Orlando Coronell Nieto

Address: 163B Rosenau Hall, 135 Dauer Dr., Chapel Hill, NC 27599-7431 **Tel:** (919)966-9010
Email: coronell@unc.edu **Website:** http://coronell.web.unc.edu/

EDUCATION

Ph.D. in Environmental Engineering in Civil Engineering University of Illinois at Urbana-Champaign	2010
M.S. in Environmental Engineering in Civil Engineering University of Illinois at Urbana-Champaign	2004
Certificate in Construction Management Universidad del Atlántico, Barranquilla, Colombia	2002
Diploma (Bachelor's equivalent) in Civil Engineering Universidad del Norte, Barranquilla, Colombia	2001

PROFESSIONAL EXPERIENCE

Professor, University of North Carolina at Chapel Hill Department of Environmental Sciences and Engineering	2023 - Present
President and Co-founder, Sorbenta, Inc.	2022 - Present
Associate Chair for Academics, University of North Carolina at Chapel Hill Department of Environmental Sciences and Engineering	2021 - Present
Adjunct Faculty, University of North Carolina at Chapel Hill Department of Applied Physical Sciences	2017 - Present
Associate Professor, University of North Carolina at Chapel Hill Department of Environmental Sciences and Engineering	2017 - 2023
Assistant Professor, University of North Carolina at Chapel Hill Department of Environmental Sciences and Engineering	2010 - 2017
Visiting Assistant Professor, University of North Carolina at Chapel Hill Department of Environmental Sciences and Engineering	2010 (Jan-Jun)
Graduate Research Assistant, University of Illinois at Urbana-Champaign Department of Civil and Environmental Engineering	2002 – 2009
Research Assistant, Universidad del Norte, Barranquilla, Colombia Water Technologies Research Group	2001 – 2002
Lecturer (undergraduate level), Universidad del Norte, Barranquilla, Colombia Department of Civil Engineering	2002 (Jan-Jul)
Topographic surveyor contractor, Northern region of Colombia	2001
Assistant to the Chief of Civil Works in a cement factory (Cementos del Caribe S.A.), Colombia	2000

HONORS, AWARDS, AND RECOGNITIONS

- Editor's Choice Article for November 2021, *Journal of Membrane Science*. DOI: 10.1016/j.memsci.2021.120112 (2021)

- Member, Editorial Board of *JMS Letters*, (2021-Present)
- 2020 AWWA Water Science & Research Division Best Paper Award, for *AWWA Water Science*. DOI: 10.1002/aws2.1178 (2021)
- Top 10% most downloaded paper during 12 months after publication 2018-2019, Wiley, for *J. Am. Water Works Ass., 110,* 13-29. DOI: 10.1002/awwa.1071 (2020)
- ACS Central Science cover (Vol 6, Number 4) and "First Reaction" article (2020)
- 2019 Class of Influential Researchers, ACS Industrial & Engineering Chemistry Research (2019)
- Duke Energy Faculty Fellow, Duke Energy Foundation (2017)
- Member, Editorial Board of *npj Clean Water*, a Nature partner journal (2016-Present)
- Teaching Innovation Award in Environmental Sciences and Engineering – Gillings School of Global Public Health, University of North Carolina (2013)
- IBM Junior Faculty Development Award – University of North Carolina (2010)
- List of Teachers Ranked as Excellent by their Students – University of Illinois (2008)
- Outstanding Performance in Education Award – Center of Advanced Materials for the Purification of Water with Systems (*WaterCAMPWS*), University of Illinois (2008)
- Mavis Memorial Fund Scholarship – College of Engineering, University of Illinois (2008)
- Best Student Paper Award – Membrane Technology Conference and Exposition, American Water Works Association (2007)
- Gerber Scholarship – University of Illinois (2002)
- Sargent and Lundy Fellowship – University of Illinois (2002)
- Gold Medal for Academic Excellence – Universidad del Norte, Barranquilla, Colombia (2001)
- Valedictorian – Universidad del Norte, Barranquilla, Colombia (2001)
- Dean's Honor List (all 10 semesters throughout undergraduate studies) – Universidad del Norte, Barranquilla, Colombia (1996-2000)
- Empresa Colombiana de Petróleos (ECOPETROL) Full Undergraduate Studies Scholarship – ECOPETROL, Colombia (1996)
- Distinction "Andrés Bello" national and provincial category for best ICFES (SAT equivalent) scores (top 6 in the country) – Ministry of Education, Colombia (1995)
- Medal "Julio Enrique Blanco de la Rosa" for best high-school graduate in the Atlántico Province, Colombia – Office of the Governor of the Atlántico province, Colombia (1995)

HONORS, AWARDS AND RECOGNITIONS TO ADVISEES BASED IN WHOLE OR IN PART ON THEIR ACTIVITIES IN THE CORONELL RESEARCH GROUP

National Level

- Larson Aquatics Research PhD Scholarship, Holly Haflich – American Water Works Association (AWWA) (2023)
- Elias Klein Travel Supplement Award, Holly Haflich – North American Membrane Society (NAMS) (2023)
- Best Poster Award, Mikayla D. Armstrong – National Institute of Environmental Health Sciences (NIEHS) Superfund Research Program (SRP) Annual Meeting (2022)
- Travel award, Nick Guan Pin Chew– 3rd National PFAS Meeting (2022)
- Travel award, Haley Macdonald – 3rd National PFAS Meeting (2022)
- NSF Graduate Research Fellowship, Haley Macdonald – National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) (2022)
- Selection for participation in ComSciCon-Triangle, Mikayla Armstrong – ComSciCon (2022)

- WRRI-Sea Grant Graduate Student Competition Winner, Holly Haflich – NC Water Resources Research Institute (WRRI) and NC Sea Grant (2021)
- Best Poster Award, Mikayla D. Armstrong – North American Membrane Society (NAMS) Annual Meeting (2019)
- NC Safewater Fund Scholarship, Mikayla Armstrong – North Carolina American Water Works Association & North Carolina Water Environment Association (NC AWWA-WEA) (2019,2018, 2017, 2016)
- NSF Graduate Research Fellowship, Riley Vickers – National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) (2019)
- Abel Wolman Fellowship, Alex S. Gorzalski – American Water Works Association (AWWA) (2018)
- Best Poster Award, 3rd Place, Ryan S. Kingsbury – North American Membrane Society (NAMS) Annual Meeting (2018)
- NSF ACADEME Fellow (06/2018), Jingbo Wang – One of 27 applicants that were selected to attend the two-week workshop sponsored by National Science Foundation aiming at Advancing Careers in Academics with Diversity Education and Mentorship in Engineering (ACADEME).
- Best Student Paper Award, Alex S. Gorzalski –Water Quality Technology Conference, American Water Works Association (AWWA) (2017)
- Graduate Silver Medal for Poster Presentation, Jingbo Wang – 131st Annual Meeting, North Carolina Section of the American Chemical Society (ACS) (2017)
- NAMS Student Fellowship Award, Ryan S. Kingsbury – North American Membrane Society (NAMS) (2017)
- Elias Klein Travel Supplement Award, Jingbo Wang – North American Membrane Society (NAMS) (2017)
- Best Poster Award, Fei Liu – At the 11th International Congress on Membranes and Membrane Processes (ICOM) (2017)
- Dr. W. Wesley Eckenfelder, Jr. Scholarship, Kasia Grzebyk – Brown and Caldwell (2017)
- Hydromantis Student Scholarship Award, Ryan S. Kingsbury – Association of Environmental Engineering and Science Professors (AEESP) at the 2017 AEESP Conference (2017)
- National Defense Science & Engineering Graduate (NDSEG) Fellowship, Alex S. Gorzalski – American Society for Engineering Education (ASEE) and US Department of Defense (DoD) (2017)
- Larson Aquatic Research Support (LARS) Scholarship, Alex S. Gorzalski – American Water Works Association (AWWA) (2017)
- AMTA-USBR Fellowship Award for Membrane Technology, Kasia Grzebyk – American Membrane Technology Association (AMTA) and United States Bureau of Reclamation (2016)
- Certificate of Merit for Oral Paper in 2016 Spring National Meeting, Jingbo Wang – American Chemical Society (ACS), Division of Environmental Chemistry (2016)
- ARCADIS Scholarship, Mikayla Armstrong – American Water Works Association (AWWA) (2016)
- NSF Graduate Research Fellowship, Ryan S. Kingsbury – National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP) (2016)
- Emerging Leaders in Science & Society (ELISS) 2016 Fellow, Kasia Grzebyk – American Association for the Advancement of Science (AAAS) (2016)
- Duke Energy Fellowship, Ryan S. Kingsbury – Duke Energy Foundation (2015)
- DOW Building Engineering and Science Talent (BEST) Participant, Lamar Perry – Dow Chemical (2015)
- Professional Development Award (PDA), Lamar Perry – Research Triangle Institute (RTI) (2015)

- Elias Klein Travel Supplement Award, Lin Lin – North American Membrane Society (NAMS) (2015)
- Grant-in-aid Research Award, Jingbo Wang – Sigma Xi, The Scientific Research Society (2014)
- NWRI-AMTA Fellowship for Membrane Technology, Ariel J. Atkinson – National Water Research Institute (NWRI) and American Membrane Technology Association (AMTA) (2014)
- Grant-in-aid Research Award, Peter J. Attayek – Sigma Xi, The Scientific Research Society (2010)

University Level

- Training Grant in Environmental Health Sciences through the National Institute of Environmental Health Sciences (NIEHS) Environmental Biostatistics training program, Holly Haflich – Gillings School of Global Public health (2022-)
- CHANL Kickstarter Award, Riley Vickers – Chapel Hill Analytical Nanofabrication Laboratory, University of North Carolina at Chapel Hill (2020)
- Training Grant in Environmental Health Sciences through the National Institute of Environmental Health Sciences (NIEHS) Environmental Biostatistics training program, Mikayla D. Armstrong – Gillings School of Global Public health (2019-2022)
- Graduate School Transportation Grant, Kasia Grzebyk – University of North Carolina at Chapel Hill, Graduate School (2019)
- Graduate School Transportation Grant, Ryan S. Kingsbury – University of North Carolina at Chapel Hill, Graduate School (2019)
- CHANL Kickstarter Award, Mikayla Armstrong – Chapel Hill Analytical Nanofabrication Laboratory, University of North Carolina at Chapel Hill (2019)
- Finalist in 3 Minute Thesis (EMT) competition, Ryan S. Kingsbury University of North Carolina at Chapel Hill (2018)
- Graduate School Transportation Grant, Mikayla Armstrong – University of North Carolina at Chapel Hill, Graduate School (2017)
- Graduate School Transportation Grant, Jingbo Wang – University of North Carolina at Chapel Hill, Graduate School (2017)
- Dissertation Completion Fellowship, Jingbo Wang – University of North Carolina at Chapel Hill (2017)
- Best Poster Presentation Award at the UNC Academic Research Conference, Jingbo Wang – UNC Graduate and Professional Student Federation (2017)
- Dissertation Completion Fellowship, Lamar Perry – University of North Carolina at Chapel Hill (2016)
- Research Honors in Biomedical Engineering, Kaity Emerson –University of North Carolina at Chapel Hill (2016)
- Doctoral Advancement Award, Lamar Perry – Graduate School and Initiative for Minority Excellence (IME), University of North Carolina at Chapel Hill (2016)
- GPSF Travel Award, Ariel J. Atkinson, Jingbo Wang and Ryan S. Kingsbury - Graduate Professional Students Federation (GPSF), University of North Carolina at Chapel Hill (2016)
- Chancellor's Scholar Doctoral Candidacy Award, Lamar Perry – Initiative for Minority Excellence (IME), University of North Carolina at Chapel Hill (2015)
- Dissertation Completion Fellowship, Ariel J. Atkinson – University of North Carolina at Chapel Hill (2015)
- Koch Travel Award, Panitan Jutaporn – School of Public Health, University of North Carolina at Chapel Hill (2014)

- George C. Bunker Award, Joshua A. Powell – Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill (2013)
- Graduate Education Advancement Board (GEAB) Impact Award, Alex S. Gorzalski – Graduate School, University of North Carolina at Chapel Hill (2013)
- Okun Scholarship, Lin Lin – Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill (2012)
- B.S. with Highest Honors in Environmental Sciences, David Holcomb – University of North Carolina at Chapel Hill (2012)
- Honors Undergraduate Research Award, David Holcomb – University of North Carolina at Chapel Hill (2011)

ACTIVE MEMBERSHIPS IN PROFESSIONAL ASSOCIATIONS

- American Chemical Society (ACS)
- North American Membrane Society (NAMS)
- American Water Works Association (AWWA)
- Association of Environmental Engineering and Science Professors (AEESP)
- Sigma Xi, The Scientific Research Society

PUBLICATIONS

Books and Chapters

3. **Coronell, O**.; Jaiswal, A.; Torrey, J. Quartz crystal microbalance. (Invited) *In Advances in Membrane Characterization*. Pellegrino, J., Ed. John Wiley. 2018 (ISBN: 978-0-470-71154-5).

2. **Coronell, O.**; Clegg, T.B. Rutherford backscattering spectrometry. (Invited) *In Advances in Membrane Characterization*. Pellegrino, J., Ed. John Wiley. 2018 (ISBN: 978-0-470-71154-5).

1. Manga, J.; Amar, J.; Abello, R.; Logreira, N.; **Coronell, O.** *Guía de gestión ambiental urbana. Cómo elaborar un plan de acción concertado en una ecorregión.* (*A guide for urban environmental management. How to prepare a plan of environmental management in an eco-region*.) Ediciones Uninorte. 2005 Barranquilla, Colombia, pp. 99.

Peer-Reviewed Publications

* = Corresponding author
[A] = Advisee
[§] = Authors contributed equally to the work

Published

61. Xu, H.; Sun, Y.*; Kingsbury, R.S.; **Coronell, O.;** Liu, F.[A,]*; Zhang, Y. (2024) Unveiling the role of membrane properties in water and salt transport and performance of a concentration gradient battery. *Desalination, 581,* 117599. DOI: 10.1016/j.desal.2024.117599

60. Haflich, H.M.[A]; Armstrong, M.D.[A]; Liu, F.[A,]*; **Coronell, O.*** (2024) Effects of physical and operating parameters on the performance of a concentration gradient battery for saltwater-based energy storage. *Desalination, 575,* 117266. DOI: 10.1016/j.desal.2023.117266

59. Zhang, W.[A]; Chew, N.G.P.[A]; **Coronell, O.*** (2023) Facile Synthesis of Electrically Conductive Membranes. *ES&T Letters, 10,* 1135-1141. DOI: 10.1021/acs.estlett.3c00631

58. Perry, L.A.[A]; Chew, N.G.P.[A]; Grzebyk, K.[A]; Cay-Durgun, P.; Lind, M.L.; Sitaula, P.; Soukri, M.; **Coronell, O.*** (2023) Correlating the role of nanofillers with active layer properties and performance of thin-film nanocomposite membranes. *Desalination, 550,* 116370. DOI: 10.1016/j.desal.2023.116370

57. Fraser, A.C.; Yankeya, J.; **Coronell, O.***; Dingemans, T.J.* (2023) A Sulfonated All-Aromatic Polyamide for Heavy Metal Capture: A Model Study with Pb(II). *ACS Applied Polymer Materials, 5,* 856-865. DOI: 10.1021/acsapm.2c01796

56. Manning, I.M.; Chew, N.G.P.[A]; Macdonald, H.P.[A]; Miller, K.E.; Strynar, M.J.; **Coronell, O.***; Leibfarth, F.A.* (2022) Hydrolytically stable ionic fluorogels for high-performance PFAS remediation from natural water. *Angewandte Chemie International Edition, 61,* e202208150. DOI: 10.1002/ange.202208150

55. Armstrong, M.D.[A]; Vickers, R.[A]; **Coronell, O.*** (2022) Dataset of reverse osmosis membrane transport properties calculated with and without assumptions about concentration polarization and solute rejection and the errors associated with each assumption. *Data in Brief, 44,* 108538. DOI: 10.1016/j.dib.2022.108538

54. Armstrong, M.D.[A]; Vickers, R.[A]; **Coronell, O.*** (2022) Trends and errors in reverse osmosis membrane performance calculations stemming from test pressure and simplifying assumptions about concentration polarization and solute rejection. *Journal of Membrane Science, 660,* 120856. DOI: 10.1016/j.memsci.2022.120856

53. Fraser, A.C.; Chew, N.G.P.[A]; Hegde, M.; Liu, F.[A]; Liu, C.W.; **Coronell, O.***; Dingemans, T.J.* (2022) Linear versus nonlinear aromatic polyamides: the role of backbone geometry in thin film salt exclusion membranes. *ACS Applied Materials & Interfaces, 14,* 36143–36156. DOI: 10.1021/acsami.2c09810

52. Liu, F.[A]; Kingsbury, R.S.[A]; Rech, J.J.; You, W.; **Coronell, O.*** (2022) Effect of osmotic ballast properties on the performance of a concentration gradient battery. *Water Research, 212,* 118076. DOI: 10.1016/j.watres.2022.118076

51. Grzebyk, K.[A,§]; Armstrong, M.D.[A,§]; **Coronell, O.*** (2022) (Editor's Choice Article) Accessing greater thickness and new morphology features in polyamide active layers of thin-film composite membranes by reducing restrictions in amine monomer supply. *Journal of Membrane Science, 644,* 120112. DOI: 10.1016/j.memsci.2021.120112

50. Vickers, R.[A]; Weigand, T.M.; Miller, C.T.*; **Coronell, O.*** (2022) Molecular methods for assessing the morphology, topology, and performance of polyamide membranes. *Journal of Membrane Science, 644,* 120110. DOI: 10.1016/j.memsci.2021.120110

49. Kingsbury, R.S.[A]; Hegde, M.; Wang, J.[A]; Kusoglu, A.; You, W.; **Coronell, O.*** (2021) Tunable anion exchange membrane conductivity and permselectivity via non-covalent, hydrogen bond crosslinking. *ACS Applied Materials & Interfaces, 13,* 52647-52658. DOI: 10.1021/acsami.1c15474

48. Atkinson, A.J.[A]; Armstrong, M.A.[A]; Eskew, J.T.[A]; **Coronell, O.*** (2021) 2-aminoimidazole membranes reduce mass of fouling and improve performance. *Journal of Membrane Science, 629,* 119262. DOI: 10.1016/j.memsci.2021.119262

47. Jutaporn, P.[A]; Cory, R.M.; Singer, P.C.; **Coronell, O.*** (2021) Efficacy of selected pretreatment processes in the mitigation of low-pressure membrane fouling and its correlation to their removal of microbial DOM. *Chemosphere, 277,* 130284. DOI: 10.1016/j.chemosphere.2021.130284

46. Wang, J.[A]; Armstrong, M.D.[A]; Grzebyk, K.[A]; Vickers, R.[A]; **Coronell, O.*** (2021) Effect of feed water pH on the partitioning of alkali metal salts from aqueous phase into the polyamide active layers of

reverse osmosis membranes. *Environmental Science & Technology, 55,* 3250-3259. DOI: 10.1021/acs.est.0c06140

45. Kingsbury, R.S.[A]; **Coronell, O.*** (2021) Modelling and validation of concentration dependence of ion exchange membrane permselectivity: significance of convection and Manning's counter-ion condensation theory. *Journal of Membrane Science, 620,* 118411. DOI: 10.1016/j.memsci.2020.118411

44. Liu, F.[A]; **Coronell, O.**; Call, D.F.* (2020) Effect of cross-chamber flow electrode recirculation on pH and Faradaic reactions in capacitive deionization. *Desalination, 492,* 114600. DOI: 10.1016/j.desal.2020.114600

43. Hossen, E.H.; Gobetz, Z.E.; Kingsbury, R.S.[A]; Liu, F.[A]; Palko, H.C.; Dubbs, L.L.; **Coronell, O.**; Call, D.F.* (2020) Temporal variation of power production via reverse electrodialysis using coastal North Carolina waters and its correlation to temperature and conductivity. *Desalination, 491*, 114562. DOI: 10.1016/j.desal.2020.114562

42. Gorzalski, A.S.[A,*]; Harrington, G.W.; **Coronell, O.** (2020) Impact of Model Selection on Predicted Contaminant Degradation in Water Treatment. *AWWA Water Science, 2*, e1178. DOI: 10.1002/aws2.1178

41. Kumarasamy, E.; Manning, I.M.; Collins, L.B.; **Coronell, O.***; Leibfarth, F.L.* (Journal issue cover) (2020) Ionic fluorogels for remediation of per- and polyfluorinated alkyl substances from water. *ACS Central Science, 6*, 487-492. DOI: 10.1021/acscentsci.9b01224 (ChemRxiv version at DOI: 10.26434/chemrxiv.10046576.v1) ("First Reaction" article on this work at DOI: 10.1021/acscentsci.0c00164)

40. Kingsbury, R.S.[A]; Wang, J.[A]; **Coronell, O.*** (2020) Comparison of water and salt transport properties of ion exchange, reverse osmosis, and nanofiltration membranes for desalination and energy applications. *Journal of Membrane Science, 604*, 117998. DOI: 10.1016/j.memsci.2020.117998

39. Jutaporn, P.[A,*]; Armstrong, M.D.[A]; **Coronell, O.** (Invited) (2020) Assessment of C-DBP and N-DBP formation potential and its reduction by MIEX® DOC and MIEX® GOLD resins using fluorescence spectroscopy and parallel factor analysis. *Water Research, 172*, 115460. DOI: 10.1016/j.watres.2019.115460

38. Kingsbury, R.S.[A]; Bruning, K.; Zhu, S.[A]; Flotron, S.[A]; Miller, C.T.; **Coronell, O.*** (Invited, *Class of Influential Researchers Special Edition*) (2019) Influence of water uptake, charge, Manning parameters and contact angle on water and salt transport in commercial ion exchange membranes. *Industrial & Engineering Chemistry Research, 58*, 18663-18674. DOI: 10.1021/acs.iecr.9b04113

37. Gorzalski, A.S.[A,*]; Harrington, G.W.; **Coronell, O.** (2019) Assessing reactor segregation and mixing by modeling residual disinfectant conversion. *AWWA Water Science, 1*, e1154. DOI: 10.1002/aws2.1154

36. Atkinson, A.J.[A]; Wang, J.[A]; Grzebyk, K.[A]; Zhang, Z.; Jung, D.; Zeng, D.; Pollard, A.; Gold, A.; **Coronell, O.*** (2019) Scalable Fabrication of anti-biofouling membranes through 2-aminoimidazole incorporation during polyamide casting. *Journal of Membrane Science, 579*, 151-161. DOI: 10.1016/j.memsci.2019.02.033

35. Jutaporn, P.[A,*]; Laolertworakul, W.; Armstrong, M.[A]; **Coronell, O.** (2019) Fluorescence spectroscopy for assessing trihalomethane precursors removal by MIEX resin. *Water Science & Technology, 79*, 820-832. DOI: 10.2166/wst.2019.036

34. Kingsbury, R.S.[A]; Zhu, S.[A]; Flotron, S.[A]; **Coronell, O.*** (2018) Microstructure determines water and salt permeation in commercial ion exchange membranes. *ACS Applied Materials & Interfaces, 10,*

39745–39756. DOI: 10.1021/acsami.8b14494 (ChemRxiv version at DOI: 10.26434/chemrxiv.6987248.v4, Corrigendum available at DOI: 10.1021/acsami.9b11784)

33. Lin, L.[A]; Weigand, T.M.; Farthing, M.W.; Jutaporn, P.[A]; Miller, C.T.; **Coronell, O.*** (2018) Relative importance of geometrical and intrinsic water transport properties of active layers in the water permeability of polyamide thin-film composite membranes. *Journal of Membrane Science*, *564*, 935-944. DOI: 10.1016/j.memsci.2018.08.002.

32. Gorzalski, A.S.[A,*]; Harrington, G.W.; **Coronell, O.** (2018) Modeling water treatment reactor hydraulics using reactor networks. *Journal of the American Water Works Association*, *110*, 13-29. DOI: 10.1002/awwa.1071.

31. Atkinson, A.J.[A]; Wang, J.[A]; Zhang, Z.; Gold, A.; Jung, D.; Zeng, D.; Pollard, A.; **Coronell, O.*** (2018) Grafting of bioactive 2-aminoimidazole into active layer makes commercial RO/NF membranes anti-biofouling. *Journal of Membrane Science*, *556*, 85-97. DOI: 10.1016/j.memsci.2018.03.044.

30. Kingsbury, R.S.[A]; Flotron, S.[A]; Zhu, S.[A]; Call, D.F.; **Coronell, O.*** (2018) Junction potentials bias measurements of ion exchange membrane permselectivity. *Environmental Science & Technology*, *52*, 4929-4936. DOI: 10.1021/acs.est.7b05317. (ChemRxiv version at DOI: 10.26434/chemrxiv.5497099.v2)

29. Zhu, S.[A]; Kingsbury, R.S.[A]; Call, D.F.; **Coronell, O.*** (2018) Impact of solution composition on the resistance of ion exchange membranes. *Journal of Membrane Science*, *554*, 39-47. DOI: 10.1016/j.memsci.2018.02.050.

28. Jutaporn, P.[A,*]; **Coronell, O.** (2017) Characterization of ultrafiltration membrane foulant using fluorescence signature of natural organic matter in surface water. *Thai Environmental Engineering Journal*, *31*, 1-9.

27. Kingsbury, R.S.[A]; Liu, F.; Zhu, S.[A]; Boggs, C.; Armstrong, M.D.[A]; Call, D.F.*; **Coronell, O.*** (2017) Impact of natural organic matter and inorganic solutes on energy recovery from five real salinity gradients using reverse electrodialysis. *Journal of Membrane Science*, *541*, 621-632. DOI: 10.1016/j.memsci.2017.07.038.

26. Byun, S.[A]; Atkinson, A.J.[A]; **Coronell, O.*** (2017) Method for monitoring chloride levels in steam condensate in thermal power plants using reverse osmosis membranes and an ion selective electrode. *Separation Science and Technology*, *52*, 2473-2486. DOI: 10.1080/01496395.2017.1344248

25. Liu, F.; **Coronell, O.**; Call, D.F.* (2017) Electricity generation using continuously recirculated flow electrodes in reverse electrodialysis. *Journal of Power Sources*, *355*, 206-210. DOI: 10.1016/j.jpowsour.2017.04.061

24. Wang, J.[A]; Kingsbury, R.S.[A]; Perry, L.A.[A]; **Coronell, O.*** (2017) Partitioning of alkali metal salts and boric acid from aqueous phase into the polyamide active layers of reverse osmosis and nanofiltration membranes. *Environmental Science & Technology*, *51*, 2295-2203. DOI: 10.1021/acs.est.6b04323

23. Kingsbury, R.S.[A]; **Coronell, O.*** (2017) Osmotic ballasts enhance faradaic efficiency in closed-loop, membrane-based energy systems. *Environmental Science & Technology*, *51*, 1910-1917. DOI: 10.1021/acs.est.6b03720

22. Gorzalski, A.S.[A]; Donley, C.; **Coronell, O.*** (2017) Elemental composition of membrane foulant layers using EDS, XPS, and RBS. *Journal of Membrane Science*, *522*, 31-44. DOI: 10.1016/j.memsci.2016.08.055

21. Suzuki, T.; Tanaka, R.; Tahara, M.; Niinae, M.; Lin, L.[A]; Wang, J.[A]; Luh, J.; **Coronell, O.*** (2016) Relationship between performance deterioration of a polyamide reverse osmosis membrane used in a seawater desalination plant and changes in its physicochemical properties. *Water Research*, *100*, 326-336. DOI: 10.1016/j.watres.2016.04.068

20. Jutaporn, P.[A]; Singer, P.C.; Cory, R.M.; **Coronell, O.*** (2016) Minimization of short-term Low-Pressure Membrane Fouling Using a Magnetic Ion Exchange (MIEX®) Resin. *Water Research*, *98*, 225-234. DOI: 10.1016/j.watres.2016.04.007

19. Wong, M.C.Y.; Lin, L.[A]; **Coronell, O.**; Hoek, E.M.V.; Ramon, G.Z. (2016) Impact of liquid-filled voids within the active layer on transport through thin-film composite membranes. *Journal of Membrane Science*, *500*, 124-135. DOI: 10.1016/j.memsci.2015.11.033

18. Lin, L.[A]; Feng, C.[A]; Lopez, R.; **Coronell, O.*** (2016) Identifying facile and accurate methods to measure the thickness of the active layers of thin-film composite membranes – a comparison of seven characterization techniques. *Journal of Membrane Science*, *498*, 167-179. DOI: 10.1016/j.memsci.2015.09.059

17. Lin, L.[A]; Lopez, R.; Ramon, G.Z.; **Coronell, O.*** (2016) Investigating the void structure of the polyamide active layers of thin-film composite membranes. *Journal of Membrane Science*, *497*, 365-376. DOI: 10.1016/j.memsci.2015.09.020

16. Powell, J.[A]; Luh, J.; **Coronell, O.*** (2015) Amide link scission in the polyamide active layers of thin-film composite membranes upon exposure to free chlorine – Kinetics and mechanisms. *Environmental Science & Technology*, *49*, 12136–12144. DOI: 10.1021/acs.est.5b02110

15. Kingsbury, R.S.*; Chu, K.; **Coronell, O.** (2015) Energy storage by reversible electrodialysis: The concentration battery. *Journal of Membrane Science*, *495*, 502-516. DOI: 10.1016/j.memsci.2015.06.050

14. Gorzalski, A.S.[A]; **Coronell, O.*** (2014) Fouling of nanofiltration membranes in full- and bench-scale systems treating groundwater containing silica. *Journal of Membrane Science*, *468*, 349-359. DOI: 10.1016/j.memsci.2014.06.013

13. Powell, J.[A]; Luh, J.; **Coronell, O.*** (2014) Bulk chlorine uptake by polyamide active layers of thin-film composite membranes upon exposure to free chlorine – kinetics, mechanisms, and modeling. *Environmental Science & Technology*, *48*, 2741-2749. DOI: 10.1021/es4047632

12. **Coronell, O.***; ter Horst, M.; Donley, C. (Invited) (2013) Microanalysis of reverse osmosis and nanofiltration membranes. In *Encyclopedia of Membrane Science and Technology*, Hoek, E.M.V.; Tarabara, V.V., Eds. Wiley, Great Britain. DOI: 10.1002/9781118522318.emst148

11. **Coronell, O.***; Mariñas, B. J.; Mi, B.; Cahill, D. G. (2013) Modeling the effect of charge density in the active layers of reverse osmosis and nanofiltration membranes on the rejection of arsenic (III) and potassium iodide. *Environmental Science & Technology*, *47*, 420-428. DOI: 10.1021/es302850p

10. Perry, L.A.[A]; **Coronell, O.*** (2013) Reliable, bench-top measurements of charge density in the active layers of thin-film composite and nanocomposite membranes using quartz crystal microbalance technology. *Journal of Membrane Science*, *429*, 23-33. DOI: 10.1016/j.memsci.2012.11.023

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3. Software: MotorLord, 2011 - Used as part of the software operating system of the RBS/ERD target stage listed below. The software controls the vertical and azimuthal movement of the target stage to scan the samples according to the patterns and speed input by the user through WheelScan – Attayek, P.J.[A]; Meyer, E.S.[A]; Lin, L.[A]; Clegg, T.B.; **Coronell, O.**

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1. Hardware: A remotely-controlled, semi-automatic target stage for Rutherford backscattering spectrometry (RBS) and elastic recoil detection (ERD) analyses, 2011 – Attayek, P.J.[A]; Clegg, T.B.; **Coronell, O.**

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* = Principal investigator
[A] = Advisee

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[A] = Advisee

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24. **Coronell, O.*** (Invited) Concentration dependence of ion exchange membrane permselectivity: Modelling and experimental validation (oral). *Proceedings of the 2021* American Institute of Chemical Engineering (AIChE) *Annual Meeting*, Boston, MA, November 7-11, 2021.

23. Gorzalski, A.S.[A,]*; Harrington, G.W.; **Coronell, O.** Quantifying treatment efficacy for pathogens and emerging contaminants using the Damköhler number (oral). *Proceedings of the 2021 American Water Works Association (AWWA) Virtual Summit*, Online, February 10-11, 2021.

22. Gorzalski, A.S.[A,]*; Harrington, G.W.; **Coronell, O.** What a 'free chlorine burn' can tell us about reactor mixing, and why it matters for disinfection (oral). *Proceedings of the 2019 American Water Works Association (AWWA) Water Quality Technology Conference and Exposition*, Dallas, TX, November 3-7, 2019.

21. Jutaporn, P.[A,]*; **Coronell, O.** Parallel Factor Analysis of Fluorescence EEM Spectra to Assess Reduction of Trihalomethanes and Haloacetonitriles Formation Potentials by MIEX Resin (oral). *Proceedings of the 2019 International Water Association (IWA) Specialist Conference on Natural Organic Matter in Water*, Tokyo, Japan, October 7-9, 2019.

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17. Atkinson, A.J.[A,]*; Wang, J.[A]; Zhang, Z.; Jung, D.; Pollard, A.; Gold, A.; **Coronell, O.** (Invited) Incorporation of novel anti-biofilm molecules into NF/RO membranes for biofouling control (oral). *Proceedings of the 2016 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference and Exposition*, San Antonio, TX, February 1-5, 2016.

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85. Haflich, H. M.[A,]*; Coxwell Mohler, C.; Leibfarth, F.; **Coronell, O.** Ion-capture electrodialysis for remediation of per- and polyfluoroalkyl substances in brackish waters (oral). *Presented at the 2024 North Carolina Water Resources Research Institute (WRRI) Annual Meeting*, Raleigh, North Carolina, March 20-21, 2024.

84. Weigand, T.M.*; Vickers, R.[A]; **Coronell, O.**; Miller, C.T. PMMoTo: A parallel toolkit for analyzing molecular-scale membrane morphology and topology (poster). *Presented at the 13th International Congress on Membranes and Membrane Processes (ICOM)*, Chiba, Japan, July 9-14, 2023.

83. Manning, I. M.*; Chew, N.G.P. [A]; Macdonald, H.P.[A]; **Coronell, O.**; and Leibfarth, F.A. High-performance ionic fluorogels for PFAS remediation from water (poster). *Presented at the Fluoropolymer 2023 conference*, Denver, CO, June 18-21, 2023

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81. Haflich, H.[A,]*; Singleton, J.[A]; **Coronell, O.** Relative contribution of volatile fatty acid (VFA) mobility and partitioning to VFA transport during electrodialysis (oral and poster). *Presented at the 2023 North American Membrane Society (NAMS) Annual Meeting*, Tuscaloosa, AL, May 13-18, 2023.

80. Haflich, H.[A,]*; Ding, H.*; Call, D.F.; **Coronell, O**. Separation of volatile fatty acids (VFAs) from anaerobic digestion (AD) bioreactors using different electrodialysis (ED) configurations (oral). *Presented at the 25th Annual Water Resources Research Institute (WRRI) Conference*, Raleigh, NC, March 22-23, 2023.

79. Manning, I.M.*; Chew, N.G.P.[A]; Macdonald, H.P.[A]; **Coronell, O.**; Leibfarth, F.A. Hydrolytically stable ionic fluorogels for high-performance remediation of per-and polyfluoroalkyl substances (PFAS) from natural water (oral). *Presented at the 25th Annual Water Resources Research Institute (WRRI) Conference*, Raleigh, NC, March 22-23, 2023.

78. Armstrong, M.D.[A,]*; Chew, N.G.P.[A]; **Coronell, O.** Modified commercial RO membrane shows promise for the improved removal of As(III) from groundwater (poster). *Presented at the National Institute of Environmental Health Sciences Superfund Research Program Annual Meeting*, Raleigh, NC, December 14-16, 2022.

77. Zhang, W.[A,]*; Chew, N.G.P.[A]; **Coronell, O.** Polyethylenimine-based surface treatment for facile synthesis of conductive membranes: active material doesn't matter (poster). *Presented at the National Institute of Environmental Health Sciences Superfund Research Program Annual Meeting*, Raleigh, NC, December 14-16, 2022.

76. **Coronell, O.***; Vickers, R.[A]; Weigand, T.M.; Miller, C.T. (Invited) Insights on molecule transport through polyamide films from molecular dynamics simulations (oral). *Presented at the 5th International Symposium on Physics of Membrane Processes (PMP2022)*, The Netherlands, October 13-14, 2022.

75. Manning, I.M.*; Kumarasamy, E.; Chew, N.G.P.[A]; Macdonald, H.P.[A]; Collins, L.B.; **Coronell, O.**; Leibfarth, F.A. Ionic fluorogels for remediation of PFAS from water (oral). *Presented at the 264th Meeting of the American Chemical Society (ACS)*, Chicago, IL, August 21-25, 2022.

74. Soukri, M.*; Chatterton, L.; **Coronell, O.**; Duckworth, O. Synthesis, characterization and mechanisms of arsenic uptake from aqueous solution by interaction with iron-and manganese-based solid sorbents (oral). *Presented at the 264th Meeting of the American Chemical Society (ACS)*, Chicago, IL, August 21-25, 2022.

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71. Armstrong, M.D.[A,]*; Grzebyk, K.[A]; **Coronell, O.** Polyamide thickness and morphology features of thin-film composite membranes depend on the extent of restriction of the amine monomer supply during interfacial polymerization (oral). *Presented at the 2022 North American Membrane Society (NAMS) Annual Meeting*, Tempe, AZ, May 14-18, 2022.

70. Zhang, W.[A,]*; Chew, N.G.P.[A]; **Coronell, O.** Polyethylenimine (PEI)-based surface treatment for facile synthesis of conductive membranes: Active material doesn't matter (oral and poster). *Presented at the 2022 North American Membrane Society (NAMS) Annual Meeting*, Tempe, AZ, May 14-18, 2022.

69. Manning, I.M.*; Kumarasamy, E.; Chew, N.G.P.[A]; Macdonald, H.P.[A]; Collins, L.B.; **Coronell, O.**; Leibfarth, F.A. Ionic fluorogels for remediation of PFAS from water (poster). *Presented at the Triangle Soft Matter Symposium*, Durham, NC, May 9, 2022.

68. Armstrong, M.D.[A,]*; Vickers, R.[A]; **Coronell, O.** Quantifying uncertainties in water-solute selectivity of reverse osmosis membranes caused by not accounting for concentration polarization (oral). *Presented at the 2021 North American Membrane Society (NAMS) Annual Meeting*, Estes Park, CO, August 28-September 2, 2021.

67. Vickers, R.[A,]*; Weigand, T.M.; Miller, C.T.; **Coronell, O.** Molecular dynamics simulation methods for assessing hydration and performance of polyamide active layers (oral). *Presented at the 2021 North American Membrane Society (NAMS) Annual Meeting*, Estes Park, CO, August 28-September 2, 2021.

66. Kingsbury, R.S.[A,]*; Wang, J.[A]; Hegde, M.; Kusoglu, A.; You, W.; **Coronell, O.** Independent tuning of anion exchange membrane conductivity and permselectivity via non-covalent crosslinking (oral). *Presented at the 2021 North American Membrane Society (NAMS) Annual Meeting*, Estes Park, CO, August 28-September 2, 2021.

65. Haflich, H.[A,]*; Armstrong, M.[A]; Liu, F.[A]; **Coronell, O.** Experimental evaluation of the effects of physical and operating parameters on the performance of a concentration gradient battery to enhance saltwater-based energy storage (oral). *Presented at the 2021 North American Membrane Society (NAMS) Annual Meeting*, Estes Park, Colorado, August 28-September 2, 2021.

64. Manning, I.M.*; Kumarasamy, E.; Collins, L.B.; **Coronell, O.**; Leibfarth, F.A. Ionic fluorogels for remediation of per- and polyfluorinated alkyl substances from water (oral). *Presented at the National Graduate Research Polymer Conference*, Blacksburg, VA, July 26-28, 2021.

63. Armstrong, M.D.[A,*]; **Coronell, O.** New reverse osmosis membrane modification method may result in better arsenic removal and higher water productivity than unmodified counterparts (oral). Presented *at the Annual Spring Meeting of the American Chemical Society (ACS)*, Online, April 5-May 1, 2021.

62. Vickers, R.[A,*]; Weigand, T. M.; Miller, C. T.; **Coronell, O.** Molecular dynamics simulations of water transport through crosslinked aromatic polyamide reverse osmosis membranes (poster). *Presented at the National Institute of Environmental Health Sciences Superfund Research Program Annual Meeting*, Online, December 14-15, 2020.

61. Armstrong, M.D.[A,*]; **Coronell, O.** Modifying commercial reverse osmosis membranes with solvent pre-treatment and additional polymerization can enhance water productivity and salt rejection (poster). *Presented at the National Institute of Environmental Health Sciences Superfund Research Program Annual Meeting*, Online, December 14-15, 2020.

60. Manning, I.M.*; Kumarasamy, E.; Collins, L.B.; **Coronell, O.**; Leibfarth, F.A. Ionic fluorogels for remediation of per- and polyfluorinated alkyl substances from water (oral). *Presented at the 260th meeting of the American Chemical Society (ACS)*, Online, August 18, 2020.

59. Vickers, R.[A,*]; Weigand, T.M.; Miller, C.T.; **Coronell, O.** Estimating fluid pressure gradients within crosslinked aromatic polyamide using molecular dynamics (oral). *Presented at the 2020 North American Membrane Society (NAMS) Annual Meeting*, Online, May 18-21, 2020.

58. Liu, F.[A,*]; Kingsbury, R.S.[A]; Armstrong, M.D.[A]; **Coronell, O.** Experimental evaluation of an optimized salinity gradient battery (oral). *Presented at the 2020 North American Membrane Society (NAMS) Annual Meeting*, Online, May 18-21, 2020.

57. Kingsbury, R.S.[A,*]; **Coronell, O.** Modelling and validation of concentration dependence of ion exchange membrane permselectivity: significance of convection and Manning's counter-ion condensation theory (oral). *Presented at the North American Membrane Society (NAMS) Annual Meeting*, Online, May 18-21, 2020.

56. Armstrong, M.D.[A,*]; **Coronell, O.** Does modifying commercial reverse osmosis membranes with solvent activation and additional polymerization result in improved membrane performance? (poster). *Presented at the 2020 North American Membrane Society (NAMS) Annual Meeting*, Online, May 18-21, 2020.

55. Gorzalski, A.S.[A,*]; Harrington, G.W.; **Coronell, O.** Effect of Reactor Model Selection on Predictions of Contaminant Degradation (poster). *Presented at the 2019 American Water Works Association (AWWA) Water Quality Technology Conference and Exposition*, Dallas, TX, November 3-7, 2019.

54. Kingsbury, R.S.[A]; Wang, J.[A]; **Coronell, O.*** (Invited) Comparison of water and salt transport properties in ion exchange and desalination membranes (oral). *Presented at the 258th Annual Meeting of the American Chemical Society (ACS)*, San Diego, CA, August 25-29, 2019.

53. Grzebyk, K. [A,*]; **Coronell, O.** Empirical evidence suggests that polyamide film formation during interfacial polymerization in thin film composite (TFC) membranes is not self-limiting (oral). *Presented at the 2019 North American Membrane Society (NAMS) Annual Meeting*, Pittsburgh, PA, May 11-15, 2019.

52. Vickers, R.[A,*]; Wang, J.[A]; Weigand, T.; Miller, C.; **Coronell, O.** Estimating salt diffusion coefficients in polyamide active layers of reverse osmosis membranes using microscale continuum modeling (poster). *Presented at the 2019 North American Membrane Society (NAMS) Annual Meeting*, Pittsburgh, PA, May 11-15, 2019.

51. Liu, F.[A,*]; Kingsbury, R.S.[A]; Rech, J.J.; You, W.; **Coronell, O.** Effect of organic ballast properties on the energy efficiency of a concentration gradient flow battery (poster). *Presented at the 2019 North American Membrane Society (NAMS) Annual Meeting*, Pittsburgh, PA, May 11-15, 2019.

50. Armstrong, M.D.[A,*]; Kingsbury, R.S.[A]; Grzebyk, K.[A]; **Coronell, O.** Ion exchange polymer coatings enhance solute rejection of polyamide thin-film composite membranes (poster). *Presented at the 2019 North American Membrane Society (NAMS) Annual Meeting*, Pittsburgh, PA, May 11-15, 2019.

49. Kingsbury, R.S.[A],*; Wang, J.[A]; Hegde, M.; Dingemans, T.; You, W.; **Coronell, O.** Physically-crosslinked ion exchange membranes defy conductivity-selectivity tradeoff (oral). *Presented at the 2019 Annual Materials Research Society (MRS) Spring Meeting*, Phoenix, AZ, April 22-26, 2019.

48. Kingsbury, R.S.[A,*]; Wang, J.[A]; **Coronell, O.** (Invited) Beyond swelling degree: Counter-ion hydration and its effect on ion exchange membrane performance (oral). P*resented at the 257th Annual Meeting of the American Chemical Society (ACS)*, Orlando, FL, March 31-April 4, 2019.

47. Grzebyk, K.[A,*], **Coronell, O.** A closer look at interfacial polymerization of polyamide high-pressure membranes (poster). *Presented at the 2019 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference & Exposition*, New Orleans, LA, February 25-28, 2019

46. Kingsbury, R.S.[A,*]; Bruning, K.; Zhu, S.[A]; Flotron, S.; Miller, C.T.; **Coronell, O.** Towards understanding the conductivity-selectivity-permeability tradeoff in ion exchange membranes: Swelling modulates water and salt transport (oral). *Presented at the 2018 North American Membrane Society (NAMS) Annual Meeting*, Lexington, KY, June 10-13, 2018.

45. Kingsbury, R.S.[A,*]; Flotron, S.[A]; Zhu, S.[A]; Call, D.F.; **Coronell, O.** Junction potentials bias measurements of ion exchange membrane permselectivity (poster). *Presented at the 2018 North American Membrane Society (NAMS) Annual Meeting*, Lexington, KY, June 10-13, 2018.

44. Jutaporn, P.[A,*]; **Coronell, O.** Fluorescence spectroscopy and PARAFAC modeling for assessing the reduction of THM and halogenated volatiles precursors by MIEX resin (oral). *Presented at the 2018* Asian Conference on Sustainability, Energy & the Environment *(ACSEE)*, Kobe, Japan, June 08-10, 2018.

43. Grzebyk, K.[A,*], Weinberg. H.S., **Coronell, O.** (Invited) Optimizing and evaluating thin film nanocomposite (TFN) membranes for water reuse applications (poster). *Presented at the 2018 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference & Exposition*, West Palm Beach, FL, Apr 12-16, 2018

42. Wang, J.[A,*]; Kingsbury, R.S.[A]; Perry, L.A.[A]; **Coronell, O.** Partitioning of inorganic solutes in active layers of RO membranes and the effect of feed water pH on solute partition coefficients (poster). *Presented at the 131st Annual Meeting of the North Carolina Section of the American Chemical Society (ACS)*, Raleigh, NC, November 17, 2017

41. Wang, J.[A,*]; Kingsbury, R.S.[A]; Perry, L.A.[A]; **Coronell, O.** Partitioning of inorganic solutes in the active layers of RO membranes and the effect of feed water pH on solute partitioning coefficients (oral). *Presented at the 11th International Congress on Membranes and Membrane Processes (ICOM 2017)*, San Francisco, CA, July 28-August 4, 2017.

40. Zhu, S.[A,*]; Kingsbury, R.S.[A]; Call, D.F.; **Coronell, O.** Impact of solution composition on the resistance of ion-exchange membranes (oral). *Presented at the 11th International Congress on Membranes and Membrane Processes (ICOM 2017)*, San Francisco, CA, July 28-August 4, 2017.

39. Kingsbury, R.S.[A,*]; **Coronell, O.** Osmotic ballasts enhance efficiency in closed-loop membrane systems for energy conversion and storage (oral). *Presented at the 11th International Congress on Membranes and Membrane Processes (ICOM 2017)*, San Francisco, CA, July 28-August 4, 2017.

38. Liu, F.[A,*]; Kingsbury, R.S.[A]; Zhu, S.; Boggs, C.; Armstrong, M.D.; **Coronell, O.**; Call, D.F. Effect of natural organic matter and ionic composition on electricity generation from five natural salinity gradients using reverse electrodialysis (poster). *Presented at the 11th International Congress on Membranes and Membrane Processes (ICOM 2017)*, San Francisco, CA, July 28-August 4, 2017.

37. Atkinson, A.[A,*]; Armstrong, M.D.[A]; Eskew, J.T.[A]; Zhang, Z.; Gold, A.; **Coronell, O.** Performance evaluation of bioactive 2-aminoimidazole anti-biofouling reverse osmosis membrane under operationally realistic conditions (poster). *Presented at the 11th International Congress on Membranes and Membrane Processes (ICOM 2017)*, San Francisco, CA, July 28-August 4, 2017.

36. Liu, F.*; **Coronell, O.**; Call, D.F. Electricity generation from salinity gradients using continuously recirculated flow electrodes in reverse electrodialysis (oral). *Presented at the 2017 Association of Environmental Engineering and Science Professors (AEESP) Conference*, Ann Arbor, MI, June 20-22, 2017.

35. Kingsbury, R.S.[A,*]; Boggs, C.; Liu, F.; Zhu, S.[A]; Armstrong, M.D.[A]; Call, D.F.; **Coronell, O.** Impact of natural organic matter and ionic composition on energy recovery from five real salinity gradients using reverse electrodialysis (oral). *Presented at the 2017 Association of Environmental Engineering and Science Professors (AEESP) Conference*, Ann Arbor, MI, June 20-22, 2017.

34. Liu, F.; Kingsbury, R.S.[A]; Zhu, S.[A]; Boggs, C.; Armstrong, M.D.[A]; **Coronell, O.**; Call, D. F. Energy recovery from five natural salinity gradients in North Carolina using reverse electrodialysis (poster). *Presented at the 19th Annual Water Resources Research Institute (WRRI) Conference*, Raleigh, NC, March 15-16, 2017.

33. Kingsbury, R.S.[A,*]; **Coronell, O.** Osmotic ballasts improve the energy efficiency of closed-loop electrodialytic processes (oral). *Presented at the 252nd American Chemical Society National Meeting, Division of Environmental Chemistry*, Philadelphia, PA, August 21-25, 2016.

32. Call, D.F.*; Kingsbury, R.S.[A]; Boggs, C.; Zhu, S.[A]; Liu, F.; **Coronell, O.** Electricity generation from natural and engineered salinity gradients using reverse electrodialysis (oral). *Presented at the 252nd American Chemical Society National Meeting, Division of Environmental Chemistry*, Philadelphia, PA, August 21-25, 2016.

31. Tanaka, R.; Tahara, M.; Isamu, Y.; Suzuki, T.*; Niinae, M.; Lin, L.[A]; Wang, J.[A]; Luh, J.; **Coronell, O.** Changes in the physicochemical properties of a polyamide reverse osmosis membrane used in a seawater desalination plant and their relation to changes in performance (poster). *Presented at the 10th Conference of Aseanian Membrane Society*, Nara, Japan, July 26-29, 2016.

30. Boggs, C.; Liu, F.; Call, D.F.*; Kingsbury, R.S.[A]; Zhu, S.[A]; **Coronell, O.** Sustainable electricity generation in North Carolina from salinity gradients (poster). *Presented at the 2016 Water Resources Research Institute (WRRI) Annual Conference and North Carolina Water Resources Association (NCWRA) Symposium*, Raleigh, NC, March 17-18, 2016.

29. Lin, L.[A]; Lopez, R.; Ramon, G.; **Coronell, O.*** (Invited) Water-filled voids account for a significant volume fraction of the polyamide active layers of thin-film composite membranes and affect their water and solute transport properties (oral). *Abstracts of the 251st American Chemical Society National Meeting and Exposition*, San Diego, CA, March 10-17, 2016.

28. Wang, J.[A,*]; Perry, L.A.[A]; **Coronell, O.** Partitioning of inorganic contaminants into the polyamide active layers of thin-film composite membranes for water purification (oral). *Abstracts of the 251st American Chemical Society National Meeting and Exposition*, San Diego, CA, March 10-17, 2016.

27. Kingsbury, R.S.*; Chu, K.; **Coronell, O.** Energy storage by reversible desalination: A concentration battery based on electrodialysis (oral). *Abstracts of the 251st American Chemical Society National Meeting and Exposition*, San Diego, CA, March 10-17, 2016.

26. Atkinson, A.[A,*]; Wang, J.[A]; Zhang, Z.; Zeng, D.; Pollard, A.; Jung, D.; Gold, A.; **Coronell, O.** Development of innovative anti-biofouling polyamide thin film composite membranes with biofilm inhibiting 2-aminoimidazoles incorporated (oral). *Abstracts of the 251st American Chemical Society National Meeting and Exposition*, San Diego, CA, March 10-17, 2016.

25. Byun, S.[A]; Atkinson, A.J.[A]; **Coronell, O.*** Enhanced monitoring of chloride ions for steam condensate water in thermal power plants (poster). *Presented at the 2015 International Environmental Engineering Conference and Annual Meeting of the Korean Society of Environmental Engineers, BEXCO*, Busan, Korea, October 28-30, 2015.

24. Lin, L.[A]; Lopez, R.; Ramon, G.Z.; **Coronell, O.*** The existence of water-filled voids in the polyamide active layers of thin-film composite (TFC) membranes challenges their current understanding as dense films (poster). *Presented at the 2015 Association of Environmental Engineering and Science Professors (AEESP) Conference,* New Haven, CT, June 13-16, 2015.

23. Powell, J.[A]; Luh, J.; **Coronell, O.*** Kinetics and mechanisms of amide link scission in the polyamide active layer of thin-film composite membranes upon exposure to free chlorine (poster). *Presented at the 2015 North American Membrane Society (NAMS) Meeting*, Boston, MA, May 30-June 3, 2015.

22. Lin, L.[A]; Lopez, R.; Ramon, G.Z.; **Coronell, O.*** Water-filled pores exist in the active layers of polyamide thin-film composite membranes (oral and poster). *Presented at the 2015 North American Membrane Society (NAMS) Meeting*, Boston, MA, May 30-June 3, 2015.

21. Wang, J.[A]; Perry, L.A.[A]; **Coronell, O.*** Characterization of the partitioning of alkali metal salts and boric acid from aqueous solution into the active layers of RO/NF membranes (oral and poster). *Presented at the 2015 North American Membrane Society (NAMS) Meeting*, Boston, MA, May 30-June 3, 2015.

20. Wong, M.C.Y.; Ramon, G.Z.*; Lin, L.[A]; **Coronell, O.**; Hoek, E.M.V. Transport through composite membranes: impact of liquid-filled voids in the thin film (poster). *Presented at the 2015 North American Membrane Society (NAMS) Meeting*, Boston, MA, May 30-June 3, 2015.

19. Atkinson, A.J.[A]; Wang, J.[A]; Jung, D.; Pollard, A.; Garland, E.; **Coronell, O.*** (Invited) Development and application of a novel anti-biofouling membrane (poster). *Presented at the 2015 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference*, Orlando, Florida, March 2-6, 2015.

18. Wang, C.[A]; Holcomb, D.[A]; Singer, P.C.; **Coronell, O.*** Granular brass media as a technology for the removal of dissolved copper and lead from water (poster). *Presented at the 2014 Water and Health Conference: Where Science Meets Policy*, Chapel Hill, NC, October 13-17, 2014.

17. Powell, J.[A]; Luh, J.; **Coronell, O.*** Kinetics, mechanisms, and modeling of bulk chlorine uptake by polyamide active layers of reverse osmosis membranes upon exposure to free chlorine (oral and poster). *Presented at the 2014 North American Membrane Society (NAMS) Meeting,* Houston, TX, May 31-June 4, 2014.

16. Attayek, P.J.[A]; Meyer, E.S.[A]; Lin, L.[A]; Rich, G.C.; Clegg, T.B.; Wang, J.; **Coronell, O.*** A sample stage for remotely-controlled, semi-automatic analysis of polymeric membrane samples using

Rutherford backscattering spectrometry (poster). *Presented at the 2014 North American Membrane Society (NAMS) Meeting,* Houston, TX, May 31-June 4, 2014.

15. Meyer, E.S.[A]; Lin, L.[A]; Clegg, T.B.; **Coronell, O.*** Nanofiltration and reverse osmosis membrane support degradation due to ion beam irradiation during Rutherford backscattering spectrometry analysis chlorine (poster). *Presented at the 2014 North American Membrane Society (NAMS) Meeting,* Houston, TX, May 31-June 4, 2014.

14. Perry, L.A.[A]; **Coronell, O.*** User-friendly, bench-top method to quantify the volume-averaged charge density in isolated active layers of thin-film composite and nanocomposite membranes using a quartz crystal microbalance (poster). *Presented at the 2013 Association of Environmental Engineering and Science Professors (AEESP) Conference,* Golden, CO, July 14-16, 2013.

13. Powell, J.[A]; **Coronell, O.*** Measuring chlorine uptake and chain scission in the polyamide active layers of reverse osmosis membranes upon exposure to free chlorine (poster). *Presented at the 2013 Association of Environmental Engineering and Science Professors (AEESP) Conference,* Golden, CO, July 14-16, 2013.

12. Jutaporn, P.[A]; Singer, P.C.; Arias, M.; **Coronell, O.*** Minimization of membrane fouling by a magnetic ion exchange (MIEX) resin (poster). *Presented at the 2013 Association of Environmental Engineering and Science Professors (AEESP) Conference*, Golden, CO, July 14-16, 2013.

11. Lin, L.[A]; **Coronell, O.*** Relating water permeability of reverse osmosis and nanofiltration membranes to the absorption of water by their active layers (oral). *Presented at the 2013 Association of Environmental Engineering and Science Professors (AEESP) Conference*, Golden, CO, July 14-16, 2013.

10. Perry, L.A.[A]; **Coronell, O.*** Measuring the volume-averaged charge density of active layers of thin-film composite and thin-film nanocomposite membranes using a quartz crystal microbalance (oral). *Presented at the 2013 North American Membrane Society (NAMS) Meeting*, Boise, ID, June 8-12, 2013.

9. Gorzalski, A.S.[A]; **Coronell, O.*** Identification of Foulants and Optimum Cleaning Strategies for Nanofiltration and Reverse Osmosis Membranes Treating Groundwaters of Coastal North Carolina (oral). *Presented at the 2013 Water Resources Research Institute (WRRI) Annual Conference and North Carolina Water Resources Association (NCWRA) Symposium,* Raleigh, North Carolina, March 20, 2013.

8. Perry, L.A.[A]; **Coronell, O.*** Measuring charge density in thin-film composite and thin-film nanocomposite membranes (poster). *Presented at the 2012 North American Membrane Society (NAMS) Meeting,* New Orleans, LA, June 9-13, 2012.

7. **Coronell, O.***; Mi, B.; Mariñas, B.J.; Cahill, D.G. Relating contaminant rejection by thin-film composite membranes to the charge density in membrane active layers (oral). *Presented at the 2012 North American Membrane Society (NAMS) Meeting,* New Orleans, LA, June 9-13, 2012.

6. Gorzalski, A.S.[A]; **Coronell, O.*** Identification of membrane foulants for NF and RO membranes treating groundwaters from the Castle Hayne and Peedee aquifers in North Carolina (oral). *Presented at the 2012 Water Resources Research Institute (WRRI) Annual Conference*, Raleigh, NC, March 27-28, 2012.

5. **Coronell, O.***; Mariñas, B.J.; Cahill, D.G. Characterization of the depth heterogeneity of the active layers of reverse osmosis and nanofiltration membranes (oral). *Presented at the 2010 North American Membrane Society (NAMS) Meeting,* Washington, D.C., July 17-22, 2010.

4. **Coronell, O.***; Mariñas, B.J.; Cahill, D.G. Accessibility and Ion Exchange Stoichiometry of Ionized Carboxylic Groups in the Active Layer of FT30 Reverse Osmosis Membrane (poster). *Presented at the 2009 Association of Environmental Engineering and Science Professors (AEESP) Conference*, Iowa City, IA, July 26-29, 2009.

3. **Coronell, O.***; Gonzalez, M.; Martínez, A.; Cahill, D.G.; and Mariñas, B.J. Steric Effects on Ionic Contaminants in the Active Layer of Reverse Osmosis and Nanofiltration Membranes (oral). *Presented at the Materials Research Society (MRS) Spring Meeting*, San Francisco, CA, April 13-17, 2009.

2. Suzuki, T.*; Matthews, T.; Gonzalez, M.; **Coronell, O.**; Cahill, D.G.; and Mariñas, B.J. Partitioning of water contaminants into the active layer of thin-film composite nanofiltration membranes (oral). *Presented at the Materials Research Society (MRS) Spring Meeting*, San Francisco, CA, April 13-17, 2009.

1. Mi, B.*; **Coronell, O.**; Mariñas, B.J.; Watanabe, F.; Cahill, D.G. Characterization of arsenic (III) partitioning at the NF/RO membrane active layer-aqueous interface by Rutherford Backscattering Spectrometry (RBS) (oral). *Presented at the Materials Research Society (MRS) Spring Meeting*, San Francisco, CA, April 17-21, 2006.

PRESENTATIONS

Invited Keynote Presentations

3. **Coronell, O.;** Chung, C.[A] Removing PFAS from North Carolina Waters. *Keynote presentation in University Day at the University of North Carolina*, Chapel Hill, NC, October 12, 2022.

2. **Coronell, O.** Comparison of water and salt transport properties in ion exchange and desalination membranes. *Keynote talk in the session "Novel Polymeric Materials & Polymer-Based Processes for Energy-Efficient Treatment of Water & Resource Recovery", 258th American Chemical Society National Meeting and Exposition*, San Diego, California, August 25-29, 2019.

1. **Coronell, O.** Water-filled voids account for a significant volume fraction of the polyamide active layers of thin-film composite membranes and affect their water and solute transport properties. *Keynote talk in the session "Membrane Technology for Water-Energy Sustainability", 251st American Chemical Society National Meeting and Exposition*, San Diego, California, March 10-17, 2016.

Other Invited Presentations

[A] = Advisee
¶ = Advisee presented on behalf of Dr. Coronell
¥ = Collaborator presented on behalf of team (co-)led by Dr. Coronell

27. **Coronell, O.** How can we remove PFAS from drinking water? *Presented at the IDEA Learners Program – Exploring PFAS & the Environment: From contamination to clean-up*, Chapel Hill, NC, March 11, 2024.

26. **Coronell, O**.; Leibfarth, F.L. Removing forever chemicals from North Carolina waters. *Presented at the TTI Vanguard Advanced Technology Research Conference*, Chapel Hill, NC, March 6, 2024.

25. **Coronell, O**.; Leibfarth, F.L.; Weitkamp, R. Removing forever chemicals from water. *Presented at the KSV Advisory Group meeting*, Chapel Hill, NC, December 12, 2023.

24. **Coronell, O**. PFAS removal from water: challenge description, technology fundamentals, and research and translational capacity at UNC. *Presented at the PFAS Characterization, Removal and Replacement Workshop*, Chapel Hill, NC, January 6, 2023.

23. **Coronell, O.** An innovation for removing 'forever chemicals' from North Carolina waters. *Presented at the Gillings SPH Advisory Council Fall Meeting*, Cary, NC, October 21, 2022.

22. **Coronell, O.** Insights on molecule transport through polyamide films from molecular dynamics simulations. *Presented at the 5th International Symposium on Physics of Membrane Processes (PMP2022),* The Netherlands, October 13-14, 2022.

21. **Coronell, O.** Concentration dependence of ion exchange membrane permselectivity: Modelling and experimental validation (oral). *Presented at the Emerging Topics in Electrochemical Engineering: Electrochemical Separations (Invited Talks) session, 2021 American Institute of Chemical Engineering (AIChE) Annual Meeting*, Boston, MA, November 7-11, 2021.

20. **Coronell, O.**; Knappe, D.; Leibfarth, F.; Stapleton, H. Removal of PFAS from drinking water by reverse osmosis membranes, residential filters, and a novel resin. *Presented at the 12th Annual Environmental Health Summit PFAS: Integrating Science and Solutions in North Carolina,* Chapel Hill, NC, October 23, 2019

19. **Coronell, O.**; Mei, S.; Knappe, D.; Leibfarth, F.; Stapleton, H. Removal of PFAS from drinking water sources. *Presented at the PFAST Network Science Symposium,* Chapel Hill, NC, August 9, 2019

18. Stapleton, H.[¥]; **Coronell, O.**; Mei, S.; Knappe, D.; Leibfarth, F. What can we do to remove PFAS from our drinking water sources? *Presented at the Emerging PFAS Contaminants in the Cape Fear Region: University Collaborations on Environmental, Drinking Water and Health Effects,* Wilmington, NC, May 31, 2019

17. Sun, M.[¥]; **Coronell, O.**; Knappe, D.; Leibfarth, F.; Stapleton, H. What can we do to remove PFAS from our drinking water sources? *Presented at the Duke University Integrated Toxicology & Environmental Health Program 2018 Symposium−Emerging Contaminants in the Ambient Environment: Perspectives to Guide North Carolina's PFAS Monitoring Network*, Durham, NC, September 28, 2018

16. **Coronell, O.** Advancing the understanding of ion exchange membranes properties. *Presented at the Gordon Research Conference (GRC) – Membranes: Materials and Processes,* New London, New Hampshire, August 14, 2018.

15. **Coronell, O.** Membranes for clean water and clean energy applications. *Presented at RTI International,* Research Triangle Park, North Carolina, April 16, 2018.

14. **Coronell, O.**; Kingsbury, R.S.[A, ¶] Osmotic ballasts make energy extraction from saltwater more efficient. *Presented at the UNC Innovation Showcase,* University of North Carolina, Chapel Hill, North Carolina, April 26, 2017.

13. **Coronell, O.** Advancing the understanding of the structure-performance relationships of reverse osmosis membranes. *Presented at the Chemical Engineering Seminar Series,* University of Virginia, Charlottesville, Virginia, April 19, 2017.

12. **Coronell, O.** Using membrane characterization to further the understanding of fundamental and applied aspects of polyamide RO/NF membranes. *Presented at Dow Filmtec Corporation,* Minneapolis, MN, March 22, 2016.

11. **Coronell, O.** Polyamide Thin-Film Composite Membranes: Opportunities to Optimize a Seemingly Irreplaceable Technology for Water Desalination and Reuse Applications. *Presented at the*

Environmental Engineering and Sciences Seminar Series, Stanford University, Stanford, California, January 30, 2015.

10. **Coronell, O.** Chlorine Uptake by Polyamide Active Layers of Reverse Osmosis Membranes upon Exposure to Free Chlorine: Volume-Averaged versus Surface Results. *Presented at the Environmental Engineering and Sciences Seminar Series*, Clemson University, Clemson, South Carolina, November 22, 2013.
9. **Coronell, O.** Overview of Research on Membrane Processes for Water Treatment at UNC-Chapel Hill. *Presented at the Water Resources Research Institute of North Carolina*, Raleigh, North Carolina, August 28, 2013.
8. **Coronell, O.**; Gorzalski, A.S.[A, ¶] Foulants and Cleaning Strategies for Nanofiltration and Reverse Osmosis Membranes Treating Groundwaters of Coastal North Carolina. *Presented at the Cape Fear Public Utility Authority (CFPUA)*, Wilmington, North Carolina, April 25, 2013.
7. **Coronell, O.** Application of Rutherford backscattering spectrometry and quartz crystal microbalance measurements to study the relationship between charge density in membranes for water purification and the rejection of contaminants of interest. *Presented at the JSNN Seminar Series*, Joint School of Nanoscience and Nanoengineering (JSNN), North Carolina A&T University and the University of North Carolina at Greensboro, October 26, 2012.
6. **Coronell, O.** Thin-film composite membranes for water purification: Bench top quantification of charge density and relation between charge density and solute rejection. *Presented at the Civil, Construction and Environmental Engineering Department*, North Carolina State University, November 28, 2011.
5. **Coronell, O.** Quantification of physico-chemical properties of the active layers of reverse osmosis and nanofiltration membranes using Rutherford backscattering spectrometry (RBS). *Presented at the School for Engineering of Matter, Transport and Energy*, Arizona State University, August 25, 2011.
4. **Coronell, O.**; Meyer, E.S.[A, ¶] Applying Rutherford backscattering spectroscopy to characterize the active layers of water treatment membranes. *Presented at the Nuclear Physics Seminar Series*, University of North Carolina at Chapel Hill, January 31, 2011.
3. **Coronell, O.** Quantitative characterization of physico-chemical properties of the active layers of reverse osmosis and nanofiltration membranes, and their relation to membrane performance. *Presented at the Condensed Matter Physics Seminar Series*, University of North Carolina at Chapel Hill, April 22, 2010.
2. **Coronell, O.** Decoding Membranes. *Presented at the Environmental Science and Engineering Seminar Series*, University of North Carolina at Chapel Hill, April 7, 2010.
1. **Coronell, O.** Physico-chemical characterization of NF/RO membranes by Rutherford Backscattering Spectrometry (RBS). *Presented at the WaterCAMPWS seminar series*, University of Illinois at Urbana-Champaign, December 1, 2006.

Invited Presentations of Advisees

[A] = Advisee
[§] = Advisee invited to present in whole or in part based on research performed in the Coronell Research Group

17. Haflich, H.[A,§]; Coxwell Mohler, C.; Leibfarth, F.; **Coronell, O.** Electromembrane processes for remediation of per- and polyfluoroalkyl substances in natural waters. *Presented at the North Carolina*

Urban Water Consortium hosted by the North Carolina Water Resources and Research Institute, Greenville, NC, November 2, 2023.

16. Chung, C. [A,§] Panelist in *PFAS Solutions: A Virtual Panel Session for STEM Educators. Organized by the UNC-Chapel Hill's Center for Environmental Health and Susceptibility and the Iterative Design to Engage All (IDEA) Learners*. Online, March 1, 2023.

15. Vickers, R.[A,§]; Weigand, T.M.; Miller, C.T.; **Coronell, O.** From the bottom up: Atomic-scale simulations of desalination membranes. *Presented at the BrightTALK Health of Our State and Beyond Series: Access to Clean Water, University Research Week*, Online, November 11, 2021.

14. Vickers, R.[A,§]; Weigand, T.M.; Miller, C.T.; **Coronell, O.** Molecular Simulations of Desalination Membranes. *Presented at the Phil C. Singer Symposium*, Chapel Hill, North Carolina, November 5, 2021.

13. Kingsbury, R.S.[A,§]; Wang, J.[A]; **Coronell, O.** Beyond swelling degree: Counter-ion hydration and its effect on ion exchange membrane performance. *Presented at the 257th Annual Meeting of the American Chemical Society (ACS)*, Orlando, Florida, April 4, 2019.

12. Kingsbury, R.S.[A,§] Accelerating development of ion-selective membranes through experiment and computation. *Presented to The Materials Project at the Lawrence Berkeley National Laboratories*, Berkeley, California, February 20, 2019.

11. Grzebyk, K.[A,§], Weinberg. H.S., **Coronell, O.** Optimizing and evaluating thin film nanocomposite (TFN) membranes for water reuse applications (poster). *Presented at the 2018 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference & Exposition*, West Palm Beach, Florida, April 12-16, 2018.

10. Gorzalski, A.S.[A,§]; Harrington, G.W.; Hayden, A.; Spiesman, A.; **Coronell, O.** Real-time modeling of cyanotoxin oxidation. *Presented at the EPA Region 3 Nutrients and Harmful Algal Blooms Technical Workshop*, Philadelphia, Philadelphia, December 2017.

9. Kingsbury, R.S.[A,§] Energy from saltwater. *Presented at the Annual UNC Institute for the Environment Presentations to Duke Energy Foundation,* Duke Energy Offices, Raleigh, North Carolina, June 8, 2017.

8. Wang, J.[A,§]; Kingsbury, R.S.[A,]; Perry, L.A.[A,]; **Coronell, O**. Partitioning of alkali metal salts and boric acid from aqueous phase into the polyamide active layers of reverse osmosis membranes (poster). *Presented at the 2017 UNC Graduate Student Recognition Celebration, University of North Carolina*, Chapel Hill, North Carolina, April 20, 2017.

7. Atkinson, A.J.[A,§]; **Coronell, O.** Application of nanoscale characterization techniques in water purification membrane research. *Presented at the Research Triangle Nanotechnology Network's Nanotechnology Workshop for Community College Educators*, Research Triangle Nanotechnology Network, Raleigh, North Carolina, May 10, 2016.

6. Kingsbury, R.S.[A,§] A novel approach to energy storage based on blue energy and saltwater. *Presented at the Annual UNC Institute for the Environment Presentations to Duke Energy Foundation,* UNC Institute for the Environment, Chapel Hill, North Carolina, April 30, 2016.

5. Atkinson, A.J.[A,§]; Wang, J.[A]; Zhang, Z.; Jung, D.; Pollard, A.; Gold, A.; **Coronell, O.** Incorporation of novel anti-biofilm molecules into NF/RO membranes for biofouling control. *Presented at the 2016 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference and Exposition*, San Antonio, Texas, February 1-5, 2016.

4. Atkinson, A.J.[A,§] The intangible benefits of supporting graduate student research in membrane technology. Presented at the *2016 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference and Exposition*, Opening General Session, San Antonio, Texas, February 1-5, 2016.

3. Atkinson, A.J.[A,§];Wang, J.[A]; Jung, D.; Pollard, A.; Garland, E.; **Coronell, O.** Development and application of a novel anti-biofouling membrane (poster). *Presented at the 2015 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference*, Orlando, Florida, March 2-6, 2015.

2. Atkinson, A.J.[A,§] The path to membrane development. Presented at the *2015 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference*, Opening General Session, Orlando, Florida, March 2-6, 2015.

1. Gorzalski, A.S.[A,§]; **Coronell, O.** Water Treatment Technology for Coastal North Carolina. *Presented at the North Carolina Graduate Education Day*, North Carolina State Capitol, Raleigh, North Carolina, May 22, 2013.

Presentations at Conferences

See lists of refereed conference proceedings (total of 24) and refereed conference abstracts (total of 85) above.

Other Non-Refereed Presentations

* = Corresponding author
[A] = Advisee

7. Chung, C.[A,]*; Macdonald, H.P.[A]; Chew, N.G.P.[A]; Manning, I.M.; **Coronell, O.**; Leibfarth, F. Novel Sorbents for PFAS Water Remediation (poster). *Presented at the Spring 2022 UNC Undergraduate Research Symposium*, Chapel Hill, NC, April 25, 2022.

6. Gobetz, Z.*; Liu, F.; **Coronell, O.**; Call, D.F. Impact of salinity gradient seasonal variability on reverse electrodialysis power generation (poster). *Presented at the 2017 NC State Summer Undergraduate Research Symposium*, North Carolina State University, Raleigh, NC, August 2, 2017.

5. Wang, J.[A,]*; Kingsbury, R.S.[A,]; Perry, L.A.[A,]; **Coronell, O**. Partitioning of alkali metal salts and boric acid from aqueous phase into the polyamide active layers of reverse osmosis membranes (poster). *Presented at the 2017 UNC Academic Research Conference (ARC), University of North Carolina*, Chapel Hill, NC, April 6, 2017.

4. Lin, L.[A,]*; Lopez, R.; Ramon, G; Wang, J.[A]; **Coronell, O.** Water-filled voids account for a large volume fraction of the polyamide active layers of thin-film composite membranes (poster). *Presented at Research Triangle Nanotechnology Network (RTNN) Research Showcase*, Chapel Hill Analytical and Nanofabrication Laboratory (CHANL), Chapel Hill, NC, November 16, 2016.

3. Kingsbury, R.S.[A,]*; Chu, K.; **Coronell, O.** Energy storage by reversible electrodialysis: the concentration battery (poster). *Presented at the 2015 Triangle Student Research Competition*, Research Triangle Park, NC, September 22, 2015.

2. Jutaporn, P.[A,]*; Singer, P. C.; Arias, M.; **Coronell, O.** Minimization of Membrane Fouling by a Magnetic Ion Exchange (MIEX) Resin (poster). *Presented at the 2014 Annual Spotlight on Student Research Poster Event, UNC Gillings School of Global Public Health, University of North Carolina*, Chapel Hill, NC, April 21, 2014.

1. Gorzalski, A.S.[A,]*; **Coronell, O.** Identification of membrane foulants for NF and RO membranes treating groundwaters from the Castle Hayne and Peedee aquifers in North Carolina (poster). *Presented at the 5th Annual Spotlight on Student Research Poster Event, UNC Gillings School of Global Public Health, University of North Carolina*, Chapel Hill, NC, April 3, 2012.

TEACHING ACTIVITIES

Teaching at UNC

Chemical Equilibria in Natural Waters – ENVR 419 (2017-Present as sole instructor, 2014-2016 as co-instructor): The overall goal of this course is to provide students with an understanding of the fundamentals of aqueous chemistry as they apply to both natural and engineered systems. The major topics covered in this course are: (1) chemical thermodynamic principles, (2) basics of reaction kinetics, (3) acid-base equilibria, (4) complexation and speciation of metals, (5) dissolution of gases and solids, and (6) redox chemistry. The course focuses mainly on the aqueous chemistry of inorganic species. Basic concepts of organic matter in water are covered. The course is directed at upper-level undergraduates and beginning graduate students.

Physical / Chemical Processes for Water Treatment – ENVR 756 (Spring 2011-Present as sole instructor): This is an introductory course on physical and chemical processes used for the purification of water. The physical and/or chemical principles at work behind the processes covered are also discussed, e.g., water and solute transport phenomena occurring during water treatment via membrane filtration. The course covers conventional processes such as alum coagulation and granular media filtration as well as advanced processes such as ion exchange and membrane filtration. The course starts with general background information on water contaminants, after which topics are taught in the order in which treatment processes are used in conventional treatment plants (i.e., coagulation, flocculation, sedimentation, filtration, disinfection, and advanced processes). While this is not a design course, basic design principles are also covered. The course is directed at upper-level undergraduates and beginning graduate students.

Science and Technology of Membranes for Water Purification – ENVR 890-002 (2012-Present, five offerings, sole instructor): This is an advanced course on membrane processes for water purification. The course is divided in three distinct sections: (i) microfiltration and ultrafiltration; (ii) tight nanofiltration, reverse osmosis, and forward osmosis; and (iii) electrodialysis and electro-deionization. The reason to divide the course in these three sections is that the physico-chemical phenomena controlling water and solute transport is the same in the membranes within each section, and distinctly different between membranes from different sections. For each section, the course covers: (1) the transport phenomena controlling water and solute permeation; (2) fouling phenomena; (3) characterization of membrane materials; (4) characterization of membrane performance; and (5) an overview of the chemistry of membrane materials. While this is not a design course, design principles of membrane processes are also covered. The course is directed at graduate students.

Environmental Processes, Exposure and Risk Assessment – ENVR 500 (2024-Present as guest lecturer for 2 lectures per semester, 2022 as lead instructor, 2018-2021 as co-instructor): This course equips students with a broad understanding of causes of environmental pollution, pollutant transformation in and movement through the environment, effects on human health, and technical and policy options for preventing pollution. The course is set up as a survey, beginning with topics of air pollution and air chemistry and associated impacts on human health. Then, topics of water pollution and water chemistry are covered and related to human exposure impacts. The remainder of the course focuses on methods used to evaluate and regulate the human health risks associated with contaminants present in air and water as

well as other media, starting with traditional risk assessments and then focusing on new approach methodologies that are now being used in the chemical regulatory arena. This course is designed for those obtaining Master's of Public Health (MPH) degrees as well as upper level undergraduates, though other students are welcome to take the course. Dr. Julia Rager (jrager@unc.edu) serves as the lead instructor of the course.

Environmental Chemistry (ENVR 403; Spring 2012-Present as guest lecturer for 2-3 lectures per semester): In this course students study the chemistry of the air, water, and soil, and how anthropogenic activities affect this chemistry on planet Earth. Specifically, the class examines the sources, reactions, transport, effects, and fates of chemical species in air, water, and soil environments, and the effects of technology thereon. Dr. Coronell guest lectures cover basic chemistry concepts of water pollution and treatment processes for water purification. Dr. Jason Surrat (surratt@unc.edu) serves as the lead instructor of the course.

Additional Teaching Prior to UNC

Sole Instructor

- Water Treatment Processes (Graduate level), Universidad del Norte, Barranquilla, Colombia, Summer 2008.
- Topographic Surveying (Undergraduate level), Universidad del Norte, Barranquilla, Colombia, Spring 2002.
- Construction Materials (Undergraduate level), Universidad del Norte, Barranquilla, Colombia, Spring 2002.

Teaching Assistant for undergraduate courses

- Environmental Engineering Laboratory, University of Illinois at Urbana-Champaign, Spring 2008.
- Classical Mechanics, Universidad del Norte, Colombia, Fall 1998.
- Topographic Surveying, Universidad del Norte, Colombia, Spring 1998.

Mentor to undergraduate students

- Mentor to four undergraduate students, University of Illinois at Urbana-Champaign, 2005-2009.

Outreach

At UNC

- ***Outreach educational program on water and clean energy (2013-Present)***
  Our objective is to educate middle and high school students and teachers on the challenges of water scarcity, desalination and reuse, and green energy, and how science, engineering and technology address these challenges. Past and current partners in our outreach activities include:
    - Chapel Hill High School (CHHS)
    - North Carolina School of Science and Math (NCSSM)
    - McDougle Middle School
    - The Scientific Research and Education Network (SciREN)
    - Science in the Stacks
    - Clean Water Science Network (CWSN)

- ***Hands-on experiences for high-school students (2015-Present)***
  We host and mentor over the summer high-school students to provide them with a guided research experience. The high-school mentee is mentored closely by one of our PhD students or postdoctoral researchers and has a program deliverable a research report and presentation. We commonly perform this activity in collaboration with the NCSSM.

- ***International outreach (2019-Present)***
  Our group members contribute to the international outreach of the Clean Water Science Network (CWSN) with seminars, leading group discussions, and mentorship of Latin American bachelors students and graduates who seek to pursue graduate school in the US in clean water topics.

For more details, please see http://coronell.web.unc.edu/outreach.

Prior to UNC

- Guest Lecturer for *WaterCLEAR* program for high school teachers, Center of Advanced Materials for the Purification of Water with Systems (*WaterCAMPWS*), University of Illinois, Urbana-Champaign, IL, 2007-2008.
- Guest Speaker for Universidad del Norte, visited several high schools in Barranquilla, Colombia to discuss career paths with senior high school students, Spring 2000.

ADVISING AND MENTORING ACTIVITIES

Research Advisor for Post-doctoral Research Associates (5 total, 1 current)

1. Dr. Wei Zhang (2021-Present) *"Electrically conductive membranes for water purification"*
2. Dr. Nick Guan Pin Chew (2019-2024) *"Removal of per- and polyfluoroalkyl substances (PFAS) from water"*
3. Dr. Fei Liu (2018-2020) *"Optimization of osmotic ballasts for salinity gradient energy applications"*
4. Dr. Shan Zhu (2015-2017) *"Resistance to ionic current in ion exchange membranes"*
5. Dr. Seokjong Byun (2010) *"Monitoring of chloride in turbine steam condensate in fossil power plants using reverse osmosis systems"*

Primary/Research Advisor for Graduate Students (19 total, 4 current)

- *Doctoral students (12 total, 2 current)*
  1. Haley P. Macdonald (Environmental Sciences and Engineering, current) "*Removal of FPAS from water using ionic fluorogels*"
  2. Holly M. Haflich (Environmental Sciences and Engineering, current) "*Separation of organic molecules using electro-driven membrane processes*"
  3. Riley Vickers (Environmental Sciences and Engineering, 2023, co-advised with Dr. Cass T. Miller) "*Characterization of the physical structure of polyamide active layers and molecular transport in them through molecular dynamics simulations*"
  4. Mikayla D. Armstrong (Environmental Sciences and Engineering, 2022) *"Effects of alternative polymerization and solvent activation post-modifications on the properties and performance of reverse osmosis membranes"*
  5. Alex S. Gorzalski (Environmental Sciences and Engineering, 2019, co-advised with Dr. Gregory Harrington, UW-Madison) *"Improved predictions of contaminant degradation in water treatment reactors"*
  6. Kasia Grzebyk (Environmental Sciences and Engineering, co-advised with Dr. Howard Weinberg, 2019) *"Modifying interfacial polymerization reaction conditions in high-pressure membrane fabrication for enhanced organic micropollutant removal"*
  7. Ryan S. Kingsbury (Environmental Sciences and Engineering, 2019) *"Investigation of selective mass transport in ion exchange membranes for clean energy and water processes"*
  8. Jingbo Wang (Environmental Sciences and Engineering, 2018) *"Characterization of the solute transport properties of the active layers of polyamide thin-film composite membranes"*

9. Ariel J. Atkinson (Environmental Sciences and Engineering, 2017) *"Development and performance evaluation of an innovative antibiofouling reverse osmosis membrane for water purification applications"*
10. Lamar A. Perry (Applied Physical Sciences, 2017) *"Understanding the property-performance relationships of membrane active layers containing porous nanoparticles"*
11. Panitan Jutaporn (Environmental Sciences and Engineering, 2016) *"Relationship between organic fouling of polyvinylidene fluoride (PVDF) ultrafiltration (UF) membranes and the fluorescence signature of dissolved organic matter in raw and pretreated feed waters"*
12. Lin Lin (Environmental Sciences and Engineering, 2015) *"Characterization of the water transport properties of the active layers of polyamide reverse osmosis and nanofiltration membranes"*

- *Master's students (7 total, 1 current)*
  1. Graham Parker (MSEE, Environmental Sciences and Engineering, current) "*Removal of FPAS from water using granular sorbents*"
  2. John Gilles (MSPH, Environmental Sciences and Engineering, 2015, co-advised with Dr. Mark Sobsey) *"Investigating brass granular media for point-of-use water treatment: Microbial inactivation, and copper and lead removal"*
  3. Sabrina Sultana (MS, Applied Physical Sciences, 2015) *"Study of graphene oxide as an alternative cation exchange membrane"*
  4. Alexander S. Gorzalski (MSEE, Environmental Sciences and Engineering, 2013) *"Identification of membrane foulants and optimum cleaning strategies for NF and RO membranes treating groundwaters from the Castle Hayne and Peedee aquifers"*
  5. Joshua A. Powell (MSEE, Environmental Sciences and Engineering, 2013) *"Degradation by free chlorine of aromatic polyamide active layers of thin-film composite membranes"*
  6. Eliot S. Meyer (MSEE, Environmental Sciences and Engineering, 2012) *"Degradation behavior of nanofiltration and reverse osmosis membrane supports due to ion beam irradiation during Rutherford Backscattering Spectrometry analysis"*
  7. Brad N. Bennett (MSEE, Environmental Sciences and Engineering, 2012) *"Characterization of zinc as a potential alternative for the reduction of nitrate in water supplies"*

Research Advisor for Visiting PhD Students (2 total, 0 current)

1. Arianna Catennacci (Visiting PhD, Polytecnico de Milano, Italy, 2013) *"Effect of various ligands on the removal of dissolved metals by granular brass media"*
2. Chuan Wang (Visiting PhD, Sun Yat-Sen University, China, 2011) *"Removal of copper and lead by granular brass media"*

Research Advisor for Undergraduate Students (15 total, 2 current)

1. Zane Alsebai (BS, Chemistry, current) "*Electrically conductive membranes*"
2. Joshua Singleton (BS, Chemistry, current) "*Electromembrane processes*"
3. Christian Chung (BS, Biology, BA, Public Policy, 2022-2023) "*Removal of FPAS from water using ionic fluorogels*"
4. Nicholas Hall (BS, Biomedical Engineering, 2017-2018) *"Fabrication and testing of nanocomposite membranes for water reuse applications"*
5. Will K. Blanks (BS, Biostatistics, BA, Chemistry, 2016-2017) *"Nanocomposite membranes for water reuse applications"*
6. Sophie Flotron (BS, Biology, BA, History, 2016-2017) *"Salinity gradient energy"*
7. John T. Eskew (BS, Curriculum for the Environment and Ecology, 2015-2016) *"Fabrication and characterization of antibiofouling reverse osmosis membranes"*

8. Jamie A. Michael (BS, Biology, BA Chemistry, 2015-2016) *"Nanocomposite membranes for water reuse applications"*
9. Kaity Emerson (BS with Honors, Biomedical Engineering, 2013-2016) *"Membranes for electrodeionization"*
10. Ted Lee (BA Chemistry, 2014-2015) "*Thin-film nanocomposite membranes for water reuse applications"*
11. Ellen Quinlan (BSPH, Environmental Sciences, 2012-2013) *"Fouling of nanofiltration membranes by groundwaters"*
12. David Holcomb (BSPH with Highest Honors, Environmental Sciences, 2011-2012) *"Honors Thesis: The Reduction of Nitrate by Iron, Zinc, Copper, and Brass Media"*
13. Chengcheng Feng (BS, Biomedical Engineering, 2011-2012) *"Characterization of active layers of thin-film composite membranes by spectroscopic methods"*
14. Teresa Long (BSPH, Environmental Sciences, 2011) *"Forward osmosis membrane filtration for water desalination and reuse"*
15. Peter J. Attayek (BS, Biomedical Engineering, 2010-2011) *"Development of a remotely-controlled, semi-automatic target system for the study of organic membranes using high-energy ion beam analyses"*

Staff Scientists Mentored (4 total, 3 current)

1. Dr. Nick Guan Pin Chew (2024-Present) *"Removal of per- and polyfluoroalkyl substances (PFAS) from water"*
2. Emily Watts (2023-Present) *"Upscaling of manufacturing of ion exchange resins"*
3. Abigail Sveen (2023-Present) *"Removal of per- and polyfluoroalkyl substances (PFAS) from water"*
4. Devin J. Guillory (2022-2023) *"Removal of PFAS from water using granular sorbents"*

Professional Interns Mentored (1 total, 0 current)

1. Sabrina Sultana (2015) *"Graphene oxide membranes"*

Committee Member for Students Outside the Coronell Research Group (31 total, 3 current)

- *Doctoral Students (13 total, 2 current)*
  1. Risa Racecar (Environmental Sciences and Engineering, current; Primary advisor: Dr. Marc Serre) *"Modeling anthropogenic organic chemicals and assessing risks in surface water"*
  2. Kelsey Bruning (Environmental Sciences and Engineering, current; Primary advisor: Dr. Cass T. Miller) "*Analysis of multiple-fluid-phase flow through porous media by microfluidic experimentation and lattice Boltzmann modeling"*
  3. Celeste Carberry (Environmental Sciences and Engineering, 2024; Primary advisor: Dr. Julia Rager) *"Per and Polyfluoroalkyl Substances and Emerging Toxicity Mechanisms: Alterations in Liver-Derived Extracellular Vesicle Content, Regulation, and Function"*
  4. Christopher A. Bowers (Environmental Sciences and Engineering, 2023; Primary advisor: Dr. Cass T. Miller) "*Elucidating transport processes present in the hydraulic fracturing water cycle*"
  5. Anna Fraser (Applied Physical Sciences, 2022; Primary advisor: Dr. Theo Dingemans) *"Controlled interchain spacing of all-aromatic rigid rod polyelectrolytes: nematic membranes for water desalination applications"*
  6. Irene Manning (Chemistry, 2022; Primary advisor: Dr. Frank Leibfarth) *"Synthesis and structure–property relationships of ionic fluorogels for remediation of per- and polyfluoroalkyl substances from water"*

7. Lingshan Ma (Faculty of Bioscience Engineering, Ghent University, Belgium, 2021; Primary advisors: Dr. Arne Verliefde, Dr. Emile Cornelissen, Dr. Leonardo Gutierrez) *"Fate of organic solutes in ion-exchange membrane-based technologies: from single-membrane level to pilot-scale"*
8. Alma Beciragic (Environmental Sciences and Engineering, 2020; Primary advisor: Dr. Howard S. Weinberg) *"Identification and quantification of byproducts resulting from RO and NF membrane interactions with disinfectants"*
9. Kirsten Studer (Environmental Sciences and Engineering, 2020; Primary advisor: Dr. Howard S. Weinberg) *"Characterization and Formation of Iodinated Disinfection Byproducts From Organic and Inorganic Precursors"*
10. Katie Friedman (Environmental Sciences and Engineering, 2018; Primary advisor: Dr. Mark D. Sobsey) *"Use of Antimicrobial Metals for Enhanced Performance of Household Water Treatment Methods"*
11. Anne Galyean (Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Howard S. Weinberg) *"Characterizing Silver Engineered Nanoparticles in Natural Waters: Analytical Considerations for Instrumental and Environmental Factors Using Asymmetric Flow Field Flow Fractionation"*
12. Ampai Soros (Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Mark D. Sobsey) *"Chitosan Coagulation for Household Water Treatment in Developing Countries"*
13. Alice Wang (Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Mark D. Sobsey) *"Performance Evaluation of the Compartment Bag Test for E. coli in Drinking Water"*

- *Master's Students (18 total, 1 current)*
  1. Andrew Jotcham (MSEE, Environmental Sciences and Engineering, Present; Primary advisor: Dr. Timothy Weigand) *"Computational Analysis of Polyamide Reverse Osmosis Membranes Morphology and Topology""*
  2. April Desclos (MS, Environmental Sciences and Engineering, 2021; Primary advisor: Dr. Jacqueline MacDonald) "Evaluation of drinking water contaminants in a peri-urban neighborhood after connection to municipal water service"*"*
  3. Minge Jiang (MSEE, Environmental Sciences and Engineering, 2019; Primary advisor: Dr. Cass T. Miller) *"Dilute species transport in non-Newtonian, single-fluid, porous medium systems"*
  4. Eleanor Holmes (MS, Environmental Sciences and Engineering, 2019; Primary advisor: Dr. Mark D. Sobsey) *"Development and Evaluation of Chitosans as Transformative Coagulants-Flocculants to Improve Sand Filter Drinking Water Treatment"*
  5. Emily Browning (MSPH, Environmental Sciences and Engineering, 2019; Primary advisor: Dr. Jamie Bartram) *"Occurrence and Associations of Manganese and Iron in Drinking Water Systems in Four Low and Middle-Income Countries"*
  6. Elisabeth Rehak (MSEE, Environmental Sciences and Engineering, 2018; Primary advisor: Dr. Michael D. Aitken) *"Construction and Testing of Dead-End, Oxygen Permeable Membrane Tubes to Treat Swine Waste through Passive Aeration"*
  7. Jing Deng (MSEE, Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Michael D. Aitken) "*Analysis of a Passive Aeration Concept to Treat Swine Waste with Dead-End, Oxygen-Permeable Membrane Tubes*"
  8. Billy Gerhard (MS, Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Jill R. Stewart) *"Assessing Microbial Drinking Water Quality and Human-Specific Contaminants on San Cristobal Island, Galapagos"*
  9. Michael Weiss (MSEE, Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Howard S. Weinberg) *"Minimizing Disinfection By-product Formation by Evaluating Drinking Water Treatment Options"*

10. Caroline E. Tapscott (MS, Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Cass T. Miller) "*An evaluation of flow and transport properties for hydraulic fracturing fluids in porous medium systems*"
11. Tucker Witsil (MSPH, Environmental Sciences and Engineering, 2014; Primary advisor: Dr. Mark D. Sobsey) *"Disinfection of Stored Water by Antimicrobial Granular Metallic Particles"*
12. Johnny Kim (MS, Environmental Sciences and Engineering, 2013; Primary advisor: Dr. Mark D. Sobsey) *"Evaluation of Bromine for Disinfection of Drinking Water"*
13. Abhinav Komandur (MSPH, Environmental Sciences and Engineering, 2013; Primary advisor: Dr. Mark D. Sobsey) *"Copper and Zinc Nanoparticles as Microbial Disinfectants in Water"*
14. Andrew Armstrong (MSEE, Environmental Sciences and Engineering, 2011; Primary advisor: Dr. Mark D. Sobsey) *"Characterization of Ionic Copper for Disinfection of Stored Drinking Water"*
15. Rory Polera (MSEE, Environmental Sciences and Engineering, 2010; Primary advisor: Dr. Rose Cory) *"Fluorescent Fingerprinting Dissolved Organic Matter as a Water Quality Monitoring Tool in Potable and Reclaimed Water Systems"*
16. Sarah Lothman (MSEE, Environmental Sciences and Engineering, 2010; Primary advisor: Dr. Michael D. Aitken) *"Comparison of Oxygen Transfer between an Integrated Fixed-Film Activated Sludge (IFAS) Process and a Conventional Activated Sludge Process (ASP)"*
17. Mitchell Dyrdahl (MSEE, Environmental Sciences and Engineering, 2010; Primary advisor: Philip C. Singer) *"DOC and DON Removal at Full-Scale MIEX Installations and their Relationship to Influent Organic Matter Characteristics"*
18. Ryan S. Kingsbury (MSEE, Environmental Sciences and Engineering, 2010; Primary advisor: Philip C. Singer) *"Evaluation of Magnetic Ion Exchange (MIEX) Pre-treatment on Ozonation Performance and Disinfection Byproduct Formation"*

- *BSPH Students (1 total, 0 current)*
  1. Andrew Jotcham (BSPH, Honors, Environmental Sciences and Engineering, 2024; Primary advisor: Dr. Timothy Weigand) *"Computational Analysis of Polyamide Reverse Osmosis Membranes Morphology and Topology""*

FUNDING SUPPORT

Pending Support

Project title: "STTR Phase I: Novel sorbents for removal of PFAS from water"
Funding agency: National Institutes of Health (NIH)- SBIR/STTR: Environmental Technologies (ET) Program
Role: Co-Principal Investigator (Mr. Robin Weitkamp from Sorbenta Inc. as PI)
Project period: 04/01/2024 to 03/31/2025
Amount: $295,924 total ($105,000 to UNC)

Current Support

Project title: "Molecular dynamics simulations of water and solute transport through crosslinked aromatic polyamide reverse osmosis membranes"
Funding agency: National Science Foundation (NSF)
Role: Co-Principal Investigator (Cass T. Miller as PI)

Amount: SDSC Expanse Projects Storage: 33,850.0 GB; SDSC Expanse CPU: 4,932,430.0 Core-hours; PSC Bridges-2 Storage (Ocean): 33,850.0 GB; PSC Bridges-2 Regular Memory (Bridges-2): 4,932,430.0 Core-hours. Total dollar value estimated by NSF: $83,532.15
Project period: 07/01/2023 to 12/31/2024

Project title: "Development and deployment of ionic fluorogels to remediate PFAS (per- and polyfluoroalkyl substances) from North Carolina water"
Funding agency: The North Carolina General Assembly through the North Carolina Collaboratory
Role: One of two lead Principal Investigators (together with Dr. Frank Leibfarth from Chemistry)
Amount: $10,000,000 (direct)
Project period: 01/01/2022 to 06/30/2025

Project title: "The University of North Carolina-Chapel Hill Superfund Program (UNC-SRP), Project 5"
Funding Agency: National Institute of Environmental Health Sciences (NIEHS)
Role: Project 5 Lead (Dr. Rebecca Fry as PI of overall UNC-SRP)
Amount: $2,044,483 allocated to Project 5 (of $12,240,332 total UNC-SRP budget)
Project period: 02/01/20 to 01/31/25

Completed Support

Project title: "Performance Evaluation of novel resins in flow-through columns for PFAS removal from drinking water and treated wastewater"
Funding agency: The North Carolina Water Resources Research Institute (WRRI) and US Geological Survey (USGS)
Role: Principal Investigator
Amount: $125,000 (direct)
Project period: 09/01/2021 to 08/31/2023

Project title: "Molecular dynamics simulations of water and solute transport through crosslinked aromatic polyamide reverse osmosis membranes"
Funding agency: National Science Foundation (NSF)
Role: Co-Principal Investigator (Cass T. Miller as PI)
Amount: 4,761,986 CPU core-hours on SDSC Expanse; 4,761,986 CPU core-hours on PSC Bridges-2. Total dollar value estimated by NSF: $78,530
Project period: 01/01/2022 to 06/30/2023

Project title: Electro-membranes for the recovery of high-value acids from anaerobic co-digestion effluent
Funding Agency: NC Policy Collaboratory
Role: One of two lead Principal Investigators (together with Dr. Douglas Call from NCSU)
Amount: $62,250 (total)
Project period: 05/01/19 to 06/30/23

Project title: "Ionic fluorogels as a flow-through resin technology for PFAS remediation from water"
Funding Agency: NC Policy Collaboratory and UNC Institute for Convergent Sciences (ICS)
Role: One of two lead Principal Investigators (together with Dr. Frank Leibfarth from Chemistry)
Amount: $225,000 (direct)
Project period: 03/01/20 to 06/30/22

Project title: Recovering high-value acids from anaerobic co-digestion of municipal solid and grease interceptor waste using an electrically driven separation process
Funding Agency: Environmental Research & Education Foundation (EREF)
Role: One of two lead Principal Investigators (together with Dr. Douglas Call from NCSU)
Amount: $167,000 (total)
Project period: 05/01/19 to 04/30/22

Project title: "Molecular dynamics simulations of water and solute transport through crosslinked aromatic polyamide reverse osmosis membranes"
Funding agency: National Science Foundation (NSF)
Role: Co-Principal Investigator (Cass T. Miller as PI)
Amount: 2,212,000 CPU core-hours on SDSC Expanse; 2,212,000 CPU core-hours on PSC Bridges-2. Total dollar value estimated by NSF: $36,478
Project period: 10/01/2020 to 12/31/2021

Project title: Per- and poly-fluoroalkyl Alkyl Substance (PFAS) Testing Network – Team 3: PFAS removal performance testing
Funding Agency: NC Policy Collaboratory
Role: One of two Team 3 lead Principal Investigators (together with Dr. Mei Sun, UNC-Charlotte)
Amount: $650,406 (direct) total Team 3 budget, $135,227 (direct) to the Coronell Lab
Project period: 08/01/2018 to 04/15/2021

Project title: Development of osmotic ballasts to enable saltwater-based energy storage
Funding Agency: Gillings Innovation Labs, UNC Public Health Foundation, Inc.
Role: Principal Investigator (Dr. Wei You from UNC Chemistry as co-PI)
Amount: $146,200 (direct)
Project period: 09/01/2017 to 08/31/2021

Project title: Optimization of the concentration battery
Funding Agency: NC Policy Collaboratory
Role: Principal Investigator
Amount: $54,825 (direct)
Project period: 05/01/2018 to 12/31/2020

Project title: Sustainable Access to Safe Water: Graphene-polymer nanocomposite membranes for water purification, energy production and storage
Funding Agency: UNC Creativity Hubs
Role: Co-Principal Investigator (with Forest, Miller, Stewart and Freeman; Dingemans as PI)
Amount: $500,000 (direct) total project budget, $95,250 (direct) to the Coronell Lab
Project period: 07/01/2018 to 06/30/2020

Project title: UNC-ROI Supplement: Salinity gradient energy – An inexhaustible clean energy resource for North Carolina
Funding agency: North Carolina General Assembly
Role: One of two lead Principal Investigators (together with Dr. Douglas Call from NCSU)
Project period: 07/01/2017 to 06/30/2018
Amount: $20,000 (direct) total project budget, $9,843 (direct) to UNC

Project title: UNC-ROI: Salinity gradient energy – An inexhaustible clean energy resource for North Carolina
Funding agency: University of North Carolina System Research Opportunities Initiative Program
Role: One of two lead Principal Investigators (together with Dr. Douglas Call from NCSU)
Project period: 07/01/2015 to 06/30/2018
Amount: $997,636 (direct) total project budget, $499,365 (direct) to UNC

Project title: GOALI: Application of an innovative anti-biofilm technology for overcoming biofouling on water purification membranes
Funding agency: National Science Foundation (NSF)-Chemical and Biological Separations and GOALI Programs
Role: Principal Investigator (Dr. Eva Garland from Agile Sciences, Inc. as co-PI)
Project period: 05/15/2013 to 04/30/2018
Amount: $325,975 (total, all funds to the Coronell Lab)

Project title: REU Supplement: Tailoring thin-film nanocomposite membranes for water reuse applications
Funding agency: National Science Foundation (NSF)-Environmental Engineering Program
Role: Principal Investigator (Dr. Howard Weinberg from UNC ESE as co-PI)
Project period: 09/01/2013 to 08/31/2017
Amount: $6,000 (total)

Project title: Tailoring thin-film nanocomposite membranes for water reuse applications
Funding agency: National Science Foundation (NSF)-Environmental Engineering Program
Role: Principal Investigator (Dr. Howard Weinberg from UNC ESE as co-PI)
Project period: 09/01/2013 to 08/31/2017
Amount: $336,302 (total)

Project title: UNC-ROI Supplement: Salinity gradient energy – An inexhaustible clean energy resource for North Carolina
Funding agency: North Carolina General Assembly
Role: One of two lead Principal Investigators (together with Dr. Douglas Call from NCSU)
Project period: 07/01/2015 to 06/30/2016
Amount: $40,000 (direct) total project budget, $20,000 (direct) to UNC

Project title: Performance evaluation of magnetic ion exchange (MIEX) resins
Funding agency: Orica Watercare
Role: Principal Investigator
Project period: 06/01/2013 to 12/31/2014
Amount: $37,500 (direct)

Project title: Towards the development of chlorine-resistant membranes for water desalination and reuse
Funding agency: UNC University Research Council (URC) Small Grant Program
Role: Principal Investigator
Project period: 05/01/2012 to 04/30/2014
Amount: $1,500 (direct)

Project title: Identification of membrane foulants and optimum cleaning strategies for nanofiltration and reverse osmosis membranes treating groundwaters from the Castle Hayne and Peedee Aquifers
Funding agency: The North Carolina Water Resources Research Institute (WRRI) and the United States Geological Survey (USGS)
Role: Principal Investigator
Project period: 06/15/2011 to 02/28/2013
Amount: $50,000 (direct)

Project title: Enhanced chloride/sulfate monitoring for steam samples
Funding agency: Electric Power Research Institute (EPRI)
Role: Principal Investigator
Project period: 01/01/2011 to 12/31/2011
Amount: $110,371 (total)

Project title: Development of a bench-scale procedure for the characterization of physico-chemical properties of the active layers of reverse osmosis (RO) and nanofiltration (NF) membranes
Funding agency: UNC IBM Junior Faculty Development Award
Role: Principal Investigator
Project period: 01/01/2011 to 12/31/2011
Amount: $7,500 (direct)

SERVICE

International Level Service

Membership in Editorial Boards

- International Editorial Board of *JMS Letters* (IF: N/A) (2021-Present)
- International Editorial Board of *npj Clean Water* (IF:12.190) (2016-Present)

Invited Guest Editor

- Invited Guest co-Editor for Special Issue on "Nano-structured RO and NF membranes for desalination and water reuse" in *Desalination* (IF: 11.211) (2022)
- Invited Guest Editor for Special Issue on "Ion-exchange membranes: from synthesis to applications" in *Membranes* (IF: 4.562) (2021)

Evaluator

- Evaluator for promotion of Assistant Professors to Associate Professors

National Level Service

Chair/Co-chair and Other Service

- Panelist in "Tenure Talks Panel 1: Surviving and thriving on the path to tenure: Advice from recently tenured faculty." Organized by the North American Membrane Society (NAMS). (2023)
- Co-chaired session "Materials for Electrochemical Applications" in the 2022 North American Membrane Society (NAMS) Annual Meeting. (2022)
- Co-chaired symposium "Innovation in Remediation Strategies & Their Impact on Superfund Contaminants" in the 2021 American Chemical Society (ACS) Annual Spring Meeting. (2021)
- Co-chaired sessions "Membrane electrochemical applications I, II and II" in the 2020 North American Membrane Society (NAMS) Annual Meeting. (2020)

- Co-chaired session “Novel Polymers and Polymer-Based Processes for Energy-Efficient Purification of Water and Resource Recovery” in the 2019 American Chemical Society (ACS) Annual Fall Meeting. (2019)
- Co-chaired the session “Ion-Exchange and Electrofunctional Membrane Materials” in the 2019 North American Membrane Society (NAMS) Annual Meeting. (2019)
- Co-chaired session “Aqueous Contaminant Separation, Resource Recovery, and Clean Energy Generation by Electrochemical Processes” in the 2019 American Chemical Society (ACS) Annual Spring Meeting. (2019)
- Chaired the session “Membranes for Water Treatment and Desalination I” in the 2015 North American Membrane Society (NAMS) Annual Meeting. (2015)
- Moderated the sessions “Sanitation” and “Water Treatment” in the 2014 UNC Water and Health Conference: Where Science Meets Policy, Chapel Hill, NC. (2014)
- Chaired the sessions “Fouling and its Control I” and “Fouling and its Control II” in the 2014 North American Membrane Society (NAMS) Annual Meeting. (2014)
- Moderated the session “Hygiene and behavior change” in the 2013 UNC Water and Health Conference: Where Science Meets Policy, Chapel Hill, NC. (2013)
- Chaired the session “Ecosystem Protection and Drinking Water Safety” in the 2012 UNC Water and Health Conference: Science, Policy and Innovation, Chapel Hill, NC. (2012)

Peer-reviewing Service

- National Science Foundation (NSF):
    - Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems (ECO-CBET)
    - Experimental Program to Stimulate Competitive Research (EPSCoR)
    - Historically Black Colleges and Universities Undergraduate Program (HBCU-UP)
    - Engineering Research Centers (ERC) Program
    - Environmental Engineering (EE) Program
    - Chemical and Biological Separations (CBS) Program
- American Association for the Advancement of Science (AAAS)
- Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland
- Israel Science Foundation (ISF)
- Water Resources Research Institute (WRRI) of North Carolina
- North American Membrane Society (NAMS)
- Wiley-VCH (Encyclopedia of Membrane Science and Technology)
- Elsevier Books
- Journals: ACS Applied Materials & Interfaces, Environmental Science & Technology (ES&T), Environmental Science and Technology Letters (ES&T Letters), ES&T Engineering, Water Research, Journal of Membrane Science (JMS), Desalination, Polymer, ACS Applied Polymer Materials, Science of the Total Environment (STOTEN), npj Clean Water, Industrial & Engineering Chemistry Research (IECR), Journal of Energy Storage, Science, Science Advances, Nature Nanotechnology, Journal of the American Chemical Society (JACS), The Journal of the American Water Works Association (JAWWA), Environmental Engineering Science (EES), ASME Journal of Electrochemical Conversion and Storage (JEECS), The Journal of Physical Chemistry (JPC), Separation Science and Technology, Water Science and Technology, Separation and Purification Technology, WST: Water Supply, Journal of Applied Polymer Science (JAPS), The American Society of Civil Engineers Journal of Environmental Engineering (ASCE JEE), Journal of Water Supply: Research and Technology–AQUA, Journal of Polymer Engineering (JPOLYENG)

State Level Service

Service on State Board

- Member of North Carolina Water Treatment Facility Operator Certification Board (NC WTFOCB) (2019-Present)

Other

- *Ad hoc* participation in the North Carolina Well Water Working Group (2020-Present)
- Participation in periodic meetings with the UNC SRP Public Health Action Committee (2020-Present)

University Level Service

- Member of the Academic Programs Committee of the Gillings School of Global Public Health (2021-Present)
- Evaluator for final poster and presentation in SPHG 713 for the Gillings School of Global Public Health (2020-Present)
- Member of the Advisory Board of the Chapel Hill Analytical and Nanofabrication Laboratory (CHANL) (2018-Present)
- Member of Search Committee for Assistant or Associate Professor in Water and Energy for the Department of Applied Physical Sciences (2023-2024)
- Member of UNC-SRI Technology Foresight Focus Group for the Office of UNC's Chief Innovation Officer and Innovate Carolina (2022)
- Member of review panel for UNC Creativity Hubs Expression of Interest (EOI) submissions (2022)
- Member of the faculty committee evaluating the candidates for Associate Director of the Office of Postdoctoral Affairs (OPA) (2022)
- Member of Review Committee for Graduate School Master's Merit Fellowships/Assistantships for The Gillings School of Global Public Health (2022)
- Member of the Search Committee for Junior Faculty Members for the Department of Applied Physical Sciences (2018-2019)
- Member of the Search Committee for Junior Faculty Members for the Department of Applied Physical Sciences (2017-2018)
- Faculty advisor to the Daniel A. Okun student chapter of Engineers without Borders (EWB) at UNC-Chapel Hill (2011-2012)
- Collaborator to the Daniel A. Okun student chapter of Engineers without Borders (EWB) at UNC-Chapel Hill for the project *"Design of a solution to the water quantity and quality problems of the community of El Inga, Quito, Ecuador"* (2010)
- *Ad hoc* technical consultations
    - Powering A Nation: on water treatment and water resources (2012)
    - The Water Institute: on drinking water source in Lebanon as part of the report for the World Bank entitled *"Greater Beirut Water Supply Project: Independent Technical Review of Source Water Quality"* (April 2011)

Department Level Service **(Department of Environmental Sciences and Engineering)**

- Member of SPLAT Task Force (2023-Present)
- Associate Chair for Academics (2021-Present)
- Chair of the Academic Programs Committee (APC) (2021-Present)

- Faculty member in charge of the Daniel A. Okun Water, Sanitation, and Hygiene Student Travel Award (2018-present)
- Liaison for the AEESP Distinguished Lecturer visit to the Triangle Universities (UNC-Chapel Hill, Duke University, and North Carolina State University) (2012-Present)
- Member of the *ad hoc* ESE committee to evaluate master's degrees (2022)
- Member of Search Committee for Research Assistant Professor in transport modeling for the Department of Environmental Sciences and Engineering (2022-2023)
- Member of the Academic Programs Committee (2018-2022)
- Liaison for the Kappe Distinguished Lecturer visit to the Triangle Universities (UNC-Chapel Hill, Duke University, and North Carolina State University) (2017-2020)
- Member of *ad hoc* committee for teaching faculty appointment renewal (2022)
- Member of Working Group on Attracting Engineers to ESE (2021-2022)
- Member of Working Group on MPH on Water (2021-2022)
- Member of Working Group on Cluster Hires (2021-2022)
- Chair of the Space Committee (2018-2021)
- Chair of *ad hoc* meeting of the "water faculty" to discuss course offering needs in ESE (2021)
- Member of *ad hoc* committee for faculty promotion evaluation to associate professor (2019-2020)
- Member of the Search Committee for Environmental Microbiology/Microbial Processes Engineering Faculty (2019-2020)
- Member of the Search Committee for BSPH Teaching Faculty Position in Environmental Health, Sciences and Engineering (2018-2019)
- Member of the Search Committee for Director of the Water Institute (2018-2019)
- Member of the *ad hoc* Committee for revision of ESE PhD Competencies for CEPH (2018)
- Member of the Space Committee (2011-2018)
- Member of the Committee for Design of Course on Environmental Processes, Exposure and Risk Assessment course (2017)
- Member of the Committee for Conceptual Design of Capstone Course for the Masters in Environmental Engineering (MSEE) Degree (2016-2017)
- Member of the Committee for Revision of Guidelines for (Re)appointments of Adjunct Faculty (2015-2016)
- Member of the Search Committee for Associate Director for Research for the Water Institute (2014-2015)
- Member of the Search Committee for Associate Director for Research for the Water Institute (2012-2013)
- Member of the Committee for Evaluation of the Feasibility of a Non-Research Masters of Science in Environmental Engineering Degree (2011-2012)
- Member of the Search Committee for a Research Assistant Professor in Molecular Microbial Ecology (2011-2012)

Service Prior to UNC

- Co-chaired Symposium Q (Materials Science of Water Purification) in the Materials Research Society (MRS) Spring Meeting, San Francisco, CA (2009)
- Executive Chair of the Center of Advanced Materials for the Purification of Water with Systems (*WaterCAMPWS*) Student Leadership Council (2007-2008)
- Chair of the Environmental Engineering and Science Graduate Student Advisory Committee, University of Illinois (2006-2007)

- Member of the Environmental Engineering and Science Graduate Student Advisory Committee, University of Illinois (2005-2007)

PRACTICE

Innovation and Entrepreneurship

- President and Co-founder, Sorbenta, Inc. (2022-Present)
  Together with Prof. Frank Leibfarth (Chemistry), we incorporated Sorbenta, Inc. in 2022 with the aim of developing and bringing to market novel sorbents for the removal contaminants from water.
- Co-inventor in five patent applications on different technologies including
  - Two novel sorbents for PFAS removal from water
  - A novel electrically conductive membrane for contaminant degradation and removal, and fouling reduction
  - A novel ion exchange membrane for use in clean water and energy applications
  - A method to maximize energy efficiency in closed-loop electrodialytic systems

International Level

- Technical consultation to large national company on removal of contaminants from landfill leachate (2024)
- Technical consultation to large international chemical company on protocols for evaluation of performance of materials for PFAS remediation (2024)
- Technical consultation to The Royal Consulate General of Denmark on the use of membrane technology in water purification and the market makeup in the United States of America. (June 2022)
- Technical expert and peer reviewer for membrane technologies and ceramic filtration toward revision of Tables 7.7 and 7.8 in the World Health Organization's Guidelines for Drinking-water Quality (GDWQ). (December 2020)
- Fusion Management (Latin America): consultation regarding sustainable water treatment technologies for economically challenged areas in developing countries. (October 2012)
- El Cuenco (non-governmental organization in El Salvador): multiple consultations for the project *"Study of the lead contamination problems in the drinking water supply of the community of "El Cuenco" in El Salvador"* (2010-2012)

National Level

Technical Consultations

- Nala Membranes: on technical aspects of membranes and membrane filtration systems (2022-2023)
- Facing South Magazine: on the topic of membrane filtration technologies. (November 2022)
- Facing South Magazine: on the topic of demineralization and remineralization during reverse osmosis water treatment. (September 2022)
- Facing South Magazine: on the efficacy of water treatment methods for the removal of PFAS from water. (January 2022)
- U.S. Government Accountability Office (GAO), an agency of the United States Congress: served as a subject matter expert in the assessment of technologies for remediation of per- and polyfluoroalkyl substances (PFAS) (October 2021)

- Triad Growth Partners: on technologies for removal of heavy metals from water. (September 2020)
- Hazen and Sawyer: on the efficacy of water purification membranes for the removal of per- and polyfluorinated alkyl substances. (July 2020)
- News and Observer: on efficacy of water treatment methods for the removal of PFAS from water. (August 2019)
- North Carolina Resident: on methods for removal of PFAS from drinking water at the household level. (November 2019)
- Rokk3r Labs, USA: on potential use of membrane technology for handheld water purification systems. (November 2015)
- North Carolina Resident: on methods to reduce iron and manganese in home well water system. (June 2015)
- Washington Aqueduct Division, US Army Corps of Engineers: on methods to measure chlorate in free chlorine solutions containing chlorate and chloride. (June 2014)
- Dow Chemical Company, Materials Science, Core R&D: consultation regarding procedures to isolate the active layer of thin-film composite membranes onto quartz crystal sensors. (November 2013)
- North Carolina Department of Agriculture: on a water quality problem in their laboratories. (May 2013)
- Dow Chemical Company, Analytical Sciences (a global company and one of the two main membrane manufacturers in the world): on procedures to measure reverse osmosis membrane properties with Rutherford backscattering spectrometry. (November 2012)
- Lawrence Berkeley National Laboratory (CA, USA): on how to stabilize the pH of specific alkaline solutions. (September 2012)
- Dow Chemical Company, Core R&D: on procedures to measure reverse osmosis membrane properties with quartz crystal microbalances. (July 2012)
- Food and Nutrition Information Center (FNIC), National Agricultural Library (NAL), US Department of Agriculture: on reverse osmosis membranes and water treatment. (May 2011)

ACADEMIC AND PROFESSIONAL DEVELOPMENT

CFE = Center for Faculty Excellence at UNC-Chapel Hill
TEAM = Targeting Equity in Access to Mentoring at UNC-Chapel Hill

Teaching and Mentoring

- Communications and Media Training, UNC University Communications, February 2023 (1.5 hours)
- Promoting Professional Development of Graduate Students, TEAM ADVANCE, CFE, April 2022 (1.5 hours)
- Communication and Negotiation Skills, TEAM ADVANCE, CFE, April 2022 (2 hours)
- Enhancing Work-Life Integration for Mentees--and Mentors, CFE, March 2022 (1.5 hour)
- Academic Dishonesty and Student Conduct: Roles and Responsibilities, Office of Students Affairs, March 2022 (1 hour)
- Creating effective assignments, CFE, April 2012 (1 hour)
- Understanding the culture of your school or department: The written and unwritten rules, CFE, March 2012 (2 hours)
- Finding a mentor and making the most out of the mentoring relationship, CFE, December 2011

(1 hour)
- Teaching portfolios, CFE, October 2011 (1 hour)
- Teaching so everyone can learn: What's race got to do with it? Office of the Provost at UNC-Chapel Hill, August 2012 (1 day)

Diversity, Equity, and Inclusive Excellence

- Dog Whistle Politics. Ian Haney Lopez at TedxUOregon. May 2022 (0.25 h)
- How Studying Privilege Systems Can Strengthen Compassion. Peggy McIntosh at TEDxTimberlaneSchools. May 2022 (0.25 h)
- Overcoming Microaggressions as a Faculty Member: Academic Impressions. Ava Greenwell. May 2022 (1 h)
- Implicit Bias Module Series. Kirwan Institute for the Study of Race and Ethnicity, The Ohio State University. May 2022 (1.5 hour)
- How to Resolve Racially Stressful Situations. Howard C. Stevenson Ted Talk. May 2022 (0.25 hour)
- How Racism Makes Us Sick. David R. Williams Ted Talk. May 2022 (0.25 hour)
- How to Explain Racism to Kids. CNN/Sesame Street Town Hall. May 2022 (0.5 hour)
- Gregorio Millett: Past as Prologue: COVID-19, HIV and other infectious diseases inequities by race/ethnicity. Gillings School of Public Health Dean's Lecture Series. April 2022 (1 hour)
- Carolina Data Science Now: Tackling Underrepresentation with Data Science. RENCE – Renaissance Computing Institute at UNC. April 2022 (1 hour)
- Real Mindful: Ruth King on Planting Seeds for the Future. Mindful. April 2022 (0.5 hour)
- Clarifying Critical Race Theory: A Conversation for the Arts and Sciences. College of Arts & Sciences Office for Diversity, Equity and Inclusion. March 2022 (1.5 hour)
- Cultural Industry, Techno-capitalism, and Labor: The Mediated Exploitation of Black and Brown Bodies. Race, Racism and Racial Equity R3 Symposium, University Office for Diversity and Inclusion, The University of North Carolina at Chapel Hill. June 2021 (1.5 hour)
- The Exploitation of Black and Brown Bodies at UNC: Learning from the Past to Change the Present. Race, Racism and Racial Equity R3 Symposium, University Office for Diversity and Inclusion, The University of North Carolina at Chapel Hill. June 2021 (1.5 hour)
- Black Feminism & the Movement for Black Lives: Barbara Smith, Reina Gossett, Charlene Carruthers. National LGBTQ Task Force. June 2021 (1 hour)
- Facilitating Productive Classroom Conversations on Racism, Race, and Public Health. Association of Schools and Programs of Public Health. April 2021 (1 hour)
- Saving the House We Built: Critical Conversations on Contemporary Politics. Department of African, African American, and Diaspora Studies, The University of North Carolina at Chapel Hill. January 2021 (2 hour)
- Equity Advocacy in the Admissions Process Training. Gillings School of Global Public Health, The University of North Carolina at Chapel Hill. January 2021 (1.5 hours)

Research, Funding, and Entrepreneurship

- Regional National Science Foundation (NSF) Innovation Corps (i-Corps). NSF i-Corps Hub: Mid-Atlantic Region and a member of the larger National Innovation Network. August-September 2022 (12 hours)
- UX Research: Lean Experimentation. LinkedIn Learning, May 2022 (1 hour)
- The product launch – Preparing for production. Touchtone 3D, First Flight Venture Center, March 2022 (1.5 hour)

- Certificate on Entrepreneurship 3: Growth Strategies. Coursera, Wharton School of Business, University of Pennsylvania, March 2022
- Small business match and incentive programs. One North Carolina Small Business Program, February 2020 (1 hour)
- Certificate on Entrepreneurship 2: Launching your Start-up. Coursera, Wharton School of Business, University of Pennsylvania, January 2022
- Certificate on Entrepreneurship 1: Developing the opportunity. Coursera, Wharton School of Business, University of Pennsylvania, December 2021
- Faculty Innovation Workshop: Design Thinking. UNC-Chapel Hill, Innovate Carolina, June 2020 (6 hours)
- Chancellor's Faculty Entrepreneurship Workshop (Invited). UNC-Chapel Hill, Office of the Vice Chancellor for Innovation, Entrepreneurship and Economic Development, May 2017 (3 days)
- Polymeric and inorganic membrane materials and membrane formation. NAMS, June 2012 (1 day)
- Foundation grant funding. CFE, April 2012 (4 hours)
- New principal investigator training part I: research compliance module. CFE, October 2011 (6 hours)
- Let's talk about grant writing. CFE, September 2011 (3 hours)
- Establishing and finding funding for your research program. CFE, September 2011 (2 hours)