Ngai Yin Yip, Ph.D.

Lavon Duddleson Krumb Assistant Professor
Department of Earth and Environmental Engineering
Columbia University

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New York, NY 10027
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ResearcherID, Google Scholar Citations, Scopus, Website, ORCID

FIELD OF SPECIALIZATION

Technologies and innovations for energy-efficient physicochemical processes to solve critical separation challenges for emerging water quality engineering issues, including high-salinity desalination, zero-liquid discharge, resource recovery from wastewater, decentralized systems, low-grade heat utilization, material development and transport theory for membrane processes, and thermodynamic analyses.

EDUCATION

YALE UNIVERSITY, New Haven, CT, USA — 2009 – 2014

Department of Chemical and Environmental Engineering
Environmental Engineering Program

- Doctor of Philosophy, May 2014
  "*Sustainable Production of Water and Energy with Osmotically-Driven Membrane Processes and Ion-Exchange Membrane Processes*", Advisor: Menachem Elimelech
- Masters of Philosophy, May 2011
- Masters of Science, May 2011

NANYANG TECHNOLOGICAL UNIVERSITY (NTU), Singapore — 2000 – 2004

Department of Civil and Environmental Engineering

- Bachelor of Engineering (First Class Honors)
- Minor in Business Administration

ACADEMIC APPOINTMENTS

COLUMBIA UNIVERSITY, New York, NY, USA

Assistant Professor (tenure track) 2015 –
Department of Earth and Environmental Engineering

Lavon Duddleson Krumb Assistant Professor 2020 –
Department of Earth and Environmental Engineering

Adjunct Associate Research Scientist 2014 – 2015
Department of Earth and Environmental Engineering

SCELSE (Singapore Centre on Environmental Life Sciences Engineering), NTU, Singapore

Postdoctoral Research Fellow 2014 – 2015

AWARDS AND ACCOLADES

ACS ES&T Engineering Best Papers of 2022 2023
Best Research Articles

Reid Hall Faculty Visitor Fellowship 2023
Institute for Ideas and Imagination

Young Talent Award 2022
Frontiers of Environmental Science & Engineering

Emerging Investigator 2021
Environmental Science: Water Research & Technology

Junior Faculty Diversity Advancement Award 2021
Office of the Provost, Columbia University

Excellence in Review 2021
Environmental Science & Technology

James J. Morgan Early Career Award: Honorable Mention 2020
Environmental Science & Technology

Arab-American Frontiers Fellowship 2019
The National Academies of Sciences, Engineering, and Medicine

Outstanding Doctoral Dissertation Award 2015
CH2M Hill/AEESP

Henry Prentiss Becton Graduate Prize 2015
Yale School of Engineering and Applied Science

ES&T Best Papers of 2013 — 2014
Environmental Technology: Second Runner-up

C. Ellen Gonter Best Paper Award — 2013
Division of Environmental Chemistry, American Chemical Society

First Place, Student Presentation Competition — 2012
10th Annual Robert M. Langer Symposium, Yale University

Environmental Chemistry Graduate Student Award — 2011
Division of Environmental Chemistry, American Chemical Society

Membrane X-Prize — 2010
Oasys Water Inc., Boston, MA
Monetary award for development of prototype forward osmosis membranes

ADVISEE AWARDS (notable)

30. Eliza Dach, *ACS Graduate Student Award in Environmental Chemistry*, American Chemical Society, 2024
29. Yuxuan Huang, *Travel Grant*, AEESP Research & Education Conference, 2023
28. Ian H. Billinge, *C. Ellen Gonter Best Paper Award, Division of Environmental Chemistry*, American Chemical Society, 2023
27. Kinnari Shah, *ACS Graduate Student Award in Environmental Chemistry*, American Chemical Society, 2023
26. Karen Copeland, *Churchill Scholarship*, Winston Churchill Foundation, 2023
25. Yuxuan Huang, *Best Poster Presentation*, International Congress on Separation and Purification Technology 2022
24. Nobuyo Watanabe, *Alpha Zeta Club Graduate Scholarship*, Barnard College, 2022
23. Eliza Dach, *NSF Graduate Research Fellowship*, National Science Foundation, 2022
22. Peter Cruz-Grace, *Robert Peele Prize*, Columbia University, 2022
21. Kinnari Shah, *1st Place Three-Minute Thesis (3MT) Competition*, Columbia GSAS, 2022
20. Nobuyo Watanabe, *ACS Undergraduate Student Award in Environmental Chemistry*, American Chemical Society, 2021
19. Kinnari Shah, *NSF Graduate Research Fellowship*, National Science Foundation, 2021

18. Yuxuan Huang, *NAMS Elias Klein Travel Award*, North American Membrane Society, 2021
17. Stephanie McCartney, *Kenneth G. Hancock Memorial Award*, ACS Green Chemistry, 2020
16. Nobuyo Watanabe, *Ciba Travel Award in Green Chemistry*, ACS Green Chemistry, 2020
15. Peter Cruz-Grace, Collaborative Research Grant, Earth Institute, 2020
14. Stephanie McCartney, *AMTA/Reclamation Fellowships for Membrane Technology*, American Membrane Technology Association, 2020
13. Elizabeth Dach, *Lavon Duddleson Krumb Graduate Fellowship*, Columbia University, 2020
12. Robert Winton, *ACS Undergraduate Student Award in Environmental Chemistry*, American Chemical Society, 2020
11. Robert Winton, *ACEC New York Merit Scholarship*, American Council of Engineering Companies, 2020
10. Amar Bhardwaj, *NSF Graduate Research Fellowship*, National Science Foundation, 2020
9. Hanqing Fan, *ACS Graduate Student Award in Environmental Chemistry*, American Chemical Society, 2019
8. Hanqing Fan, *NAMS Elias Klein Travel Award*, North American Membrane Society, 2019
7. Amar Bhardwaj, *Marshall Scholarship*, Marshall Aid Commemoration Commission, 2019
6. Kinnari Shah, *Provost's Diversity Fellowship*, Columbia University, 2019
5. Amar Bhardwaj, *Goldwater Scholarship*, Barry Goldwater Scholarship and Excellence in Education Program, 2019
4. Amar Bhardwaj, *Udall Scholarship*, Udall Foundation, 2019
3. Xi Chen, *NAMS Elias Klein Travel Award*, North American Membrane Society, 2019
2. Amar Bhardwaj, *Udall Scholarship*, Udall Foundation, 2018
1. Amar Bhardwaj, *Affordable Desalination Collaboration (ADC) Scholarship*, American Membrane Technology Association-Affordable Desalination Collaboration, 2018

PUBLICATIONS

ResearcherID: D-1669-2012 | Scopus Author ID: 36193436600 | ORCID : 0000-0002-1986-4189 | *h*-index: 35 (Google Scholar); 33 (Scopus) | Top 2%-cited researcher: 2018–2022 (Stanford-Elsevier)

(single, double, and dashed underline denote graduate, postdoc, and undergraduate/M.S. advisees, respectively; asterisk* signify co-advise; **bold** indicates corresponding author; senior authors are always listed last)

55. Ledingham, J., Sedransk Campbell, K., in 't Veen, B., Keyzer, L., Yip, N.Y., **Campbell, A.**, "The development and validation of a novel, parameter-free, modelling strategy for electromembrane processes: Electrodialysis", *Desalination*, May 2024, Volume 576, 9, 117386. doi.org/10.1016/j.desal.2024.117386
54. Huang, Y., Fan, H., and **Yip, N.Y.**, "Mobility of Condensed Counterions in Ion-Exchange Membranes: Application of Screening Length Scaling Relationship in Highly Charged Environments", *Environmental Science & Technology*, 2024, Volume 58, Issue 1, 836–846. doi.org/10.1021/acs.est.3c06068
53. Dach, E., David, L., van der Made, J., Pope, M., Chabeda, J., Brown, A., Foo, J., and **Yip, N.Y.**, "Are Showerhead Filters Retailed Online a Scam?: Investigating Water Quality Claims through a Course-based Research Experience", *Environmental Engineering Science*, October 2023, Volume 40, Issue 10, 414–425. doi.org/10.1089/ees.2023.0099
52. Shah, K.M., Billinge, I.H., Dach, E.M., and **Yip, N.Y.**, "Advancing the Productivity-Selectivity Tradeoff of Temperature Swing Solvent Extraction Desalination with Intermediate-Step Release", *Environmental Science & Technology Letters*, 2023, September 2023, Volume 10, 949–954. doi: 10.1021/acs.estlett.3c00616
51. Huang, Y., Fan, H., and **Yip, N.Y.**, "Influence of electrolyte on concentration-induced conductivity-permselectivity tradeoff of ion-exchange membranes", *Journal of Membrane Science*, February 2023, Volume 668, 121184. doi.org/10.1016/j.memsci.2022.121184
50. Shah, K.M., Dach, E., Winton, R.K., Fan, H., and **Yip, N.Y.**, "Phase Equilibria Insights into Amine-Water-NaCl Interactions in Liquid-Liquid Biphasic Systems for Temperature Swing Solvent Extraction", *Desalination*, February 2023, Volume 548, 116259. doi.org/10.1016/j.desal.2022.116259
49. Fan, H., Huang, Y., and **Yip, N.Y.**, "Advancing Ion-Exchange Membranes to Ion-Selective Membranes: Principles, Status, and Opportunities", *Frontiers of Environmental Science & Engineering*, October 2022, Volume 17, 25. doi.org/10.1007/s11783-023-1625-0
    Featured in Young Talents Special Column
48. Foo, Z.H., Stetson, C., Dach, E., Deshmukh, A., Lee, H., Menon, A., Prasher, R., Yip, N.Y., **Lienhard, J.H.**, and **Wilson, A.D.**, "Solvent-Driven Aqueous Separations for Hypersaline Brine Concentration and Resource Recovery", *Trends in Chemistry*, December 2022, Vol. 4, No. 12. doi.org/10.1016/j.trechm.2022.09.004

47. McCartney, S.N., Fan, H., Watanabe, N., Huang, Y., and **Yip, N.Y.**, "Donnan Dialysis for Phosphate Recovery from Diverted Urine", *Water Research*, November 2022, Volume 226, 119302. doi.org/10.1016/j.watres.2022.119302
46. Barbosa, G.D., Dach, E., Liu, X., **Yip, N.Y.**, and **Turner, C.**, "Computational and experimental study of different brines in temperature swing solvent extraction desalination with amine solvents", *Desalination*, September 2022, Volume 537, 115863. doi.org/10.1016/j.desal.2022.115863
45. Shah, K.M., Billinge, I.H., Chen, X., Fan, H., Huang, Y., Winton, R.K., **Yip, N.Y.**, "Drivers, Challenges, and Emerging Technologies for Desalination of High-Salinity Brines: A Critical Review", *Desalination*, September 2022, Volume 538, 115827. doi.org/10.1016/j.desal.2022.115827
    Most downloaded articles in the last 90 days
44. Chen, X., Verbeke, R., Boo, C., Dickmann, M., Egger, W., Ndamage, K., Vankelecom, I.F.J., and **Yip, N.Y.**, "Elucidating the roles of polyamide layer structural properties in permeability-selectivity tradeoff", *ACS ES&T Engineering*, July 2022, Volume 2, 1857–1870. doi.org/10.1021/acsestengg.2c00103
43. Fan, H. and **Yip, N.Y.**, "Donnan Dialysis Desalination with Thermally-Recoverable Solute", *ACS ES&T Engineering*, June 2022, Volume 2, 2076–2085. doi.org/10.1016/j.desal.2022.115827
42. **Brogioli, D.**, and Yip, N.Y., "Energy Efficiency Analysis of Membrane Distillation for Thermally Regenerative Salinity Gradient Power Technologies", *Desalination*, June 2022, Volume 531, 115694. doi.org/10.1016/j.desal.2022.115694
41. Berry, R.T., Dach, E.M., Melhorn, J., Yip, N.Y., **Soh, L.**, "Assessing the Temperature Dependent Tunable Polarity of *N*,*N* Dimethylcyclohexylamine (DMCHA) and Water Mixtures", *ACS Sustainable Chemistry & Engineering*, March 2022, Volume 10, 3726–3734. doi.org/10.1021/acssuschemeng.2c00293
40. Fan, H., Huang, Y., Billinge, I.H., Bannon, S.M., Geise, G.M., **Yip, N.Y.**, "Counterion Mobility in Ion-Exchange Membranes: Spatial Effect and Valency-Dependent Electrostatic Interaction", *ACS ES&T Engineering*, March 2022. doi.org/10.1021/acsestengg.1c00457
    ACS ES&T Engineering Best Papers of 2022 (Research Articles)
39. Li, Y., Wang, R., Shi, S., Cao, H., Yip, N.Y., and **Lin, S.**, "Bipolar Membrane Electrodialysis for Ammonia Recovery from Synthetic Urine: Experiments, Modeling, and Performance Analysis", *Environmental Science & Technology*, October 2021, Volume 55, 14886–14896. doi.org/10.1021/acs.est.1c05316
38. McCartney, S.N., Watanabe, N., and **Yip, N.Y.**, "Emerging investigator series: Thermodynamic and Energy Analysis of Nitrogen and Phosphorous Recovery from Wastewaters", *Environmental Science: Water Research & Technology*, September 2021, Volume 7, 2075–2088. doi.org/10.1039/D1EW00554E
    Featured in Emergining Investigator Series

37. Boo, C., Qi, H., Billinge, I.H., Shah, K.M., and **Yip, N.Y.**, "Thermomorphic Hydrophilicity Base-Induced Precipitation Utilizing Low-Grade Heat for Effective Descaling of Hypersaline Brines", *ACS ES&T Engineering*, July 2021. doi.org/10.1021/acsestengg.1c00160
36. Chen, X., Boo, C., and **Yip, N.Y.**, "Influence of Solute Size on Permeability-Selectivity Tradeoff of Thin-Film Composite Polyamide Membranes", *Water Research*, August 2021, Volume 201, 117311. doi.org/10.1016/j.watres.2021.117311
35. Atia, A.A.*, Yip, N.Y., and **Fthenakis, V.**, "Pathways for minimal and zero liquid discharge with enhanced reverse osmosis technologies: Module-scale modeling and techno-economic assessment", *Desalination*, August 2021, Volume 509, 115069. doi.org/10.1016/j.desal.2021.115069
34. Bhardwaj, A.A.*, Vos, J.G., Beatty, M.E.S., Baxter, A.F., Koper, M.T.M., Yip, N.Y. and **Esposito, D.V.**, "Ultrathin Silicon Oxide Overlayers Enable Selective Oxygen Evolution from Acidic and Unbuffered pH-Neutral Seawater", *ACS Catalysis*, January 2021, Volume 11, 1316–1330. doi/10.1021/acscatal.0c04343
33. Boo, C., Billinge, I.H., Chen, X., Shah, K.M., and **Yip, N.Y.**, "Zero Liquid Discharge of Ultrahigh Salinity Brines with Temperature Swing Solvent Extraction", *Environmental Science & Technology*, June 2020, Volume 54, 9124–9131. doi/10.1021/acs.est.0c02555
    Press Coverage (selected): phys.org, sciencedaily.com, nanowerk.com
    Altmetric score: 110
32. Fan, H., Huang, Y., and **Yip, N.Y.**, "Advancing the conductivity-permselectivity tradeoff of electrodialysis ion-exchange membranes with sulfonated CNT nanocomposites", *Journal of Membrane Science*, September 2020, Volume 610, 118259. doi.org/10.1016/j.memsci.2020.118259
31. McCartney, S.N., Williams, N.A., Boo, C., Chen, X., and **Yip, N.Y.**, "Novel Isothermal Membrane Distillation with Acidic Collector for Selective and Energy-Efficient Recovery of Ammonia from Urine", *ACS Sustainable Chemistry & Engineering*, April 2020, Volume 8, Issue 19, 7324–7334. doi.org/10.1021/acssuschemeng.0c00643
    Press Coverage (selected): phys.org, sciencedaily.com
    Altmetric score: 56
30. Chen, X., Boo, C., and **Yip, N.Y.**, "Transport and structural properties of osmotic membranes in high-salinity desalination using cascading osmotically mediated reverse osmosis", *Desalination*, April 2020, Volume 479, 114335. doi.org/10.1016/j.desal.2020.114335
29. Wang, Z., Horseman, T., Straub, A.P., Yip, N.Y., Li, D., Lin, S., and **Elimelech, M.**, "Pathways and challenges for efficient solar-thermal desalination", *Science Advances*, July 2019, Volume 5 (7). doi:10.1126/sciadv.aax0763
28. Chen, X., Boo, C., and **Yip, N.Y.**, "Low-temperature heat utilization with vapor pressure-driven osmosis: Impact of membrane properties on mass and heat transfer", *Journal of Membrane Science*, October 2019, Volume 588, 117181. doi:10.1016/j.memsci.2019.117181

27. Boo, C., Winton, R., Conway, K.A., and **Yip, N.Y.**, "Membraneless and non-evaporative desalination of hypersaline brines by temperature swing solvent extraction", *Environmental Science & Technology Letters*, June 2019, Volume 6, Issue 6, 359–364. doi:10.1021/acs.estlett.9b00182
    Press Coverage (selected): phys.org, sciencedaily.com, cnet.com, news.sky.com, news.yahoo.com
    Altmetric score: 133
26. **Brogioli, D.**, La Mantia, F., and Yip, N.Y., "Energy Efficiency Analysis of Distillation for Thermally Regenerative Salinity Gradient Power Technologies", *Renewable Energy*, April 2019, Volume 133, 1034–1045. doi:10.1016/j.renene.2018.10.107
25. Fan, H. and **Yip, N.Y.**, "Elucidating conductivity-permselectivity tradeoffs in electrodialysis and reverse electrodialysis by structure-property analysis of ion-exchange membranes", *Journal of Membrane Science*, March 2019, Volume 573, 668–681. doi.org:10.1016/j.memsci.2018.11.045
24. Chen, X., and **Yip, N.Y.**, "Unlocking High-Salinity Desalination with Cascading Osmotically Mediated Reverse Osmosis: Energy and Operating Pressure Analysis", *Environmental Science & Technology*, February 2018, Volume 52, 2242–2250. doi:10.1021/acs.est.7b05774
    Cited over 100 times since publication
23. **Brogioli, D.**, La Mantia, F., and Yip, N.Y., "Thermodynamic Analysis and Energy Efficiency of Thermal Desalination Processes", *Desalination*, February 2018, Volume 428, 29–39. doi:10.1016/j.desal.2017.11.010
22. **Yip, N.Y.**, Brogioli, D., Hamelers, B., and Nijmeijer, K., "Salinity Gradients for Sustainable Energy: Primer, Progress, and Prospects", *Environmental Science & Technology*, Volume 50, November 2016, 12072–12094. doi:10.1021/acs.est.6b03448
    Cited over 260 times since publication
21. Straub, A.P., Yip, N.Y., Lin, S., Lee, J., and **Elimelech, M.**, "Harvesting low-grade heat energy using thermo-osmotic vapor transport through nanoporous membranes", *Nature Energy*, June 2016, Volume 1, 16090. doi:10.1038/nenergy.2016.90
20. Deshmukh, A., Yip, N.Y., Lin, S., and **Elimelech, M.**, "Desalination by Forward Osmosis: Identifying Performance Limiting Parameters through Module Scale Modeling", *Journal of Membrane Science*, October 2015, Volume 491, 159–167. doi:10.1016/j.memsci.2015.03.080
19. Yip, N.Y. and **Elimelech, M.**, "Comparison of Energy Efficiency and Power Density in Pressure Retarded Osmosis and Reverse Electrodialysis", *Environmental Science & Technology*, Volume 48, September 2014, 11002–11012. doi:10.1021/es5029316
18. Yip, N.Y., Vermaas, D.A., Nijmeijer, K., and **Elimelech, M.**, "Thermodynamic, Energy Efficiency, and Power Density Analysis of Reverse Electrodialysis Power Generation with Natural Salinity Gradients", *Environmental Science & Technology*, Volume 48, May 2014, 4925–4936. doi:10.1021/es5005413

17. Lin, S., Yip, N.Y., and **Elimelech, M.**, "Hybrid Pressure Retarded Osmosis-Membrane Distillation System for Power Generation from Low-Grade Heat: Thermodynamic Analysis and Energy Efficiency", *Environmental Science & Technology*, April 2014, Volume 48, 5306–5313. doi:10.1021/es405173b
16. Lin, S., Yip, N.Y., Cath, T.Y., and **Elimelech, M.**, "Direct Contact Membrane Distillation with Heat Recovery: Thermodynamic Insights from Module Scale Modeling", *Journal of Membrane Science*, March 2014, Volume 453, 498–515. doi:10.1016/j.memsci.2013.11.016
15. Straub, A.P., Yip, N.Y., and **Elimelech, M.**, "Raising the Bar: Increased Hydraulic Pressure Allows Unprecedented High Power Densities in Pressure-Retarded Osmosis", *Environmental Science & Technology Letters*, November 2013, Volume 1, 55–59. doi:10.1021/ez400117d
14. Yip, N.Y. and **Elimelech, M.**, "Influence of Natural Organic Matter Fouling and Osmotic Backwash on Pressure Retarded Osmosis Energy Production from Natural Salinity Gradients", *Environmental Science & Technology*, Volume 47, November 2013, 12607–12616. doi:10.1021/es403207m
13. Vermaas, D.A., Veerman, J., Yip, N.Y., Elimelech, M., Saakes, M., and **Nijmeijer, K.**, "High Efficiency in Energy Generation from Salinity Gradients with Reverse Electrodialysis", *ACS Sustainable Chemistry & Engineering*, October 2013, Volume 1, 1295–1302. doi:10.1021/sc400150w
12. Tiraferri, A., Yip, N.Y., Straub, A.P., Romero-Vargas Castrillon, S., and **Elimelech M.**, "A Method for the Simultaneous Determination of Transport and Structural Parameters of Forward Osmosis Membranes", *Journal of Membrane Science*, October 2013, Volume 444, 523–538. doi:10.1016/j.memsci.2013.05.023
11. Shaffer, D.L., Arias Chavez, L.H., Ben-Sasson, M., Romero-Vargas Castrillón, S., Yip, N.Y., and **Elimelech, M.**, "Desalination and Reuse of High-Salinity Shale Gas Produced Water: Drivers, Technologies, and Future Directions", *Environmental Science & Technology*, September 2013, Volume 47, 9569–9583. doi:10.1021/es401966e
10. **Cath, T.Y.**, Elimelech, M., McCutcheon, J.R., McGinnis, R.L., Achilli, A., Anastasio, D., Brady, A.R., Childress, A.E., Farr, I.V., Hancock, N.T., Lampi, J., Nghiem, L.D., Xie, M., and Yip, N.Y., "Standard Methodology for Evaluating Membrane Performance in Osmotically Driven Membrane Processes", *Desalination*, March 2013, Volume 312, 31–38. doi:10.1016/j.desal.2012.07.005
9. Mo, Y., Tiraferri, A., Yip, N.Y., Adout, A., Huang, X., and **Elimelech, M.**, "Improved Antifouling Properties of Polyamide Nanofiltration Membranes by Reducing the Density of Surface Carboxyl Groups", *Environmental Science & Technology*, December 2012, Volume 46, 13253–13261. doi:10.1021/es303673p
8. Shaffer, D.L., Yip, N.Y., Gilron J., and **Elimelech, M.**, "Seawater Desalination for Agriculture by Integrated Forward and Reverse Osmosis: Improved Product Water Quality for Potentially Less Energy", *Journal of Membrane Science*, October 2012, Volume 415–416, 1–8. doi:10.1016/j.memsci.2012.05.016

7. Yip, N.Y., and **Elimelech, M.**, "Thermodynamic and Energy Efficiency Analysis of Power Generation from Natural Salinity Gradients by Pressure Retarded Osmosis", *Environmental Science & Technology*, Volume 46, May 2012, 5230–5239. doi:10.1021/es300060m
6. Hoover, L.A., Phillip, W.A., Tiraferri, A., Yip, N.Y., and **Elimelech, M.**, "Forward with Osmosis: Emerging Applications for Greater Sustainability", *Environmental Science & Technology*, December 2011, Volume 45, 9824-9830. doi:10.1021/es203197e
5. Yip, N.Y. and **Elimelech, M.**, "Performance Limiting Effects in Power Generation from Salinity Gradients by Pressure Retarded Osmosis", *Environmental Science & Technology*, Volume 45, December 2011, 10273-10282. doi:10.1021/es202576h
4. Ang, W.S., Yip, N.Y., Tiraferri, A., and **Elimelech, M.**, "Chemical Cleaning of RO Membranes Fouled by Wastewater Effluent: Achieving Higher Efficiency with Dual-step Cleaning", *Journal of Membrane Science*, Volume 382, October 2011, 100-106. doi:10.1016/j.memsci.2011.07.047
3. Yip, N.Y., Tiraferri, A., Phillip, W.A., Schiffman, J.D., Laura, A.H., Kim, Y.C., and **Elimelech, M.**, "Thin-Film Composite Pressure Retarded Osmosis Membranes for Sustainable Power Generation from Salinity Gradients", *Environmental Science & Technology*, Volume 45, May 2011, 4360–4369. doi:10.1021/es104325z
2. Tiraferri, A., Yip, N.Y., Phillip, W.A., Schiffman, J.D., and **Elimelech, M.**, "Relating Performance of Thin-Film Composite Forward Osmosis Membranes to Support Layer Formation and Structure", *Journal of Membrane Science*, Volume 367, February 2011, 340-352. doi:10.1016/j.memsci.2010.11.014
1. Yip, N.Y., Tiraferri, A., Phillip, W.A., Schiffman, J.D., and **Elimelech, M.**, "High Performance Thin-Film Composite Forward Osmosis Membrane", *Environmental Science & Technology*, Volume 44, May 2010, 3812–3818. doi:10.1021/es1002555

Manuscripts under revisions or in review

1. Billinge, I.H., Barbosa, G.D., Tao, S., Terban, M., **Turner, C.H.**, **Billinge, S.J.L.**, **Yip, N.Y.**, "A structural underpinning of the lower critical solution temperature (LCST) behavior behind temperature-switchable liquids", *Matter*, in review.

PATENTS

1. Yip, N.Y., Phillip, W.A., Schiffman, J.D., and Elimelech, M., "High Flux Thin-Film Composite Forward Osmosis and Pressure Retarded Osmosis Membranes", US Patent US9156006 B2.

Patent applications under review

1. Yip, N.Y. and Boo. C., "Temperature Swing Solvent Extraction for Desalination of Hypersaline Brines", Patent application.

2. Yip, N.Y. and Boo. C., "Thermomorphic Hydrophilicity Amine Base-Induced Precipitation to Treat High-Scaling Propensity Feed Waters", Patent application.
3. Yip, N.Y. and Boo. C., "Zero Liquid Discharge of Ultrahigh Salinity Brines with Temperature Swing Solvent Extraction", Patent application.
4. Yip, N.Y., Shah, K., Billinge, I., Winton, R., and Dach, E., “Desalination of Hypersaline Brine Using Temperature Swing Solvent Extraction-Stepwise Release (TSSE-SR)”, Patent application.

TEACHING

Code	Course	Term
EAEE E4003	Aquatic Chemistry	Spring 2023
		Fall 2021
		Fall 2020
		Fall 2019
		Fall 2018
		Fall 2017
		Fall 2016
EAEE E3200	Applied Transport and Chemical Rate Phenomena	Fall 2023
		Fall 2022
EAEE E6140	Environmental Physicochemical Processes	Spring 2022
		Spring 2021
		Fall 2019
		Spring 2019
		Spring 2018
		Spring 2017
Columbia Engineering Short Course, Water: Engineering the World’s Most Vital Resource		Summer 2020
CIEE E4252	Foundations of Environmental Engineering	Fall 2018
EAEE E2100	A Better Planet by Design (co-instruction)	Fall 2017
		Fall 2016
		Fall 2015

ADVISING

(historically underserved groups denoted by *)

DOCTORAL STUDENTS

Graduated

1. Dr. Xi Chen — Sept. 2015 – July 2019
   Thesis: "*Advancing Membrane Technologies for Sustainable Production of Energy and Water*"
   (current appointment: Assistant Professor (tenure-track), City University of Hong Kong, starting Jan. 2024)
2. Dr. Adam Atia (secondary co-advised) — Sept. 2016 – Feb. 2021
   Thesis: "Integrating Renewable Energy and Desalination:
   Modeling Intra-hourly, Variable Salinity, Reverse Osmosis Powered by Photovoltaics"
   (current appointment: Senior Engineer, KeyLogic Systems)
3. *Dr. Stephanie McCartney — Sept. 2017 – Jun. 2022
   Thesis: "*Advancing Membrane Technologies for Recovery of Nitrogen and Phosphorous from Human Urine*"
   (current appointment: Sustainability Engineer, Ingredion)
4. Dr. Hanqing Fan — Sept. 2017 – Jul. 2022
   Thesis: "*Developing Ion-Selective Membrane Technologies for Challenges at the Water-Energy Nexus*"
   (current appointment: Postdoctoral Researcher, Yale University)

Current

1. *Kinnari Shah — Sept. 2019 – Spring 2024 (expected)
   Thesis: "*Advancing Temperature Swing Solvent Extraction for Sustainable High-Salinity Desalination: An Investigation into Process Thermodynamics and Impact of Contaminants*"
2. Yuxuan Huang — Sept. 2019 – Spring 2024 (expected)
   Thesis: "*Selective Ion Transport and Sorption in Ion-Exchange Membranes*"
3. Ian Billinge — Sept. 2019 – Spring 2024 (expected)
   Thesis: "*Solvent extraction desalination: mechanistic studies and desalination of real waste brines*"
4. *Elizabeth Dach — Sept. 2020 – Spring 2025 (expected)
   Thesis: "Thermo-switchable Hydrophilicity Solvents for Selective Mineral Recovery from Brines"

5. Daniel Galperin — Aug. 2023 –
6. *Vaishnavi Koyilath Nandakumar — Aug. 2023 –

Doctoral Theses, as Reader on Dissertation Committee

1. Xiaoyang Shi
2. Emi Leung
3. Constantine Spanos
4. Qinghe (Angela) Zheng
5. Yang Shen
6. Medini Annavajhala
7. Zheqin Li
8. Yu-Chen Su
9. Leo Lemordant
10. Shuoxun (Ashley) Wang
11. Qian (Tyra) Zhang
12. David Farnham
13. Connor Bilchak
14. Guanhe Rim
15. Chengchuan Zhou
16. Martha Arellano
17. Ming Gao
18. Jonathan Vardner
19. James Doss-Gollin
20. Chae Jeong-Potter
21. Marissa Beatty
22. Sara Hamilton
23. Jiasheng Ding
24. Do Young Maeng

POSTDOCTORAL RESEARCHERS

Past

1. Dr. Chanhee Boo — Jul. 2018 – Feb. 2020
   (current position: Assistant Professor, Korea Advanced Institute of Science and Technology, KAIST)

M.S. STUDENTS

Graduated

1.	*Chenxuan Zhu	Jan. – May 2017
2.	Omar Salah Alali	Sept. – Dec. 2017
3.	Yuxuan Huang Thesis: "Sulfonation of Carbon Nanotubes for Application in Nanocomposite Ion Exchange Membranes"	Jan. – Dec. 2018
4.	*Heyang Qi Thesis: "Solvent-Induced Precipitation for Hardness Removal in Hypersaline Water"	Jan. – Dec. 2019
5.	*Lara Stela David Alves Thesis: "Scaling Investigation of Reverse Osmosis Membranes Under Thermomorphic Hydrophilicity Base-Induced Precipitation-Treated Feeds"	Sept. 2021 – May 2022
6.	Zimu Song Thesis: "Exploring a Governing Transport Mechanism for PA-TFC Membrane at Lower Permeabilities"	Sept. 2021 – May 2022
7.	Zhenyu Kang Thesis: "Exploring the Governing Transport Mechanism for PA-TFC Membranes at Lower Water Permeance Condition"	Jan. – Dec. 2022
8.	Hongxu Chen Thesis: "Lithium Selective Recovery via Dual Motivations of Donnan Potential and Hydration Thermodynamics through Sulfonic Cation-exchange Polystyrene Membranes"	Jan. – Dec. 2023

Current

1.	Shinyoung (Brian) Park	Jan. 2024 –

UNDERGRADUATE STUDENTS

Graduated

1.	David Kim (current position: Ph.D. student at Yale University; NSF Graduate Research Fellow)	Nov. 2015 – May 2018
2.	*Jocelyn Wang	May 2016 – Aug. 2017
3.	*Natalie Williams	May 2016 – May 2019
4.	Daniel Dray	Sept. 2016 – May 2019
5.	*Amar Bhardwaj (current position: White House Policy Advisor; NSF Graduate Research Fellow)	Jan. 2017 – May 2020

6. *Kelly Conway (current position: Ph.D. student at UC Berkeley; NSF Graduate Research Fellow) — May 2017 – May 2018
7. *Kalisa Ndamage — Nov. 2017 – May 2019
8. Robert Winton — Jan. 2018 – Apr. 2021
9. *Kruti Sutaria — Sept. 2019 – Apr. 2021
10. *Nobuyo Watanabe — May 2019 – May 2022
11. *Peter Cruz-Grace — May 2020 – May 2022
12. *Charmane Gabriel — Sept. 2020 – May 2022
13. *Karen Copeland (current position: Churchill Scholar at University of Cambridge) — May 2021 – May 2023
14. *Amaya Shah — Feb. 2022 – May 2023
15. *Agustin Cabrera — May – Dec. 2023

Current

1. *Devon Elizabeth Campbell — Jan. 2022 –
2. Max Edelstein — Jun. 2022 –
3. *Juliana Marston — Jan. 2023 –
4. *Salome Clark — May 2023 –
5. Andrew Fouty — Jan. 2024 –

INVITED SEMINARS and CONFERENCES (selected; post-2014)

Invited Seminars

22. “Understanding transport in ion-exchange membranes for selective separations in environmental applications”, Department of Civil and Environmental Engineering, University of Michigan, February 2024
21. “Advancing ion-selective membranes for water, energy, and environmental separations”, Winners of Young Talent Award Webinar, Frontiers of Environmental Science and Engineering, April 2023.
20. “Towards a Thermodynamically-Informed Approach for a Sustainable Circular Nutrient Economy: Membrane Innovations for Decentralized Nitrogen and Phosphorous Recovery from Wastewaters”, School of Sustainable Engineering and The Built Environment, Arizona State University, February 2023.
19. “Switchable Solvents for Hypersaline Brine Desalination using Low-Grade Thermal Energy”, Civil, Construction, and Environmental Engineering, University of New Mexico, February 2023.

18. “Switchable Solvents for Hypersaline Brine Desalination using Low-Grade Thermal Energy”, Ecole Nationale Supérieure de Chimie, Université Ibn Tofail, Morocco, Virtual, July 2022.
17. “Meeting the Nutrient Challenge of the Food-Energy-Water Nexus: N and P Recovery using Membrane Innovations”, Chemical Engineering, University of Bath, UK, Virtual, November 2021.
16. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Environmental Science and Engineering, King Abdullah University of Science and Technology, KAUST, Saudi Arabia, October Virtual, 2020.
15. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Worcester Polytechnic Institute, Worcester, MA, Virtual, October 2020.
14. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta, GA, Virtual, October 2020.
13. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Cornell University, Ithaca, NY, Virtual, September 2020.
12. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Champaign, IL, Virtual, September 2020.
11. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Stanford University, Stanford, CA, March 2020.
10. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Urban Engineering, New York University, New York, NY, November 2019.
9. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Rice University, Houston, TX, November 2019.
8. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Duke University, Durham, NC, November 2019.
7. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, Lehigh University, Bethlehem, PA, October 2019.
6. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, University of Massachusetts Amherst, Amherst, MA, September 2019.

5. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, Civil and Environmental Engineering, New Jersey Institute of Technology, Newark, NJ, March 2019.
4. “Disrupting Desalination: Novel Energy-Efficient Technologies for Hypersaline Brines”, Earth and Environmental Studies, Montclair State University, Montclair, NJ, December 2018.
3. “Disrupting Desalination: Novel Energy-Efficient Technologies for Hypersaline Brines”, Department of Civil, Environmental, and Ocean Engineering, Stevens Institute of Technology, Hoboken, NJ, December 2018.
2. “Disrupting Desalination: Novel Energy-Efficient Technologies for Hypersaline Brines”, Department of Chemical Engineering, McMaster University, Hamilton, Canada, November 2018.
1. “Harnessing Natural Salinity Gradients for Sustainable Power Generation with Pressure Retarded Osmosis”, *Invited Seminar*, Department of Civil, Structural and Environmental Engineering, University at Buffalo, Buffalo, NY, October 2015.

Conference Presentations

29. “Ion-Selective Membranes in Electrochemical Separations”, *Oral Presentation (Invited)*, AIChE Annual Meeting 2023, Orlando, FL, November, 2023.
28. “Decarbonizing Desalination”, *Poster Presentation*, *Arab-American Frontiers of Science, Engineering, and Medicine Symposium*, Doha, Qatar, October, 2023.
27. “Advancing the selectivities of ion-exchange membranes for electrified separations”, *Oral Presentation (Invited)*, ACS Fall Meeting 2023, Environmental Chemistry Division, San Francisco, CA, August, 2023.
26. “Switchable solvents for hypersaline brine desalination”, *Oral Presentation*, ACS Fall Meeting 2023, Environmental Chemistry Division, San Francisco, CA, August, 2023.
25. “Elucidating the roles of solute and polyamide active layer in the permeability-selectivity tradeoff of aqueous separation membranes”, *Oral Presentation*, ACS Spring Meeting 2023, Polymeric Materials Science and Engineering Division, Indianapolis, IN, March, 2023.
24. “High-salinity electrodialysis with rationally-designed ion-exchange membranes”, *Oral Presentation (Invited)*, ACS Spring Meeting 2023, Environmental Chemistry Division, Indianapolis, IN, March, 2023.
23. “Understanding the physics of ion mobility in charged and confined environments”, *Oral Presentation (Invited)*, 5th International Symposium on Physics of Membrane Processes, Wageningen, The Netherlands, October 2022.

22. “Switchable Solvents at the Energy-Water-Environmental Nexus: Hypersaline Brine Desalination using Low-Grade Thermal Energy”, *Oral Presentation (Invited)*, Asia-Pacific Forum on Renewable Energy (AFORE) 2022, Jeju, Korea, September 2022.
21. “Convergence of Education and Research in Environmental Physicochemical Processes: An Evaluation of Water Quality Claims of Showerhead Filters”, *Oral Presentation*, Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference, St. Louis, MO, June 2022.
20. “A Thermodynamically-Informed Approach for Sustainable Nitrogen and Phosphorous Recovery from Wastewaters”, *Poster Presentation*, Gordon Research Conference (GRC) – Environmental Sciences: Water, 2022, Holderness, NH, June 2022.
19. “Towards A Circular Nutrient Economy: Membrane Innovations for Decentralized N and P Recovery”, *Invited Lecturer*, The International Academy in UrbanWaterSECURITY, Salerno, Italy, Virtual, March 2022.
18. “Meeting the Nutrient Challenge of the Food-Energy-Water Nexus through Technological Innovations to Achieve Sustainable Recovery”, *Oral Presentation*, NSF INFEWS PI Workshop 2022, Princeton University, Virtual, February 2022.
17. “Meeting the Nutrient Challenge of the Food-Energy-Water Nexus through Sustainable Recovery”, *Poster Presentation*, *Arab-American Frontiers of Science, Engineering, and Medicine Symposium*, Virtual, November 2021.
16. “Selectivity of Ion-Exchange Membranes for Electrified Separations”, *Invited Oral Presentation*, ACS Fall Meeting 2021, Environmental Chemistry Division, Virtual, August, 2021.
15. “Advancing Membrane Technologies for Sustainable Nitrogen and Phosphorous Recovery from Human Urine: A Green Engineering Approach”, *Invited Oral Presentation*, James Morgan Award Symposium, ACS Spring Meeting 2021, Virtual, April, 2021.
14. “Advancing Membrane Technologies for Sustainable Nitrogen and Phosphorous Recovery from Diverted Urine”, *Oral Presentation* and *Session Lead*, 2nd Food-Energy-Water Nexus Conference, Virtual, February, 2021.
13. “New Insights into Solute Selectivity Relationship of Thin Film Composite Polyamide Membranes”, *Oral Presentation*, 17th Network Young Membrane Meeting, Manchester, UK, Virtual, December 2020.
12. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, *Invited Keynote Talk*, 3rd WaterEnergyNEXUS conference, Djerba, Tunisia, Virtual, December 2020.

11. “Alternative Membraneless and Non-Evaporative Desalination with Temperature Swing Solvent Extraction”, *Poster Presentation*, Gordon Research Conference (GRC) – Chemical Separations, 2020, Galveston, TX, January 2020.
10. “Towards a More Sustainable Circular Economy Management of N: Ammonia Recovery from Source-Separated Urine with Novel Isothermal Membrane Distillation”, *Oral Presentation*, Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2019, Chicago, IL, September 2019.
9. “Sustainable Ammonia Recovery from Source-Separated Urine Using Isothermal Membrane Distillation”, *Oral Presentation*, 3rd IWA Resource Recovery Conference, Venezia, Italy, September 2019.
8. “Novel Isothermal Membrane Distillation for Selective and Energy-Efficient Removal and Recovery of Ammonia”, *Oral Presentation*, 258th ACS National Meeting & Exposition, San Diego, CA, August 2019.
7. “Disrupting Desalination: Temperature Swing Solvent Extraction for Hypersaline Brines”, *Invited Speaker*, Material Research Society (MRS) 2019 Spring Meeting & Exhibit, Phoenix, AR, April 2019.
6. “Unlocking High-salinity Desalination with Cascading Osmotically Mediated Reverse Osmosis”, *Oral Presentation*, *2nd WaterEnergyNEXUS International Conference*, Salerno, Italy, November 2018.
5. “Desalination of Hypersaline Brines with Temperature Swing Solvent Extraction”, *Oral Presentation*, *2nd WaterEnergyNEXUS International Conference*, Salerno, Italy, November 2018.
4. “Desalination of High-Salinity Brines: Novel Energy-Efficient Technologies”, *Poster Presentation*, *Arab-American Frontiers of Science, Engineering, and Medicine Symposium*, Kuwait City, Kuwait, November 2018.
3. “Desalination of High-Salinity Brines: Novel Energy-Efficient Technologies”, *Poster Presentation*, *Japan-America Frontiers of Engineering Symposium*, Tsukuba, Japan, June 2018.
2. “Structure-Property Analysis of Conductivity-Permselectivity Tradeoff in Ion-Exchange Membranes”, *Oral Presentation*, *254th ACS National Meeting & Exposition*, Washington, D.C., August 2017.
1. “Salinity gradient energy with PRO, RED, and CapMix: Prospects, progress, and challenges”, *Oral Presentation*, *252th ACS National Meeting & Exposition*, Philadelphia, PA, August 2016.

SERVICE TO UNIVERSITY

School

1.	Committee on Instruction	Jan. 2018 – Dec. 2021
2.	Open Rank Faculty Search Committee	Sept. 2022 – May 2023

Department

1.	Diversity, Equity, and Inclusion Committee	Jun. 2020 –
2.	Junior Faculty Search Committee (Water)	Jan. 2024 –
3.	Faculty Meeting Secretariat	Jan. 2021 – Aug. 2022
4.	Graduate Advising Committee	Sept. 2017 – Dec. 2019
5.	Junior Faculty Search Committee	Sept. 2017 – May. 2018
6.	By-law Review Committee (ad-hoc)	Jan. 2017 – Dec. 2019
7.	Graduate Colloquium Committee Chair	Sept. 2015 – May 2020
8.	Graduate Student Symposium Advisor	Sept. 2015 – May 2020
9.	Strategic Planning Committee	Sept. 2015 – Dec. 2019

SERVICE TO DISCIPLINE AND PROFESSIONAL ACTIVITIES

Editorial Boards, Conference Organization, and Scientific Committees

- Associate editor of *Environmental Science: Advances* (RSC)
- Editorial advisory board member of *ACS ES&T Engineering* (ACS)
- Editorial board member of *Desalination* (Elsevier)
- Editorial board member of *Chemical Engineering Journal Advances* (Elsevier)
- Early Career Board member of *ACS ES&T Engineering*, 2021–2023 (ACS)
- Invited guest editor for special issues in *Desalination*, *Chemical Engineering Journal*, and *Water Science and Technology*
- Session lead for 2nd Food-Energy-Water Nexus Conference, AIChE, Virtual, February 2021
- Co-presiding Chair for “Innovative Materials for Environmental Sustainability” in ENVR symposium at the *ACS National Meeting & Exposition*, San Francisco, Fall 2023
- Co-presiding Chair for “Novel Polymers and Polymer-Based Processes for Energy-Efficient Purification of Water and Resource Recovery” in PMSE-NAMS-ENVR co-sponsored symposium at the *258th ACS National Meeting & Exposition*, San Diego, Fall 2019
- Co-organizing Chair for “Advances and Challenges in Separation and Mixing of Salts: Water-Energy-Food Nexus” in division of Environmental Chemistry at the *254th ACS National Meeting & Exposition*, Washington D.C., Fall 2017

- Lead organizer for the *2016 AEESP Distinguished Lecture Series* (co-hosted by Columbia University, New Jersey Institute of Technology, Manhattan College, City College of New York, and Stony Brook University), October 2016
- Scientific Committee for *2nd WaterEnergyNEXUS International Symposium*, Salerno, Italy, November 2018

Panelist for Grant Proposals

- National Science Foundation (NSF), Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET), Environmental Engineering and Sustainability Cluster – Environmental Engineering
- National Science Foundation (NSF), Division of Chemical, Bioengineering, Environmental and Transport Systems (CBET), Chemical Process Systems Cluster – Interfacial Engineering
- National Science Foundation (NSF), Emerging Frontiers in Research and Innovation (EFRI)
- National Science Foundation (NSF), Industry-University Cooperative Research Centers Program (IUCRC)
- National Science Foundation (NSF), Division of Industrial Innovation and Partnerships (IIP), Small Business Innovation Research (SBIR) Program Phase I
- Department of Energy (DOE) Office of Science, Basic Energy Science (BES)
- The National Academies of Science, Engineering, and Medicine, U.S. - Egypt Science and Technology Joint Fund
- American Association for the Advancement of Science (AAAS) Research Competitiveness Program (RCP) for Saudi Arabian Ministry of Education's Research Development Office (RDO)'s International Collaboration Grant (ICG) Program
- The United States Environmental Protection Agency (USEPA) Small Business Innovation Research (SBIR) Program
- The US-Israel Binational Agricultural Research & Development (BARD) Fund
- King Abdullah University of Science and Technology (KAUST), Kingdom of Saudi Arabia Competitive Research Grants (CRG)
- Kuwait Foundation for the Advancement of Sciences (KFAS), State of Kuwait

Reviewer for Scholarly Journals

Web of Science peer-review metric

- *Science* (AAAS)
- *Proceedings of the National Academy of Sciences* (NAS)
- *Science Advances* (AAAS)

- *Nature Nanotechnology* (Nature Publishing Group)
- *Journal of the American Chemical Society* (ACS)
- *Environmental Science and Technology* (ACS)
- *ES&T Letters* (ACS)
- *Water Research* (IWA Publishing)
- *Energy & Environmental Science* (RSC)
- *ACS ES&T Engineering* (ACS)
- *ACS ES&T Water* (ACS)
- *Nature Water* (Nature Publishing Group)
- *Nature Review Materials* (Nature Publishing Group)
- *Matter* (Cell Press)
- *ACS Nano* (ACS)
- *Joule* (Cell Press)
- *Small* (Wiley)
- *Green Chemistry* (RSC)
- *ACS Sustainable Chemistry & Engineering* (ACS)
- *Journal of Membrane Science* (Elsevier)
- *ChemSusChem* (Wiley)
- *Physical Chemistry Chemical Physics* (RSC)
- *Journal of Material Chemistry A* (RSC)
- *Industrial & Engineering Chemistry Research* (ACS)
- *RSC Advances* (RSC)
- *Advanced Materials Technologies* (Wiley)
- *ChemComm* (RSC)
- *Applied Energy* (Elsevier)
- *Desalination* (Elsevier)
- *Chemosphere* (Elsevier)
- *Science of the Total Environment* (Elsevier)
- *Environmental Science: Water Research & Technology* (RSC)
- *Environmental Science: Nano* (RSC)
- *Journal of Hazardous Materials* (Elsevier)
- *Environmental Science and Ecotechnology* (Elsevier)
- *Renewable Energy* (Elsevier)
- *Journal of Polymer Science* (Wiley)
- *Journal of Molecular Liquids* (Elsevier)
- *Journal of Cleaner Production* (Elsevier)
- *Journal of Environmental Engineering* (ASCE)
- *Journal of Water Process Engineering* (Elsevier)

Professional Membership

- American Chemical Society (ACS)
- Association of Environmental Engineering and Science Professors (AEESP)
- North American Membrane Society (NAMS)

- American Institute of Chemical Engineers (AIChE)
- Frontiers of Engineering, National Academy of Engineering (FOE, NAE)
- International Water Association (IWA)
- International Desalination Association (IDA)

PUBLIC OUTREACH AND MEDIA ENGAGEMENT

Outreach Activities

1. Society of Women Engineers: Engineering Exploration Experience: lab demonstration at high school outreach event for aspiring future female engineers and scientist, March 2016, 2018, 2019, 2020, and 2022
2. ENG: Engineering the Next Generation: six weeks summer program for underrepresented students from local partner high schools, July 2017
3. Double Discovery Center Outreach Program: Clean Water Workshop for outreach event for under-served high school communities, July 2017
4. Inside Engineering: engineering presentation and lab tours for local K-12 students, June 2018 and March 2019
5. Invited panelist for Barclays Water Symposium's fireside discussions on the future of water, May 2017
6. Invited panelist on "The Future of Water: A Call to Action to Avert a Global Climate Crisis" hosted by Columbia Climate School, October 2022
7. Featured in the leading water industry podcast Smart Water Solutions, October 2022

Press Engagement

1. Scientific American magazine: interviewed for an article on renewable salinity gradient energy by Associate Editor Annie Sneed
2. The Star-Ledger: contributed technical expertise to the exposé by investigative journalist Karen Yi on lead in Newark drinking water, November 20, 2018
3. The Star-Ledger: interviewed by media for news article on Newark's water crisis, December, 2019
4. USA Today: contributed expert opinions in a news report on chlorination disinfection byproducts, February 2020
5. Vice: shared expertise in water quality to inform article on pseudoscience in water treatment, July 2020
6. Las Vegas Weekly: contributed technical expertise on desalination to a news article on water shortages in Las Vegas, November 2023