORISE/ORAU Program), Pittsburgh, PA.
2015-2017	Assistant Professor, Departments of Civil & Environmental Engineering and Engineering & Public Policy (50/50 joint appointment); Carnegie Mellon University, Pittsburgh, PA.
2012-2015	Assistant Professor, Departments of Chemical Engineering and Engineering & Public Policy (50/50 joint appointment), Carnegie Mellon University, Pittsburgh, PA.
2012-2013	Visiting Scholar, Science Technology and Public Policy Program, Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University, Cambridge, MA.

2011-2012 Energy Technology Innovation Policy Fellow, Science Technology and Public Policy Program, Belfer Center for Science and International Affairs;
Energy Policy Fellow, Consortium for Energy Policy Research, Mossavar-Rahmani Center for Business and Government,
Kennedy School of Government, Harvard University, Cambridge, MA.

SELECTED HONORS AND AWARDS

Faculty Fellow, Wilton E. Scott Institute for Energy Innovation, 2018
Outstanding Reviewer for *Environmental Science: Water Research & Technology*, 2018
Arab-American Frontiers of Science, Engineering, and Medicine Participant, 2017
Dean of Engineering Early Career Fellow, 2017
James J. Morgan Environmental Science & Technology Early Career Award Lectureship, 2017
German American Frontiers of Engineering Symposium Co-Organizer and Participant, 2017
Advisory Board Member, *Advanced Sustainable Systems*, 2016
Editor, *Sustainable Production and Consumption*, 2016
Early Career Advisory Board, *ACS Sustainable Chemistry and Engineering*, 2016
George Tallman Ladd Research Award, 2016
NSF CAREER Award, Environmental Engineering, 2016
ASCE ExCEEd Teaching Fellowship Award, 2016.
Denise Denton Emerging Leaders Workshop Participant, 2016.
US-EU Frontiers of Engineering Symposium Participant and Speaker, 2016
North America Membrane Society (NAMS) Young Membrane Scientist Award, 2015
Second runner-up for best paper in the Feature category in *Environmental Science & Technology*, 2014
Wimmer Faculty Fellow, 2013-2014
NSF Science Engineering and Education for Sustainability (SEES) Fellow, 2011-2012
National Academy of Engineering, Frontiers of Engineering Symposium Participant, 2012
AWWA Academic Achievement Award – 1st Place Doctoral Dissertation, 2012
AEESP Outstanding Doctoral Dissertation Award – Honorable Mention, 2012
AWWA Abel Wolman Fellowship, 2009-2011
NSF Graduate Research Fellowship, 2006-2009
US EPA STAR Fellowship, 2006-2009
ACS Environmental Chemistry Graduate Student Award, 2009
US EPA GRO Fellowship, 2004-2006
Yale University Faculty of Engineering Fellowship, 2006
Water Environment Association of Texas Scholarship, 2006
Rice Engineering Alumni Distinguished Senior Award, 2006
Paul A. Lederer Scholarship, Rice University Excellence in Engineering, 2005-2006
Louis J. Walsh Scholarship, Rice University Scholarship in Engineering, 2005-2006
Robert P. Shubinski Scholarship, 2006
Chi Epsilon Southwest District Scholarship (Solomon Cady Hollister Scholarship), 2006
Wagner Scholarship, Rice University, 2006
ABB/SWE Scholarship for Women in Engineering, 2004-2005
Shirley Berger University Scholarship, 2002-2006
Lawrence Leadership Scholarship, 2002

PUBLICATIONS
(* denotes the corresponding author; underline denotes students primarily advised by M.S. Mauter)

1. Mauter, M.S.; Zucker, I.; Perreault, F; Werber, J.R.; Kim, J.H.; Elimelech, M.*, The Role of Nanotechnology in Tackling Global Water Challenges, *Nature Sustainability,* **2018,** *1* (4), 166-175.
2. Gingerich, D.B.; Mauter, M.S.*****, Redesigning the Regulated Power Plant: Optimizing Energy Allocation to Electricity Generation, Water Treatment, and Carbon Capture Processes at Coal-Fired Generating Facilities, *ACS Sustainable Chemistry & Engineering,* **2018,** *6* (2), 2694-2703.
3. Gingerich, D.B.; Bartholomew, T.V.; Mauter, M.S.*****, Technoeconomic Optimization of Emerging Technologies for Regulatory Analysis, *ACS Sustainable Chemistry & Engineering,* **2018,** *6* (2), 2370-2378.
4. Gingerich, D.B.; Mauter, M.S.*****, Air Emission Reduction Benefits of Biogas Electricity Generation at Municipal Wastewater Treatment Plants, *Environmental Science & Technology,* **2018,** *52* (3), 1633-1643.
5. Shanbhag, S.; Bootwala, Y.; Whitacre, J.; Mauter, M.S.*****, Ion Transport and Competition Effects on Selective Insertion Electrode Performance, *Langmuir*, **2017**, *33* (44), 12580–12591.
6. Welle P.D., Medellin-Azuara, J; Viers, J.; Mauter, M.S.*, Economic and Policy Drivers of Agricultural Water Desalination in California's Central Valley, *Journal of Agricultural Water Management,* **2017,** *194,* 192-203.
7. Welle P.D.; Mauter, M.S.*****, High Resolution Model for Estimating Economic and Policy Implications of Agricultural Soil Salinization in California, *Environmental Research Letters,* **2017,** *12* (9), 094010.
8. Gingerich, D.B.; Mauter, M.S.*****, Air Emissions Damages from Municipal Drinking Water Treatment Under Current and Proposed Regulatory Standards, *Environmental Science & Technology,* **2017** *51 (18),* 10299-10306.
9. Pandit, S.; Shanbhag, S.; Mauter, M.S.; Oren, Y.; Herzberg, M.*, The Influence of Electric Fields on Biofouling of Carbon Electrodes, *Environmental Science & Technology,* **2017,** *51 (17),* 10022-10030.
10. Bartholomew, T.V.; Mey, L.; Arena, J.T.; Siefert, N.S.; Mauter, M.S.*****, Osmotically Assisted Reverse Osmosis for High Salinity Brine Treatment, *Desalination,* **2017**, 421, 3-11.
11. Babaei, M.; Jones, I.C.; Dayal, K. Mauter, M.S.*****, Computing the Diamagnetic Susceptibility and Diamagnetic Anisotropy of Membrane Proteins from Structural Subunits, *Journal of Chemical Theory and Computation,* **2017,** *3* (6), 2945–2953.
12. Arena, J.; Jinesh, J.C.; Lopanol, C.L.; Hakala, A.; Bartholomew, T.V.; Mauter, M.S.; Siefert, N.*, Management and Dewatering of Brines Extracted from Geologic Carbon Storage Sites, *International Journal of Greenhouse Gas Control,* **2017**, *63*, 194-214**.**
13. Leitch, M.; Lowry, G.; Mauter, M.S.*****, Characterizing Convective Heat Transfer Coefficients in Membrane Distillation Cassettes, *Journal of Membrane Science*, **2017,** *538*, 108-121.
14. Arena, J.T.; Bartholomew T.V.; Mauter, M.S.; Siefert, N.S.* Dewatering of High Salinity Brines by Osmotically Assisted Reverse Osmosis. Proceedings of the 2017 AWWA-AMTA Membrane Technology Conference and Exposition. February 13-17, **2017**, Long Beach, CA, USA
15. Behrer, A.P.; Mauter, M.S.*****, Allocating Damage Compensation in a Federalist System: Lessons from Spatially Resolved Air Emissions in the Marcellus, *Environmental Science & Technology,* **2017,** *51* (7), 3600–3608.
16. Rodrigues S.M.; Dokoozlian, N.; Hendren, C.O.; Karn, B.; Mauter, M.S.; Sadik, O.A.; Safarpour, M.; Unrine, J.; Viers, J.; Welle, P.; White, J.; Wiesner, M.R.; Lowry, G.V., Nanotechnology for Sustainable Food Production: High Value Opportunities and Scientific Challenges, *ES Nano,* **2017,** *4,* 767-781.
17. Gingerich, D.B; Sun X.; Behrer, A.P.; Azevedo, I.M.L; Mauter, M.S.*****, Spatially Resolved Air-Water Emissions Tradeoffs Improve Regulatory Impact Analyses for Electricity Generation, *Proceedings of the National Academies of Science*, **2017,** *114* (8), 1862-1867.
18. Shanbhag, S.; Whitacre, J.; Mauter, M.S.*****, The Origins of Low Efficiency in Electrochemical Deionization Systems, *Journal of the Electrochemical Society,* **2016,** *163* (14), 363-371.

19. Bartholomew T.V.; Mauter, M.S.*****, Multi-Objective Optimization Model for Minimizing Cost and Environmental Impact in Shale Gas Water and Wastewater Management, *ACS Sustainable Chemistry & Engineering*, **2016**, *4* (7), 3728–3735.
20. Makaremi, M; Jhon, M.S.*****; Mauter, M.S.; Biegler, L.T., Surface Wetting Study via Pseudocontinuum Modeling, *Journal of Physical Chemistry*, **2016**, *120* (21), 11528–11534.
21. Leitch, M.; Li, C.; Ikkala, O.; Mauter, M.S.*****; Lowry, G., Bacterial Nanocellulose Aerogel Membranes: Novel High-Porosity Materials for Membrane Distillation. *Environmental Science & Technology Letters*, **2016,** *3* (3), 85-91.
22. Klara, S.S.; Saboe, P.O.; Sines, I.T.; Babaei, M.; Chiu, P.L.; DeZorzi, R.; Dayal, K.; Walz, T.; Kumar, M.; Mauter, M.S.***,** Magnetically Directed Two-Dimensional Crystallization of Membrane Proteins in Block Copolymers, *Journal of the American Chemical Society*, **2016,** *138* (1), 28-31.
23. Walker, P.; Wouters, J.J.; Mauter, M.S.; Whitacre, J.***** Pseudocapacitive Manganese Dioxide Films on Porous Carbon Substrates for Capacitive Deionization, *Electrochemica Acta*, **2015,** *182*, 1008-1018.
24. Beykal, B.; Herzberg, M.; Oren, Y.; Mauter, M.S.*****, Influence of Surface Charge on the Rate, Extent, and Structure of Adsorbed Bovine Serum Albumin to Gold Electrodes, *Journal of Colloids and Interface Science*, **2015,** 460, 321-328.
25. Gingerich, D.B.; Mauter, M.S.*****, Quantity Quality and Availability of Residual Heat from the US Power Sector, *Environmental Science & Technology*, **2015**, *49* (14), 8297–8306.
26. Zhou, X.; Gingerich, D.B.; Mauter, M.S.*****, Water Treatment Capacity of Forward-Osmosis Systems Utilizing Power-Plant Waste Heat, *Industrial & Chemical Engineering Research*, **2015,** *54* (24), 6378-6389.
27. Yang, L. L.; Mauter, M.S.; Dilmore, R.; Grossmann, I.E.*****, Investment Optimization Modeling for Freshwater Acquisition and Wastewater Handling in Shale Gas Production, *AICHE Journal*, **2015,** *61* (6), 1170-1782.
28. Kusuma, V.A.; Roth, E.A.; Clafshenkel, W.P.; Klara, S.S.; Venna, S.R.; Albenze, E.; Luebke, D.R.; Mauter, M.S.; Koepsel, R.R.; Russell, A.J.; Hopkinson, D.; Nulwala, H.B.*****, Cross-linked Poly(ethylene oxide) Containing Siloxanes Fabricated Through Thiol-Ene Photochemistry, *Polymer Chemistry*, **2015,** *53* (16), 1548-1557.
29. Keen, O.S.*****; Bell, K. Y.; Cherchi, C.; Finnegan, B. J.; Mauter, M. S.; Parker, A. M.; Rosenblum J.S.; Stretz, H. A., Emerging Pollutants–Part II: Treatment. *Water Environment Research* **2014,** *86* (10), 2036-2096.
30. Adzima, B.J.; Venna, S.; Klara, S.S.; He H.; Zhong, M.J.; Luebke, D.R.; Mauter, M.S.*****; Matyjaszewski, K.*****; Nulwala, H.B.*****, Modular Polymerized Ionic Liquid Block Copolymer Membranes for CO_2/N_2 Separations. *Journal of Materials Chemistry A*, **2014,** *2* (21), 7967-7972.
31. Small, M. J.*****; Stern, P. C.; Bomberg, E.; Christopherson, S. M.; Goldstein, B. D.; Israel, A. L.; Jackson, R. B.; Krupnick, A.; Mauter, M. S.; Nash, J.; North, D. W.; Olmstead, S. M.; Prakash, A.; Rabe, B.; Richardson, N.; Tierney, S.; Webler, T.; Wong-Parodi, G.; Zielinska, B., Risks and Risk Governance in Unconventional Shale Gas Development. *Environmental Science & Technology*, **2014,** *48* (15), 8289-8297.
32. Mauter, M.S.*****; Alvarez, P.J.J.; Burton, G.A.; Cafaro, D.C.; Chen, W.; Guibin, J.; Li, Q.; Pittock, J.; Reible, D.; Schnoor, J., Regional Variation in Water-Related Impacts of Shale Gas Development and Implications for Emerging International Plays. *Environmental Science & Technology*, **2014,** *48*, (15), 8298-8306.
33. Mauter, M. S.*****; Palmer, V. R., Expert Elicitation of Trends in Marcellus Oil and Gas Wastewater Management. *Journal of Environmental Engineering* **2014,** 10.1061/(ASCE)EE.1943-7870.0000811.
34. Bell, K. Y.*****; Bandy, J.; Finnegan, B. J.; Keen, O.; Mauter, M. S.; Parker, A. M.; Sima, L. C.; Stretz, H. A., Emerging Pollutants–Part II: Treatment. *Water Environment Research* **2013,** *85* (10), 2022-2071.
35. Mauter, M. S.; Fait, A.; Elimelech, M.; Herzberg, M.*****, Surface Cell Density Effects on Escherichia coli Gene Expression during Cell Attachment. *Environmental Science & Technolnology* **2013,** *47* (12), 6223–6230.
36. Mauter, M. S.; Elimelech, M.; Osuji, C. O.*****, Stable Sequestration of Single-Walled Carbon Nanotubes in Self-Assembled Aqueous Nanopores. *Journal of the American Chemical Society* **2012,** *134* (9), 3950–3953.
37. Eckelman, M. J.; Mauter, M. S.; Isaacs, J.; Elimelech, M.*****, New Perspectives on Nanomaterial Aquatic Ecotoxicity: Production Impacts Exceed Direct Exposure Impacts for Carbon Nanotubes. *Environmental Science & Technolnology* **2012,** *46* (5), 2902–2910.

38. Mauter, M. S.; Wang, Y.; Okemgbo, K. C.; Osuji, C. O.; Giannelis, E. P.; Elimelech, M.*****, Antifouling Ultrafiltration Membranes via Post-Fabrication Grafting of Biocidal Nanomaterials. *ACS Applied Materials & Interfaces* **2011,** *3* (8), 2861–2868.
39. Mauter, M. S.; Elimelech, M.; Osuji, C. O.*****, Nanocomposites of Vertically Aligned Single-Walled Carbon Nanotubes by Magnetic Alignment and Polymerization of a Lyotropic Precursor. *ACS Nano* **2010,** *4* (11), 6651–6658.
40. Kang, S.; Mauter, M. S.; Elimelech, M.*****, Microbial Cytotoxicity of Carbon-Based Nanomaterials: Implications for River Water and Wastewater Effluent. *Environmental Science & Technolnology* **2009,** *43*, (7), 2648-2653.
41. Mauter, M.S.*****, Environmental Life-Cycle Assessment of Disposable Bioreactors. *Bioprocess International* **2009,** *7* (4), 18-29.
42. Kang, S.; Mauter, M. S.; Elimelech, M.*****, Physicochemical Determinants of Multiwalled Carbon Nanotube Bacterial Cytotoxicity. *Environmental Science & Technolnology* **2008,** *42* (19), 7528-7534.
43. Mauter, M. S.; Elimelech, M.*****, Environmental Applications of Carbon-Based Nanomaterials. *Environmental Science & Technolnology* **2008,** *42* (16), 5843-5859.

OTHER WRITING

44. Mauter, M.S.*, Palmer, V., Tang, Y., Behrer, A.P; "The Next Frontier in United States Shale Gas and Tight Oil Extraction: Strategic Reduction of Environmental Impacts," Harvard Kennedy School Discussion Paper, 2013-04.
45. Academy of Science of South Africa (2016) South Africa's Technical Readiness to Support the Shale Gas Industry, doi: http://dx.doi.org/10.17159/assaf.2016/0003
46. Brief for Amici Curiae Carbon Capture and Storage Scientists in Support of Respondents, http://columbiaclimatelaw.com/files/2016/12/Burger-and-Wentz-2016-12-CCS-Scientists-Amicus-Brief.pdf
47. Hoppmann, J.; Choi, H.; Mauter, M.S.*****, The Impact of Technology Characteristics on the Formation of Exploration and Exploitation Alliances - Insights from the Solar Photovoltaic Industry, DRUID Society Conference **2014**, CBS, Copenhagen, June 16-18. http://druid8.sit.aau.dk/acc_papers/9xfn6l1jbat8e6l6r0qy95mk8yme.pdf
48. Arena, J.T.; Bartholomew, T.V.; Mauter, M.S.; Siefert, N.S. Dewatering of High Salinity Brines by Osmotically Assisted Reverse Osmosis. Proceedings of the 2017 AWWA-AMTA Membrane Technology Conference and Exposition. February 13-17, **2017**, Long Beach, CA, USA
49. Hoppmann, J.; Choi, H.; Mauter, M.S.*****, The Impact of Demand-Side Policies on Firm's Balance between Exploration and Exploitation Alliances, Academy of Management 2018 Annual Meeting, August 10-14, Chicago, IL. Submission number 11594.

GRANT AWARDS (on which Mauter is the **Primary** or **Sole PI)**

Award Span	**Grant Title**	**Agency**	**Co-PIs**	**Awarded**
2017-2018	Concurrent Assessment and Design of Systems	EQT/Scott Institute, CMU	J. Whitacre	$75,000
2017-2020	Magnetically Assisted Self-Assembly for Facile 2D Membrane Protein Crystallization	NSF; Biomaterials		$299,999
2016-2019	INFEWS: N/P/H2O: Remote and autonomous sensing for managing the economic and environmental consequences of salinity-impacted agricultural waterways	NSF; Environmental Engineering	P. Scerri	$230,795
2016-2021	CAREER: Integrated water, energy, and emissions decision making for a low-carbon future with coal-fired power plants	NSF; Environmental Engineering		$500,000

2015-2018	Identification of the critical length scales and chemistries responsible for the anti-fouling properties of heterogeneous surfaces	NSF; Environmental Chemical Sciences		$320,000
2015	Assessment of the techno-economic feasibility of agricultural water desalination.	Great Point Ventures		$26,000
2015-2017	DOE NETL High Salinity Brine Management	DOE National Energy Technology Laboratory		$300,000
2015-2017	Optimization Models for Investment, Operation and Water Management in Shale Gas Supply Chains	EQT/Scott Institute, CMU	I.E. Grossmann	$65,500
2015, 2016, 2017, 2018 (yearly renewal)	DOE Faculty Research Participant Program	DOE Oak Ridge Institute for Science and Education		Supports PhD student, materials, travel, summer time (~$150,000 / year)
2015	Multi-disciplinary decision support for the strategic reduction of environmental impacts from water management in unconventional resource development	Sloan Foundation/ Environmental Defense Fund		$25,000
2014-2017	Evaluating the Techno-economic Feasibility of Forward Osmosis Process Utilizing Low Grade Heat: Applications in Power Plant Water, Wastewater, and Reclaimed Water Treatment	DOE Fossil Energy Research and Development	D. Dzombak, J. Siirola	$671,508
2013-2015	Pseudocapacitive Materials for Low-Carbon Water Desalination	Scott Institute, CMU	J. Whitacre	$73,293
2013-2016	Pseudocapacitve and Intercalation Compounds for Water Desalination: Surface Chemistry, Electrode Structure, and Foulant Tolerance	NSF; Interfacial Processes and Thermodynamics	J. Whitacre	$345,166
2013-2014	Wimmer Fellowship	Eberly Center, CMU		$3,000
2012-2016	The Effect of Electric Fields on Bacterial Attachment to Conductive Surfaces and on Fouling Development	US-Israel Binational Science Foundation	Y. Oren, M. Herzberg (Israeli Partners)	$244,000
2011-2016	Structural Barriers to the Integration of Forward Osmosis Systems	NSF Science Engineering and Education for Sustainability		$496,833

GRANT AWARDS (on which Mauter is a **Co-Principal Investigator**)

2015-2016	Optimized Multiscale/ Multiphenomena Modeling of Membrane Distillation Processes for Water Treatment	PITA	L. Biegler (PI), M. Jhon (Co-PI) M.S. Mauter (Co-PI)	$62,000
2017-2019	Concurrent Assessment and Design of Systems	EQT	J. Whitacre	$85,000

STUDENT ADVISING

Current Post-Doctoral Advisees

1. Dr. Alexander Dudchenko, January 2017 – Present.
2. Dr. Xitong Liu, July 2017 – Present.
3. Dr. Daniel Gingerich, July 2017 – Present.

Ph.D. Advisees

1. Megan Leitch, Civil & Environmental Engineering, "Quantitative Structure Flux Relationships of Materials for Membrane Distillation," August 2009 – May 2016. Co-advised with Prof. Greg Lowry.
    - *NEEP IGERT Participant*
    - *NSF GRFP*
3. Daniel Gingrich, Engineering & Public Policy, "Evaluating and Avoiding Risk Tradeoffs in Water Treatment," August 2013 – August 2017.
    - *Steinbrenner Fellowship Recipient*
    - *ARCS Fellow*
    - *NEEP IGERT Participant*
    - *Phillips & Huang Family Foundation Fellowship, CIT*
    - *Best Presentation Award at the 2015 Association for Environmental Engineering and Science Professors Conference*
4. Paul Welle, Engineering & Public Policy "Remotely Sensed Data for High Resolution Agro-Environmental Policy Analysis" August 2014 – August 2017.
    - *NSF Graduate Research Fellowship*
    - *Bradford and Diane Smith Fellowship Award, CIT*
    - *Best Paper Award at the 2015 Technology, Management & Policy Graduate Consortium*
5. Mahnoush Babaei, Civil & Environmental Engineering, "Protein Alignment in Magnetic Fields," January 2015 – Present. Co-advised with Prof. Kaushik Dayal. (Anticipated graduation 5/2019)
6. Timothy Bartholomew, Civil & Environmental Engineering, "Optimization of Shale Gas and Geological Carbon Storage Brine Management," May 2015 - Present. (Anticipated graduation 5/2020)
    - *Bradford and Diane Smith Fellowship Award, CIT*
    - *ARCS Fellow*
    - *James Sprague Presidential Fellowship*
    - *ORISE Fellow (DOE)*
    - *NSF Graduate Research Fellowship Honorable Mention (2016 and 2017)*
7. Sneha Shanbhag, Civil & Environmental Engineering, "Pseudocapacitive Materials for Electrochemical Water Treatment," August 2015 – Present. Co-advised with Prof. Jay Whitacre. (Anticipated graduation 5/2019)
    - *Neil and Jo Bushnell Fellowship Award, CIT*
    - *WEF Canham Graduate Studies Scholarship*
8. Amanda Quay, Engineering & Public Policy, "Applications of Remotely Sensed Data in Water Quality Monitoring," July 2017 – Present. (Anticipated graduation 5/2021)
    - *ARCS Fellow*
    - *NSF Graduate Research Fellowship*
9. Niles Guo, Engineering & Public Policy, "Concurrent Assessment and Design of Systems," July 2017 – Present. Co-advised with Prof. Jay Whitacre. (Anticipated graduation 5/2021)
10. Yang Liu, Engineering & Public Policy, "Load Shedding Capacity of Municipal Water Systems," July 2017 – Present. (Anticipated graduation 5/2022)

11. Conor Doherty, Engineering & Public Policy, "Agricultural Remote Sensing to Inform Water Quality Management," December 2017 – Present. (Anticipated graduation 5/2021)

Master's Advisees

1. Burcu Beykal, Chemical Engineering, "Electrode fouling mechanisms in CDI," August 2013 – December 2014.
2. Chenkai Li, Chemical Engineering, "Aerogel Membranes for Membrane Distillation," August 2013 – December 2014.
3. Nan Zhang, Chemical Engineering, "Mass Transport Limitations in Capacitive Deionization Electrodes," August 2013 – December 2014.
4. Xingshi Zhou, Chemical Engineering, "Process Modeling of FO Water Desalination," August 2013 – December 2014.
5. Patrick Walker, Chemical Engineering, "Novel Materials for Capacitive De-ionization technologies," August 2013 – May 2015. Co-advised with J. Whitacre.
6. Moiz Bohra, Chemical Engineering, "Comparative assessment of thermal efficiency in low-temperature distillation processes" August 2014 – December 2015.
7. Arpita Iddy, Chemical Engineering, "Mass Transport Limitations in Capacitive Deionization Electrodes," August 2014 – December 2015.
8. Yupeng Zhao, Chemical Engineering, "Electrospun Membranes for Membrane Distillation," August 2014 – December 2015.
9. Joseph Dryer, "Co-Polymer Self-Assembly," Civil & Environmental Engineering, May 2015 – August 2015. Co-advised with K. Dayal.
10. Steven Klara, Chemical Engineering, "Self Assembled Heterogeneous Surfaces for Fouling Resistance" December 2012 – July 2016.
    - *NEEP IGERT Participant*
    - *NSF GRFP Honorable Mention*
11. Narayanaswami Bharadwaj, Civil & Environmental Engineering, "Techno-Economic Assessment of Food-Energy-Water Systems," August 2016 – December 2016. Co-advised with C. Samaras.
12. Xiaodai (Daniel) Sun, Engineering & Public Engineering, "Implications of Power Plant Wastewater Discharge," August 2015 – May 2017. Co-advised with Prof. Ines Azevedo.
13. Yousuf Bootwala, Civil & Environmental Engineering, "Insertion compounds for selective ion removal," August 2016 – December 2017.
14. Mukta Hardika, Civil & Environmental Engineering, "Direct Measurements of Heat Transport in Membrane Distillation Processes using Thermoreflectance," August 2016 – Present.
15. Shounak Joshi, Civil & Environmental Engineering, "Effect of Long Chain and Short Chain Antiscalants on Liquid Entry Pressure in Direct Contact Membrane Distillation," August 2016 – December 2017.
16. Ruikun Xin, Civil & Environmental Engineering, "Nusselt Number Validation in Membrane Distillation Processes," December 2016 – December 2017.
17. Nikita Sharma, Civil & Environmental Engineering, "Experimental Measurements of Membrane Distillation Flux," August 2016 – May 2017.
18. Parth Nabar, Civil & Environmental Engineering, August 2017 – Present.
19. Chitanya Gopu, Civil & Environmental Engineering, December 2017 – Present.
20. Sangsuk Lee, Civil & Environmental Engineering, "Osmotically Assisted Reverse Osmosis," July 2017 – January 2018.

Undergraduate Advisees

1. Bennett Kriete, Chemical Engineering and Engineering & Public Policy "Utilities integration and regulatory response," May 2013 - August 2013.
2. Samuel Cheang, Chemical Engineering "Membrane Distillation," May 2013 - May 2014.

3. Kamakshi Sharma, Civil & Environmental Engineering "Cost assessment of inland water desalination," August 2014 – May 2015.
4. Sara Kelly, Chemical Engineering and Engineering & Public Policy, "Macromolecular fouling of nanopatterned surfaces," August 2013 – May 2015.
    - *SURG Recipient*
    - *SURF Recipient*
    - *Honors Thesis Project*
    - *2015 Judith A. Resnik Award Honorable Mention*
    - *American Institute of Chemists Award*
    - *ACS Scholar Award*
    - *Fulbright Scholar Study/Research Award (Germany)*
    - *NSF GRFP*
5. Alexandra Newby, "Evaluating the Performance of Ion Selective Membranes in Electrochemical Deionization Systems," August 2014 – May 2016.
    - *SURG Recipient*
    - *American Institute of Chemists Award*
    - *Honors Thesis Project*
    - *Ken Westerburg Award for Excellence in Research*
6. Isaac Jones, "Protein Subunit Alignment in Magnetic Fields," June 2015 – May 2016.
    - *NSF REU Student*
    - *SURG Recipient*
7. Felicity Gong, "Solar Desalination," June 2015 – August 2015.
    - *Chemical Engineering Summer Scholars (ChESS) Program*
8. Jon Berman, "Membrane Modeling," August 2015 – January 2016.
9. Yoyinsola Ibikunle, "Membrane Modeling," August 2015 – May 2016.
10. Laura Mey, "Osmotically Assisted Reverse Osmosis," December 2015 – July 2016.
11. Julie Fornaciari, "Materials Utilization in Capacitive Deionization Systems," May 2016 – January 2017.
    - *NSF GRFP*
12. Jonathon Ying, "Wastewater Treatment Process Modeling," June 2016 – August 2016.
13. Siying Li, "Coal Quality and Effect on Trace Pollutant Distributions," May 2016 – May 2017.
14. Ashutosh Sharma, "Osmotically Assisted Reverse Osmosis," August 2016 – May 2017.
15. Alaina Anand, "Spacer Effects on Heat Transport in Membrane Distillation," August 2017 – Present
16. Yifan Zhao, "Flue Gas Desulfurization Wastewater Treatment Processes," January 2018 – Present

INVITED SEMINARS, CONFERENCE, AND WORKSHOP PRESENTATIONS

- *Research Priorities and Recent Progress at the Food-Water Nexus,* **Lawrence Berkeley Lab,** 2018.
- *Magnetically Directed Two-Dimensional Crystallization of Membrane Proteins in Block Copolymers***, University of Pittsburgh Molecular Biology and Structural Biology Program,** 2018.
- *Leveraging High Resolution Information for Sustainable Food Energy Water Systems,* **Swiss Federal Institute of Aquatic Science and Technology (EAWAG),** 2018.
- *Retrofitting the Regulated Power Plant: Integrated health, environmental, and climate decision making for infrastructure investments,* **Swiss Federal Institute of Technology Zurich (ETH Zurich),** 2018.
- *Assessing the Technoeconomic Feasibility of Agricultural Water Desalination,* **Yale University,** 2018.
- *High Resolution Information for Sustainable Food Energy Water Systems,* **University of Illinois Urbana Champaign,** 2017.
- *Zwitterionic Co-Polymer Adsorption Resistance: Surface Heterogeneity and Surface Energy Effects,* Applications of Quartz Crystal Microbalance Techniques in Environmental Science and Energy**, Institute of Soil Science, Chinese Academy of Sciences,** 2017.
- *Remote Sensing for Sustainable and Resilient Food Energy and Water Systems,* **Nanjing University,** 2017.

- *Designing for Sustainable and Resilient Food Energy and Water Systems,* **National Academies of Sciences, Science Breakthroughs 2030: A Strategy for Food and Agricultural Research**, 2017.
- *Sustaining Californian Agricultural Systems through High Resolution Water Quality Analysis and Novel Desalination Technologies,* **University of California, Riverside,** 2017.
- *Challenges and Opportunities in High Salinity Brine Treatment,* **Nanotechnology Enabled Water Treatment (NEWT) Engineering Research Center, Rice University,** 2017.
- *The Evolving Role of Engineering in Addressing Environmental Grand Challenges,* **University of Missouri, Columbia,** 2017.
- *Working on Environmental Challenges as an "Engineer Gone Wrong"; 2017 James J. Morgan Early Career Lectureship,* **ACS Spring Meeting,** 2017.
- *Innovations in Water Treatment and Aqueous Emissions Control,* **Princeton University**, 2017.
- *Redesigning the Regulated Power Plant: Aqueous Emissions Control Through Innovation in Policies, Processes, and Materials.* **Duke University**, 2017.
- *Processes and Materials for High Salinity Brine Treatment.* **Stanford University**, 2016.
- *Redesigning the Regulated Power Plant.* **US-EU Frontiers of Engineering**, Helsinki, Finland, 2016.
- *Magnetically Directed Two-Dimensional Crystallization of Membrane Proteins in Block Copolymers.* **Danish Technical University**, 2016.
- *Integrated Planning for Emissions Reductions at Coal Fired Power Plants.* **University of Virginia**, 2016.
- *Processes and Materials for Aqueous Separations with Low Temperature Heat.* **Gordon Research Conference, Membranes: Materials and Processes**, 2016.
- *Integrated Decision Making for Sustainable Energy Water and Agricultural Systems.* **Gordon Research Conference, Environmental Sciences: Water**, 2016.
- *Integrated Decision Making for Water, Energy, and Agricultural Systems,* **University of Wisconsin Madison,** 2016.
- *Grand Challenges and Opportunities for Meeting Water Demand in a Carbon Constrained World, **NSF-AEESP Grand Challenges Workshop,** 2016.*
- *Assessing the Feasibility of Using Low Temperature Heat to Meet Water Treatment Demand: A Consideration of Policy, Process, and Economic Constraints*, **McMaster University**, 2015.
- *Informing Responsible Water Management in Unconventional Well Development: Tools from Engineering and Public Policy*, **Plenary Lecture at United States Association of Energy Economics Annual Meeting**, 2015.
- *Evaluating the Techno-Economic Feasibility of Waste-heat Driven Water Treatment at Electric Power Generation Facilities,* **Center for Electricity Industry Studies Annual Meeting**, October 2015.
  CIEC board ranked #1 in technical talk category.
- *Valuing (Nano) Technology's Benefits for Agriculture: A Techno-Economic Assessment of Agricultural Water Desalination in the Central Valley of CA*, **Nanotechnology for the Food Energy Water Nexus**, NSF-Funded Workshop, October 2015.
- *Magnetically Directed Self-Assembly for the Fabrication of Ultra-Selective Membrane Materials,* **Invited lecture for Young Membrane Scientist Award: North American Membrane Society Annual Meeting,** 2015.
- *Frontiers in Water Technology,* **University of Minnesota**, 2015.
- *Policies and Processes for Meeting Water Demand in an Energy Constrained World,* **Rice University**, 2015
- *Antifouling Materials for Membrane Separations,* **Invited lecture at ACS POLY: Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification**, 2015.
- *Technology and Management Practices to Minimize the Impacts of Shale Gas Extraction in the Marcellus,* **Tsinghua University-Carnegie Mellon University Joint Seminar Series**, 2015.

- *Sustainably Engineering Water and Energy Systems for the 21st Century,* **University of California Berkeley**, 2015.
- *Technology and Management Practices to Minimize the Impacts of Shale Gas Extraction in the Karoo,* **Academy of Science of South Africa/University of Cape Town,** 2015.
- *Holistic Approaches to Managing Produced Water from Unconventional Extraction,* **University of Minnesota**, 2014.
- *Policies, Processes, and Materials to for Energy Efficient Separations,* **Pennsylvania State University**, 2014.
- *Materials and Processes to Meet Desalination Demand in an Energy Constrained World,* **University of Arkansas**, 2014.
- *Shale Gas Water Management: Risks and Challenges*, Center for Information Technology Research in the Interest of Society (CITRIS) at the **University of California**, 2014
- *Optimizing the Shale Gas Extraction Process to Minimize Environmental Externalities,* College of Environmental Science and Engineering, **Peking University**, China, 2014.
- *Organic Nanomaterials: An Emerging Tool for Water Treatment*, Research Center for Eco-Environmental Sciences, **Chinese Academy of Sciences**, China, 2014.
- *Water Energy Nexus: Challenges and Perspectives* US-China Eco-Partnership Symposium. Beijing, China, 2014.
- *Materials and Processes to Meet Desalination Demand in an Energy Constrained World.* Department of Mechanical and Aerospace Engineering, **Princeton University**, 2014.
- *Monitoring for Public Health in the Shale Gas Industry,* Workshop Participant, Washington, D.C. 2014.
- *Antecedents and Effects of Company Behavior in Energy Technology Development: Insights from the Solar and Shale Gas Industries.* Renewable and Sustainable Energy Institute, **University of Colorado Boulder**, 2014.
- *Company Behavior in Operations and Waste Management Influences Regional Impacts of Shale Gas Development.* **7th Annual Conference on Environmental Chemistry**, Guiyang, China, 2013.
- *Novel Membrane Architectures for Produced Water Treatment.* **National Energy Technology Laboratory**, 2013.
- *Risk Perception and Industry Response to Marcellus Produced Water Management.* **National Academy of Engineering/National Research Council Shale Risk Workshop**, 2013.
- *Environmental Impacts of Produced Water Management in the Marcellus.* Department of Environmental Health, School of Public Health, **University of Pittsburgh**, 2013.
- *Implications of Firm Behavior for Water and Wastewater Management in the Marcellus.* Invited presenter and workshop participant, **US EPA Wastewater Treatment and Related Modeling Technical Workshop**, Research Triangle Park, NC. 2013.
- *Firm Level Management Practices to Minimize Impacts from Produced Water Management in the Marcellus.* Civil and Environmental Engineering Department, **Virginia Tech**, 2012.
- *Advances in Membrane Materials for Water Treatment.* Environmental Engineering Department, **Ohio State University**, 2013.
- *Self-Assembled Materials for Membrane Separations.* Chemical Engineering Department, **City College, CUNY**, 2012.
- *Templated Alignment of Single Walled Carbon Nanotubes in Aqueous Nanopores.* Department of Energy Engineering, **Hanyang University**, Seoul, Korea, 2012.
- *Stable Sequestration of Single-Walled Carbon Nanotubes in Nanometer-Scale Aqueous Channels.* Civil and Environmental Engineering Department, **Korea University**, 2012.
- *Nanomaterials for Membrane-Based Water Treatment.* School of Chemical and Biological Engineering, **Seoul National University**, 2012.

- *Applications and Implications of Nanomaterials for Membrane-Based Water Treatment.* Desert Research Institute, **Ben Gurion University**, 2011.
- *Nanomaterials for Water Treatment: Emerging Applications, Continuing Challenges.* Civil and Environmental Engineering Department, **Lafayette College**, 2011.
- *Nanomaterials for Membrane-Based Water Treatment Applications.* Civil and Environmental Engineering Department, **Rice University**, 2010.

CONSULTING AND PROFESSIONAL PRACTICE

Oasys Water, Inc., *2009*

Authored federal grants generating $4M for research at venture backed start-up company. Directed feasibility analysis, technology development, and market scoping for secondary application of technology in energy capture and storage.

GE Healthcare—Independent Consultant on Life-Cycle Assessment, *2007-2009*

Managed evaluation of environmental impacts stemming from the transition to a disposable platform for bio-processing in the pharmaceutical industry. Integrated data sources from suppliers, distributors, and consumers of bioreactor systems.

Green City Blue Lake Institute, *2009*

Analyzed storm water impacts from proposed I-90 Innerbelt redevelopment plan to near-shore water quality in Lake Erie and the Cuyahoga River. Prepared and submitted comments on the draft and final environmental impact statements.

Coopedota, *2010*

Life-cycle assessment and process optimization for coffee plantation cooperative in the Terrazu region of Costa Rica.

The Center for Houston's Future, *2003*

Collaborated with 30 business and civic leaders to design scenarios for "Houston's Quality of Place in 2025" visioning process. Published and presented white papers on transportation, air quality, parks water and flooding, population and urban development, public design, and public finance.

PROFESSIONAL LEADERSHIP AND SERVICE

Government and Advisory Workshops and Committees

Panel Member (1/7), Study to Assess South Africa's Readiness to Support the Shale Gas Industry, Academy of Sciences of South Africa (2014-2016) Academy of Science of South Africa (**2016**) South Africa's Technical Readiness to Support the Shale Gas Industry, doi: http://dx.doi.org/10.17159/assaf.2016/0003.

Environmental Defense Fund Produced Water Treatment Technology Workshop (2015) and PA Data Workshop (2018)

National Academy of Engineering/National Research Council Shale Risk Workshop, Washington D.C., 2013.

US EPA Wastewater Treatment and Related Modeling Technical Workshop, Research Triangle Park, NC. 2013.

Journal Editing Activity

Editorial Board Member, *Sustainable Production and Consumption*, 2016-Present.

Special Issue Co-Editor, "Integrated Analysis to Inform Decision Making for Sustainable Electricity Production and Consumption," *Sustainable Production and Consumption.*

Early Career Advisory Board, *ACS Sustainable Chemistry and Engineering*, 2016-Present.

Special Issue Co-Editor for "Systems Analysis, Design, and Optimization for Sustainability" *ACS Sustainable Chemistry and Engineering*, 2018.

Advisory Board, *Advanced Sustainable Systems*, 2016-Present.

Conference Organizing Activity

Conference Co-Chair (with D. Latulippe and A. Zydney), North American Membrane Society Annual Meeting, 2019. Meeting to be held in Pittsburgh, PA.

Program Organizing Committee, Session Organizer, 2017 German-American Frontiers of Engineering, "Water: Purification, Desalination, Managing Freshwater Supply", 2017.

Co-Organizer, Food-Energy-Water Nexus Workshop at Carnegie Mellon University, 2016.

Session Chair, Association of Environmental Engineering and Science Professors, 2015, 2017.

Co-Chair of AICHE Sessions on *Self-Assembled Soft Materials for Membrane Applications*, *Water Treatment*, and *Membrane Distillation* 2013, 2014, 2015, 2016

Co-Chair of ACS Colloids and Surface Science Conference, Self-Assembly at the Nanoscale, 2013

Co-Chair of Gordon Research Seminar, Membranes: Materials and Processes, 2012

Professional Societies

Association of Environmental Engineering and Science Professors (AEESP)

North American Membrane Society (NAMS)

American Chemical Society (ACS)

American Institute of Chemical Engineers (AICHE)

American Water Works Association (AWWA)

International Society for Industrial Ecology (ISIE)

Tau Beta Pi Engineering Honors Society (TBP)

Chi Epsilon Civil Engineering Honors Society

Reviewing Activity

Regularly Peer Review for: *ACS Sustainable Chemistry & Engineering, AICHE Journal, Applied Materials and Interfaces, Desalination, Environmental Science & Technology, Environmental Science & Technology Letters, Environmental Science: Processes and Impacts, Environmental Science: Water Research & Technology; Industrial and Chemical Engineering Research, Journal of Colloid and Interface Science, Journal of Membrane Science, Journal of Sustainable Production and Consumption, Langmuir, and Nature Climate Change.*

Oak Ridge Associated Universities Research Review, 2018

AAAS Research Competitiveness Program for the King Abdulaziz City for Science and Technology, 2018

NSF Environmental Engineering Reviewer, CBET, 2018

EPA National Priorities: Oil & Gas Development, 2017

NSF Environmental Chemistry, 2016

NSF Engineering Research Centers (ERC), 2015, 2016

NSF Partnerships for International Research and Education Reviewer, 2015

NSF Environmental Engineering Reviewer, 2015, 2018

NSF Graduate Research Fellowship Program Reviewer, *Civil and Environmental Engineering*, 2015

NSF Science Engineering and Education for Sustainability Reviewer, 2013

Outreach Activities

Faculty Expert Representative to The Society of Environmental Journalists' McCormick Specialized Reporting Institute on Shale Oil and Gas Development, hosted by the Wilton E. Scott Institute for Energy Innovation, Pittsburgh, PA; June 22-24, 2014, http://www.sej.org/initiatives/mccormick-specialized-reporting-institute-shale-gas-and-oil-development

Summer Center for Climate, Energy, and Environmental Decision Making, Center for Climate and Energy Decision Making, 2013, 2014, 2015, 2016.

Energy Bite Contributor, 90.5 WESA and Carnegie Mellon University's Scott Institute for Energy Innovation, 2016.

PLATYPUS summer camps for water quality sensing, Barcelona, Spain; Pittsburgh, PA, Erie, OH., 2016.

UNIVERSITY SERVICE

Chair, Junior Women Faculty of CIT (2014-Present)
Faculty Search Committee, Civil & Environmental Engineering, Mechanics Search (2017-2018)
Honorary Degree Committee (2017)

TEACHING

Graduate of the ASCE ExCEEd Program, 2016
Certificate in the Fundamentals of Teaching: Engineering, completed 12/2010 at Yale University
Wimmer Faculty Fellow for Teaching at Carnegie Mellon University, 2013-2014
Courses Taught: 06-365/19-365 Water Technology Innovation and Policy; 19-451/88-451 Engineering & Public Policy Project/Policy Analysis Senior Project; 12-351 Environmental Engineering; 19-701 Introduction to the Theory and Practice of Quantitative Policy Analysis
Courses Developed: 06-365/19-365 Water Technology Innovation and Policy

MEDIA COVERAGE

- *"Delaying Day Zero" Water & Wastes Digest,* April 10, 2018
- "Sustainability: Water" *NBC Learn, National Science Foundation.* 2016. http://www.nbclearn.com/sustainability-water
- "Water Shortage" *Carnegie Mellon Today,* February 16, 2016. *http://cmtoday.cmu.edu/engineering_energy/water-energy-interdependence-work*
- "How to avoid water wars between 'fracking' industry and residents," *ACS News Service Weekly PressPac:* April 23, 2014
- "Turning Frack Water into Profit Proves a Challenge," *90.5 WESA, Pittsburgh's NPR News Station*, The Allegheny Front, October 18, 2014
- "Energy Bite" *90.5 WESA National Public Radio*. http://wesa.fm/post/energy-bite-debuts-earth-day-april-22-2015

CONFERENCE TALKS BY M.S. MAUTER AND GROUP

2012- present (Research from CMU)

- **Sneha Shanbhag,** Y. Bootwala, J.F. Whitacre, M.S. Mauter, *The Promise and Challenges of Using Selective Ion Insertion Electrodes for Water Deionization*, 232nd ECS (The Electrochemical Society) Meeting, National Harbor, MD, 2017.
- **D. Gingerich,** M.S. Mauter, *Technoeconomic Optimization of Waste Heat Driven Forward Osmosis for Flue Gas Desulfurization Wastewater Treatment,* ASME Power Conference, Charlotte, NC, 2017.
- **D. Gingerich,** M.S. Mauter, *Redesigning the Regulated Power Plant,* AEESP, Ann Arbor, 2017.
- **T. Bartholomew**, M.S. Mauter, *Osmotically Assisted Reverse Osmosis for High Salinity Brine Treatment,* AEESP, Ann Arbor, 2017.
- **D. Gingerich,** T. Bartholomew, M.S. Mauter, *Technoeconomic Optimization of Waste Heat Driven Forward Osmosis for Flue Gas Desulfurization Wastewater Treatment,* ASME Power Conference, Charlotte, NC, 2017.
- **M.S. Mauter**, *Refining Calculations of Convective Heat Transfer Coefficients in Membrane Distillation Cassettes.* ACS Spring Meeting, San Francisco, 2017.
- **M.S. Mauter**, *Dimensional Analysis of Membrane Distillation Flux Through Fibrous Membranes,* APS March Meeting, New Orleans, 2017.
- **M.S. Mauter**, *Characterizing Convective Heat Transfer Coefficients in Membrane Distillation Cassettes.* AICHE, San Francisco, 2016.
- **X. Sun,** D.B. Gingerich, I.L. Azevedo, M.S. Mauter, *Spatially Resolved Trace Element Emissions from Coal-Fired Power Plants.* ACS 2016 Fall Meeting, Philadelphia, 2016.

- **P. Welle**, M.S. Mauter. *Techno-economic Assessment of Desalination Technology for Application in Agriculture,* ACS 2016 Fall Meeting, Philadelphia, 2016
- **T. Bartholomew**, M.S. Mauter. *Multi-objective Optimization Model for Minimizing Cost and Environmental Impact in Shale Gas Water and Wastewater Management.* ACS 2016 Fall Meeting, Philadelphia, 2016.
- **J. Fornaciari,** A. Newby, S. Shanbhag, M.S. Mauter, *Ion Transport in Carbon Electrodes for Capacitive Deionization,* ACS 2016 Fall Meeting, Philadelphia, 2016.
- **S. Shanbhag,** J. Whitacre, M.S. Mauter, *Relating Charge Efficiency and Ion Removal in Electrochemical Deionization Systems,* ACS 2016 Fall Meeting, Philadelphia, 2016.
- **D. Gingerich,** X. Sun, A. Behrer, I. Azevedo, M.S. Mauter, *Air Emission Implications of Expanded Wastewater Treatment at Coal-Fired Generators,* ACS 2016 Fall Meeting, Philadelphia, 2016.
- **M.S. Mauter**, *Magnetically Directed Crystallization of Membrane Proteins in Block Copolymers,* Pacifichem, Honolulu, 2015.
- **M.S. Mauter,** *Understanding the Role of Nanopatterning in Imparting Anti-Fouling Surface Properties,* Pacifichem, Honolulu, 2015.
- **P. Welle,** M.S. Mauter, *Inland Water Desalination for Agriculture: Can It Make Sense?,* Technology Management and Policy Consortium, Pittsburgh, 2015.
- **D. Gingerich,** M.S. Mauter**,** *Evaluation the Techno-Economic Feasibility of Waste-Heat Driven Water Treatment at Electric Power Generation Facilities,* Technology Management and Policy Consortium, Pittsburgh, 2015.
- **M.S. Mauter,** *Technology and Management Practices to Minimize the Human and Environmental Risks of Unconventional Extraction in the Marcellus,* AEESP Meeting, New Haven, 2015.
- **D. Gingerich** and M.S. Mauter**,** *Evaluation the Techno-Economic Feasibility of Waste-Heat Driven Water Treatment at Electric Power Generation Facilities,* AEESP Meeting, New Haven, 2015.
- **S. Klara,** M.S. Mauter, *Magnetically Directed Crystallization of Membrane Proteins in Block Copolymers,* ACS Colloids and Surface Science, Pittsburgh, 2015.
- **M.S. Mauter,** *Technology and Management Practices to Minimize the Human and Environmental Risks of Unconventional Extraction in the Marcellus,* AEESP Meeting, New Haven, 2015.
- **M.S. Mauter,** *Understanding the Role of Nanopatterning in Imparting Anti-Fouling Surface Properties,* North American Membrane Society Annual Meeting, Boston, 2015.
- **M.S. Mauter,** *Low Temperature Heat to Meet Water Treatment Demand: An Assessment of Policy, Process, and Material Constraints,* North American Membrane Society Annual Meeting, Boston, 2015.
- **S. Klara,** M.S. Mauter, *Self-Assembly of Chemically Heterogeneous Surfaces for Fouling Prevention,* AIChE Fall Conference, Atlanta, 2014
- **X. Zhou,** D. Gingerich, J. Siirola, M.S. Mauter, *Process Modeling of Hybrid Forward Osmosis-Distillation Desalination Systems,* AIChE Fall Conference, Atlanta, 2014
- **M. Leitch,** G. Lowry, M.S. Mauter, *Aerogel Membranes for Membrane Distillation,* AIChE Fall Conference, Atlanta, 2014
- **M.S. Mauter,** *Innovation and Internationalization: Preparing Chemical Engineers Though Skill Development Modules,* AICHE Fall Conference, Atlanta, 2014
- **M.S. Mauter,** *Structured Membranes for CO_2 Separations,* ACS Central Regional Meeting, Pittsburgh, 2014
- **M.S. Mauter**, *Firm Level Management Practices Determine Regional Environmental Impact of Produced Water Management from Hydraulic Fracturing in the Marcellus,* Industry Studies Association Conference, Portland, 2014
- **M.S. Mauter**, *The Impact of Technology Characteristics on the Formation of Exploration and Exploitation Alliances -- Insights from the Solar Photovoltaic Industry,* Industry Studies Association Conference, Portland, 2014

- **M.S. Mauter**, D. Gingerich, X. Zhou, *Process Systems Modeling of Forward Osmosis Draw Solute Recovery Using Power Plant Residual Heat,* Gordon Research Conference, Membranes: Materials and Processes, New London, 2014
- **M. Leitch,** M.S. Mauter, G. Lowry, *Aerogel Membranes for Membrane Distillation,* Gordon Research Conference, Membranes: Materials and Processes, New London, 2014
- **M.S. Mauter**, *Produced Water Management in the Marcellus Play: Anticipating Best-Practice Outcomes from Firm Attributes.* Gordon Research Conference in Industrial Ecology, Les Diablerais, Switzerland, 2012.
- **M.S. Mauter**, *Structural Barriers and Institutional Response to Managing Produced Water in the Appalachian Basin.* IWA World Congress on Water, Climate and Energy, Dublin, Ireland, 2012

CONFERENCE TALKS BY M.S. MAUTER & CO-AUTHORS

Prior to 2012 (Research from Rice, Yale, Harvard)

- *Stable Sequestration of Single-Walled Carbon Nanotubes in Nanometer-Scale Aqueous Channels.* Ninth U.S.-Korea Forum on Nanotechnology, Seoul, Korea, 2012
- *Life-Cycle Ecotoxicity of Carbon Nanotubes.* American Institute for Chemical Engineers Fall Meeting, Pittsburgh, PA, 2012
- *Stable Sequestration of Single-Walled Carbon Nanotubes in Self-Assembled Aqueous Nanopores.* American Institute for Chemical Engineers Fall Meeting, Pittsburgh, PA, 2012
- *Antifouling Ultrafiltration Membranes via Post-Synthesis Grafting of Biocidal Nanomaterials.* American Institute for Chemical Engineers Fall Meeting, Pittsburgh, PA, 2012
- *Nanomaterials for Membrane-Based Water Treatment Applications.* IWA Nano and Water, Monte Verita, Switzerland, 2011.
- *Antifouling Ultrafiltration Membranes via Post-Synthesis Grafting of Biocidal Nanomaterials.* Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification; Asilomar; 2011.
- *Vertical Alignment of Single-Walled Carbon Nanotubes (SWNTs) in Polymer Membranes.* Gordon Research Seminar, Membranes: Materials and Processes, Colby-Sawyer College, June 2010.
- *Polymerizable lyotropic liquid crystalline matrix for magnetic alignment of nanorods and nanotubes in polymer thin films.* American Chemical Society, 84th Colloid and Surface Science Symposium, Akron, 2010.
- *Templated alignment of single-walled carbon nanotubes in polymer films.* American Chemical Society, 239th National Meeting, San Francisco, 2010.
- *Single-walled carbon nanotube (SWNT) composite membranes for reduction of biofouling in water treatment.* American Chemical Society, 239th National Meeting, San Francisco, 2010.
- *Environmental Life-Cycle Assessment of Disposable Bioreactors.* BioProduction 2009, Disposables for Biopharmaceutical Manufacturing; Barcelona; 2009.
- *Engineered Applications of Carbon Nanotubes in Reverse Osmosis Membranes.* Environmental Implications and Applications of Nanotechnology; UMASS Amherst; 2009.
- *Vertical Alignment of Single Wall Carbon Nanotubes (SWNTs) in Thin Polymer Films.* American Physics Society, March Meeting; Philadelphia; 2009.
- *Vertical Alignment of Single Wall Carbon Nanotubes (SWNTs) for Polymeric Membrane Applications.* Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification; Asilomar; 2009.
- *Physiochemical Determinants of CNT toxicity.* Gordon Research Conference, Environmental Sciences: Water; 2008 (honorable mention award).
- *Carbon-based Nanotechnologies in River Water and Wastewater.* Chemodynamics of Ecosystems Conference; Monte Verita, Switzerland; 2008.

- *Earning Trust and Preventing Stigma: A Case Study of Nanotechnology at the EPA*. SETAC Conference; Baltimore; 2005.
- *Issues on the Horizon: The Value of Foresight at the EPA.* EPA Brownbag Series, 2005
- *Modeling Community Goal Dynamics*: *A System Dynamics Approach to Increasing the Level of Safety without the Stimulus of Disaster*. Mid-America Earthquake Center Annual Research Symposium; Charleston; 2004
- *The Identification and Characterization of Novel A-kinase Anchoring Proteins in the Human Heart.* Case Western Reserve University Summer Research Symposium; Cleveland; 2002