

Orlando Coronell Nieto

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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 (Bachelors equivalent) in Civil Engineering Universidad del Norte, Barranquilla, Colombia	2001

PROFESSIONAL EXPERIENCE

Associate Professor, University of North Carolina at Chapel Hill Department of Environmental Sciences and Engineering	2017 - Present
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

- 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 RESEARCH ACTIVITIES IN THE CORONELL RESEARCH GROUP

National Level

- Abel Wolman Fellowship, Alex S. Gorzalski – American Water Works Association (AWWA) (2018)
- 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)
- NC Safewater Fund Scholarship, Mikayla Armstrong – North Carolina American Water Works Association & North Carolina Water Environment Association (NC AWWA-WEA) (2016, 2017, 2018)

- 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

- 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)
- Water Environment Federation (WEF)
- 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. 2016 (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. 2016 (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

* = Dr. Coronell or advisee as corresponding author

^A = Advisee

Submitted

32. Lin, L.^A; Weigand, T.M.; Farthing, M.W.; Jutaporn, J.^A; Miller, C.T.; **Coronell, O.*** Relative importance of geometrical and intrinsic water transport properties of active layers in the water permeability of polyamide thin-film composite membranes. *Submitted for publication (1-36)*.

Published

31. 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*. DOI: 10.1002/awwa.1071
30. 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
29. Kingsbury, R.S.^A; Flotron, S.^A; Zhu, S.^A; Call, D.G.; **Coronell, O.*** (2018) Junction potentials bias measurements of ion exchange membrane permselectivity. *Environmental Science & Technology*, 52, 4929-4936. DOI: 10.1021/acs.est.7b05317

28. 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.
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) A 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.
25. Liu, F.; **Coronell, O.**; Call, D. (2017) Electricity generation using continuously recirculated flow electrodes in reverse electrodialysis. *Journal of Power Sources*, 355, 206-210.
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 and Technology*, 51, 2295-2203.
23. Kingsbury, R.S.^A; **Coronell, O.*** (2017) Osmotic ballasts enhance faradaic efficiency in closed-loop, membrane-based energy systems. *Environmental Science and Technology*, 51, 1910-1917.
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.
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.
20. Jutaporn, P.^A; Singer, P.C.; Cory, R.M.; **Coronell, O.*** (2016) Minimization of Low-Pressure Membrane Fouling Using a Magnetic Ion Exchange (MIEX®) Resin. *Water Research*, 98, 225-234.
19. Wong, M.C.Y.; Ramon, G.Z.; Lin, L.^A; **Coronell, O.**; Hoek, E.M.V. (2016) Impact of liquid-filled voids within the active layer on transport through thin-film composite membranes. *Journal of Membrane Science*, 500, 124-135.
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.
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.
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 and Technology*, 49, 12136–12144.
15. Kingsbury, R.S.; Chu, K.; **Coronell, O.** (2015) Energy storage by reversible electrodialysis: The concentration battery. *Journal of Membrane Science*, 495, 502-516.
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.

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 and Technology*, 48, 2741-2749.
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 and Technology*, 47, 420-428.
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.
9. Matthews, T.; Yan, H.; Cahill, D.G.; **Coronell, O.**; Mariñas, B.J. (2013) Growth dynamics of interfacially polymerized polyamide layers by diffuse reflectance spectroscopy and Rutherford backscattering spectrometry. *Journal of Membrane Science*, 429, 71-80.
8. Attayek, P.J.^A; Meyer, E.S.^A; Lin, L.^A; Rich, G.C.; Clegg, T.B.; **Coronell, O.*** (2012) A remotely-controlled, semi-automatic target system for Rutherford backscattering spectrometry and elastic recoiled detection analyses of polymeric membrane samples. *Nuclear Instruments and Methods in Physics A*, 676, 21-25.
7. **Coronell, O.**; Mariñas, B.J.; Cahill, D.G. (2011) Depth heterogeneity of fully aromatic polyamide active layers in reverse osmosis and nanofiltration membranes. *Environmental Science and Technology*, 45, 4513-4520.
6. **Coronell, O.**; González, M. I.; Mariñas, B. J.; Cahill, D. G. (2010) Ionization behavior, stoichiometry of association and accessibility of functional groups in the active layers of reverse osmosis and nanofiltration membranes. *Environmental Science and Technology*, 44, 6808-6814.
5. **Coronell, O.**; Mariñas, B.J.; Cahill, D.G. (2009) Accessibility and ion exchange stoichiometry of ionized carboxylic groups in the active layer of FT30 reverse osmosis membrane. *Environmental Science and Technology*, 43, 5042-5048.
4. Zhang, X.*; Cahill, D.G.; **Coronell, O.***; Mariñas, B.J. (2009) Absorption of water in the active layer of reverse osmosis membranes. *Journal of Membrane Science*, 331, 143-151.
3. **Coronell, O.**; Mariñas, B.J.; Zhang, X.; Cahill, D.G. (2008) Quantification of functional groups and modeling of their ionization behavior in the active layer of FT30 reverse osmosis membrane. *Environmental Science and Technology*, 42, 5260-5266.
2. Zhang, X.; Cahill, D.G.; **Coronell, O.**; Mariñas, B.J. (2007) Partitioning of salt ions in FT30 reverse osmosis membranes. *Applied Physics Letters*, 91, 181904.
1. Mi, B.; **Coronell, O.**; Mariñas, B.J.; Watanabe, F.; Cahill, D.G.; Petrov, I. (2006) Physico-chemical Characterization of NF/RO Membrane Active Layers by Rutherford Backscattering Spectrometry. *Journal of Membrane Science*, 282, 71-81.

Patents

^A = Advisee

1. **Coronell, O.**; Kingsbury, R.S.^A Osmotic Ballasts for Membrane-Based Energy Processes. Application No. PCT/US17/40047 (2017). Publication No. WO2018005825A1

Other Scholarly Products

^A = Advisee

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.**
2. Software: WheelScan, 2011 - Used as part of the software operating system of the RBS/ERD target stage listed below. The software reads a digital image of the target stage with samples mounted on it, the user digitally draws on the samples the area to analyze, and defines through commands the pattern and speed of sample scanning – Attayek, P.J.^A; Meyer, E.S.^A; Lin, L.^A; Clegg, T.B.; **Coronell, O.**
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.**

Refereed Technical Reports

* = Dr. Coronell as principal investigator

^A = Advisee

2. **Coronell, O.***; Gorzalski, A.S.^A Identification of membrane foulants and optimum cleaning strategies for nanofiltration and reverse osmosis membranes treating groundwaters from the Castle Hayne and Peedee aquifers. *North Carolina Water Resources Research Institute*. Report# 11-03-W, March, 2013. Available at <http://repository.lib.ncsu.edu/dr/bitstream/1840.4/8171/1/NC-WRRI-417.pdf>.
1. **Coronell, O.***; Byun, S.^A Enhanced chloride monitoring for steam condensate samples. *Electric Power Research Institute*. Report# 1021769, April, 2012. Available at <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=00000000001021769>.

Non-Refereed Technical Publications

1. Atkinson, A.J.^A; Wang, J.^A; Zhang, Z.; **Coronell, O.***; Gold, A.; Pollard, A.; Jung, D. Can incorporating novel anti-biofilm molecules into NF/RO membranes aid biofouling control? *Ultrapure Water*®, 2017, 7, 1-4

Refereed Conference Proceedings

* = Dr. Coronell or advisee as corresponding author

^A = Advisee

18. Gorzalski, A.S.^{A*}; Harrington, G.W.; Hayden, A.; Spiesman, A.; **Coronell, O.** Real-time modeling of cyanotoxin oxidation in clearwells (oral). *Proceedings of the 2014 American Water Works Association (AWWA) Water Quality Technology Conference and Exposition*, Portland, OR, November 12-16, 2017.
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.

16. Jutaporn, P.^A; Singer, P.C.; Arias, M.; **Coronell, O.*** Membrane fouling minimization by a magnetic ion exchange (MIEX) resin (oral). *Proceedings of the 2014 American Water Works Association (AWWA) Water Quality Technology Conference*, New Orleans, LA, November 16-20, 2014.
15. Gorzalski, A.S.^A; **Coronell, O.*** Challenges in replicating full-scale fouling of nanofiltration membranes treating groundwater in laboratory crossflow systems (oral). *Proceedings of the 2013 American Water Works Association (AWWA) Water Quality Technology Conference*, Long Beach, CA, November 3-7, 2013.
14. Wang, C.^A; Singer, P.C.; **Coronell, O.*** Dissolved copper and lead removal using granular brass media (oral). *Proceedings of the 2012 American Water Works Association (AWWA) Water Quality Technology Conference*, Toronto, Canada, November 4-8, 2012.
13. Lin, L.^A; Perry, L.A.^A; Feng, C.^A; **Coronell, O.*** Relating water permeability of reverse osmosis and nanofiltration membranes to the polymer density of their active layers (oral). *Proceedings of the 2012 American Water Works Association (AWWA)-American Membrane Technology Association (AMTA) Membrane Technology Conference and Exposition*, Glendale, AZ, February 27- March 01, 2012.
12. Matthews, T.; **Coronell, O.**; Mariñas, B.J.; Yan, H.; Cahill, D.G. Linking polyamide active layer structure and chemistry to reverse osmosis membrane performance (oral). *Proceedings of the 2011 American Water Works Association (AWWA) Membrane Technology Conference and Exposition*, Long Beach, CA, March 28-31, 2011.
11. **Coronell, O.***; González, M.; Mariñas, B.J.; Cahill, D.G. Depth heterogeneity of elemental composition, concentration of functional groups and degree of crosslinking in the active layers of reverse osmosis and nanofiltration membranes (poster). *Proceedings of the 2009 American Water Works Association (AWWA) Membrane Technology Conference and Exposition*, Memphis, TN, March 15-18, 2009.
10. **Coronell, O.***; González, M.; Mariñas, B.J.; Zhang, X.; Cahill, D.G. Quantification of carboxylic groups in FT30 (RO) membrane and modeling approach of their acid/base behavior (oral). *Preprints of Papers Presented at the 235th American Chemical Society (ACS) National Meeting, Division of Environmental Chemistry, Vol 48, No. 1, New Orleans, LA, April 6-10, 2008.*
9. Minier-Matar, J.; **Coronell, O.**; Mi, B.; Mariñas, B.J.; Falkenberg, C.V.; Chen, D.; Georgiadis, J.G. Concentration polarization disruption in reverse osmosis and nanofiltration processes (oral). *Preprints of Papers Presented at the 235th American Chemical Society (ACS) National Meeting, Division of Environmental Chemistry, Vol 48, No. 1, New Orleans, LA, April 6-10, 2008.*
8. **Coronell, O.***; Mariñas, B.J.; Zhang, X.; Cahill, D.G. Quantification of functional groups in the active layer of high-pressure membranes (oral). *Preprints of Papers Presented at the 233rd American Chemical Society (ACS) National Meeting, Division of Environmental Chemistry, Vol 47, No. 1, Chicago, IL, March 25-29, 2007.*
7. Zhang, X.; Cahill, D.G.; **Coronell, O.**; Mariñas, B.J. Ion partitioning behavior in FT30 RO membranes (oral). *Preprints of Papers Presented at the 233rd American Chemical Society (ACS) National Meeting, Division of Environmental Chemistry, Vol 47, No. 1, Chicago, IL, March 25-29, 2007.*
6. Minier-Matar, J.; **Coronell, O.**; Mi, B.; Mariñas, B.J.; Falkenberg, C.V.; Georgeadis, J.G. Concentration polarization disruption in high-pressure membranes (oral). *Preprints of Papers Presented at the 233rd American Chemical Society (ACS) National Meeting, Division of Environmental Chemistry, Vol 47, No. 1, Chicago, IL, March 25-29, 2007.*

5. **Coronell, O.***; Mariñas, B.J.; Zhang, X.; Cahill, D.G. Quantification of functional groups in the active layer of nanofiltration (NF) and reverse osmosis (RO) membranes (oral). *Proceedings of the 2007 American Water Works Association (AWWA) Membrane Technology Conference and Exposition*, Tampa, FL, March 18-21, 2007.
4. **Coronell, O.***; Mi, B.; Mariñas, B.J. The role of concentration polarization in the rejection of viruses by nanofiltration membranes (oral). *Proceedings of the 2005 American Water Works Association (AWWA) Water Quality Technology Conference*, Quebec City, Canada, November 6-10, 2005.
3. Page, M.; **Coronell, O.**; Mariñas, B.J. Effect of pH, alkalinity, and hardness on the inactivation of viruses with chlorine (oral). *Proceedings of the 2005 American Water Works Association (AWWA) Water Quality Technology Conference*, Quebec City, Canada, November 6-10, 2005.
2. **Coronell, O.***; Page, M.; Mariñas, B.J. Water quality effects on the inactivation kinetics of MS2 phage with free chlorine (oral). *Proceedings of the 2004 American Water Works Association (AWWA) Water Quality Technology Conference*, San Antonio, TX, November 14-18, 2004.
1. **Coronell, O.***; Page, M.; Mariñas, B.J. Sequential disinfection strategies with UV, ozone and chlorine for optimum control of viruses, spores and *Cryptosporidium parvum* oocysts (oral). *Proceedings of the 2003 American Water Works Association (AWWA) Water Quality Technology Conference*, Philadelphia, PA, November 2-5, 2003.

Refereed Conference Abstracts

* = Dr. Coronell or advisee as corresponding author

^ = Advisee

43. Grzebyk, K.^{A,*}, Weinberg, H.S., **Coronell, O.** Optimizing and evaluating thin film nanocomposite (TFN) membranes for water reuse applications (poster) (invited). *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 electro dialysis (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 electro dialysis (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 electro dialysis. *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 electro dialytic 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 electro dialysis (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.*** 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 electro dialysis (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

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, CA, March 10-17, 2016.

Other Invited Presentations

^A = Advisee

[¶] = Advisee presented on behalf of Dr. Coronell

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.** 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.
13. **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.
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 on the basis of research performed in the Coronell Research Group

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, FL, Apr 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, PA, 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, NC, 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, NC, 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, NC, 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 17) and refereed conference abstracts (total of 41) above.

Other Non-Refereed Presentations

* = Dr. Coronell or advisee as corresponding author

^A = Advisee

6. Gobetz, Z.; Liu, F.; **Coronell, O.**; Call, D.F. Impact of salinity gradient seasonal variability on reverse electro dialysis 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.*; Chu, K.; **Coronell, O.** Energy storage by reversible electro dialysis: 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 Pee Dee 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

UNC Courses

Teaching at UNC

Physical / Chemical Processes for Water Treatment (ENVR 756, Spring 2011-Present, 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., adsorption phenomena occurring during water treatment with granular activated carbon. The course covers conventional processes such as alum coagulation and media filtration as well as advanced processes such as ion exchange and membrane filtration. Basic design principles are covered. The course is directed at upper-level undergraduates and beginning graduate students.

Science and Technology of Membranes for Water Purification (ENVR 890-022, Fall 2012, 2014-Present, 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) nanofiltration, reverse osmosis, and forward osmosis; and (iii) electro dialysis and electro-deionization. For each of the sections, 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 to a lesser degree (5) chemistry of membrane materials. Design principles of membrane processes are also covered. The course is directed at graduate students.

Chemical Equilibria in Natural Waters (ENVR 419, Spring 2014-2016 as co-instructor, Fall 2017-Present as sole 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. While the focus of the course is on inorganic species, basic concepts of organic matter in water are covered. The course is directed at upper-level undergraduates and beginning graduate students. There are no formal prerequisites, however, some background in undergraduate-level inorganic chemistry is assumed. Students without such a background should contact the instructors prior to registration.

Environmental Chemistry (ENVR 403, Spring 2012-Present, 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

Principal Instructor

- Water Treatment Processes (Graduate level, ~20 students), Universidad del Norte, Barranquilla, Colombia, Summer 2008.
- Topographic Surveying (Undergraduate level, ~25 students), Universidad del Norte, Barranquilla, Colombia, Spring 2002.
- Construction Materials (Undergraduate level, ~25 students), 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 (~30 students), Universidad del Norte, Colombia, Fall 1998.
- Topographic Surveying (~30 students), Universidad del Norte, Colombia, Spring 1998.

Mentor to undergraduate students

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

Outreach

- Outreach educational program on water and clean energy, 2013-Present.
The objective of the program 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. Recent and current partners in our outreach activities include:
 - Chapel Hill High School (CHHS)
 - North Carolina School of Science and Math (NCSSM)
 - McDougale Middle School
 - The Scientific Research and Education Network (SciREN)

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

- 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 ACTIVITIES

Research Advisor for Post-doctoral Research Associates (3 total, 1 current)

1. Dr. Fei Liu (2018-Present) “*Optimization of osmotic ballasts for salinity gradient applications*”
2. Dr. Shan Zhu (2015-2017) “*Resistance to ionic current in ion exchange membranes*”

3. 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 (16 total, 6 current)

- *Doctoral students (10 total, 6 current)*
 1. Riley Vickers (Environmental Sciences and Engineering, current) *“Ion exchange membranes for reverse electro dialysis”*
 2. Alex S. Gorzalski (Environmental Sciences and Engineering, current) *“Novel approaches in the monitoring and operation of conventional drinking water treatment plants”*
 3. Ryan S. Kingsbury (Environmental Sciences and Engineering, current) *“Energy generation and storage using salinity gradients”*
 4. Mikayla Armstrong (Environmental Sciences and Engineering, current) *“Membranes for water purification and energy generation”*
 5. Kasia Grzebyk (Environmental Sciences and Engineering, current, co-advised with Dr. Howard Weinberg) *“Development of thin-film nanocomposite reverse osmosis and nanofiltration membranes optimized for water reuse applications”*
 6. Jingbo Wang (Environmental Sciences and Engineering, current) *“Quantification of solute partitioning in thin-film composite membranes and relationship to membrane performance”*
 7. Ariel J. Atkinson (Environmental Sciences and Engineering, 2017) *“Development and performance evaluation of an innovative antibiofouling reverse osmosis membrane for water purification applications”*
 8. Lamar A. Perry (Applied Physical Sciences, 2017) *“Understanding the property-performance relationships of membrane active layers containing porous nanoparticles”*
 9. 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”*
 10. 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 (6 total, 0 current)*
 1. 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”*
 2. Sabrina Sultana (MS, Applied Physical Sciences, 2015) *“Study of graphene oxide as an alternative cation exchange membrane”*
 3. Alexander S. Gorzalski (MSEE, Environmental Sciences and Engineering, 2013) *“Cleaning strategies for membranes fouled by ground waters from North Carolina aquifers”*
 4. Joshua A. Powell (MSEE, Environmental Sciences and Engineering, 2013) *“Kinetics and mechanisms of degradation of polyamide membranes by free chlorine”*
 5. 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”*
 6. Brad N. Bennett (MSEE, Environmental Sciences and Engineering, 2012) *“Removal of nitrate from aqueous solution using zero-valent metals”*

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 (12 total, 1 current)

1. Nicholas Hall (BS, Biomedical Engineering, 2017-current) “*Fabrication and testing of nanocomposite membranes for water reuse applications*”
2. Will K. Blanks (BS, Biostatistics, BA, Chemistry, 2016-2017) “*Nanocomposite membranes for water reuse applications*”
3. Sophie Flotron (BS, Biology, BA, History, 2016-2017) “*Salinity gradient energy*”
4. John T. Eskew (BS, Curriculum for the Environment and Ecology, 2015-2016) “*Fabrication and characterization of antibiofouling reverse osmosis membranes*”
5. Jamie A. Michael (BS, Biology, BA Chemistry, 2015-2016) “*Nanocomposite membranes for water reuse applications*”
6. Kaity Emerson (BS with Honors, Biomedical Engineering, 2013-2016) “*Membranes for electrodeionization*”
7. Ted Lee (BA Chemistry, 2014-2015) “*Thin-film nanocomposite membranes for water reuse applications*”
8. Ellen Quinlan (BSPH, Environmental Sciences, 2012-2013) “*Fouling of nanofiltration membranes by groundwaters*”
9. David Holcomb (BSPH with Highest Honors, Environmental Sciences, 2011-2012) “*Honors Thesis: The Reduction of Nitrate by Iron, Zinc, Copper, and Brass Media*”
10. Chengcheng Feng (BS, Biomedical Engineering, 2011-2012) “*Characterization of active layers of thin-film composite membranes by spectroscopic methods*”
11. Teresa Long (BSPH, Environmental Sciences, 2011) “*Forward osmosis membrane filtration for water desalination and reuse*”
12. 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*”

Professional Interns Advised (1 total, 0 current)

1. Sabrina Sultana (2015) “*Graphene oxide membranes*”

Committee Member for Graduate Students Outside the Cornell Research Group (20 total, 5 current)

○ *Doctoral Students (8 total, 5 current)*

1. 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*”
2. Christopher A. Bowers (Environmental Sciences and Engineering, current; Primary advisor: Dr. Cass T. Miller) “*Elucidating Transport Processes Present in the Hydraulic Fracturing Water Cycle*”
3. Alma Beciragic (Environmental Sciences and Engineering, current; Primary advisor: Dr. Howard S. Weinberg) “*Identification and quantification of byproducts resulting from RO and NF membrane interactions with disinfectants*”
4. Kirsten Studer (Environmental Sciences and Engineering, current; Primary advisor: Dr. Howard S. Weinberg) “*Correlating Cytotoxicity to Disinfection Byproduct Formation in Chloraminated and Chlorinated Waters*”

5. Katie Friedman (Environmental Sciences and Engineering, current; Primary advisor: Dr. Mark D. Sobsey) *“Metal-Impregnated Ceramic Filters for Virus Inactivation in Point-of-Use Water Treatment”*
 6. 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”*
 7. Ampai Soros (Environmental Sciences and Engineering, 2015; Primary advisor: Dr. Mark D. Sobsey) *“Chitosan Coagulation for Household Water Treatment in Developing Countries”*
 8. 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 (13 total, 0 current)*
1. 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”*
 2. 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”*
 3. 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”*
 4. 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”*
 5. 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”*
 6. Tucker Witsil (MSPH, Environmental Sciences and Engineering, 2014; Primary advisor: Dr. Mark D. Sobsey) *“Disinfection of Stored Water by Antimicrobial Granular Metallic Particles”*
 7. Johnny Kim (MS, Environmental Sciences and Engineering, 2013; Primary advisor: Dr. Mark D. Sobsey) *“Evaluation of Bromine for Disinfection of Drinking Water”*
 8. Abhinav Komandur (MSPH, Environmental Sciences and Engineering, 2013; Primary advisor: Dr. Mark D. Sobsey) *“Copper and Zinc Nanoparticles as Microbial Disinfectants in Water”*
 9. Andrew Armstrong (MSEE, Environmental Sciences and Engineering, 2011; Primary advisor: Dr. Mark D. Sobsey) *“Characterization of Ionic Copper for Disinfection of Stored Drinking Water”*
 10. 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”*
 11. 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)”*
 12. Mitchell Dyrdaahl (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”*
 13. 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 By Product Formation”*

CONTRACTS AND GRANTS

Current Support

Project title: Optimization of the concentration battery

Funding Agency: UNC Collaboratory

Role: Principal Investigator

Amount: \$54,825 (direct)

Project period: 05/01/2018 to 12/31/2019

Project title: Development of osmotic ballasts to enable saltwater-based energy storage

Funding Agency: Gillings Innovations Labs, UNC Gillings School of Global Public Health

Role: Principal Investigator (Dr. Wei You from UNC Chemistry as co-PI)

Amount: \$146,200 (direct)

Project period: 09/01/2017 to 08/31/2019

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 PI Coronell)

Completed Support

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: Evaluation of new MIEX resin and removal of dissolved organic nitrogen (DON) by MIEX

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)

PROFESSIONAL SERVICE

Membership in Editorial Boards

- International Editorial Board of *npj Clean Water*, a Nature partner journal (2016-Present)

International Level Service (other than peer reviewing)

- 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 Service (other than peer reviewing)

Ad hoc Technical Consultations

- 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 Service

- Chaired the session “Membranes for Water Treatment and Desalination I” in the 2015 North American Membrane Society 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 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)
- Moderated the session “Ecosystem Protection and Drinking Water Safety” in the 2012 UNC Water and Health Conference: Science, Policy and Innovation, Chapel Hill, NC. (2012)

University Level Service

- Member of the Search Committee for three Junior Faculty Members for the Department of Applied Physical Sciences (2017-present)
- 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 the Search Committee for Director of the Water Institute (2018-present)
- Member of the Academic Programs Committee (2018-present)
- Member of the Space Committee (2011-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 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)

Peer Reviewer

- National Science Foundation (NSF):
 - Environmental Engineering Program
 - Chemical and Biological Separations Program
 - Historically Black Colleges and Universities Undergraduate Program
 - Engineering Research Centers Program
 - Experimental Program to Stimulate Competitive Research (EPSCoR)
- American Association for the Advancement of Science (AAAS)
- Swiss Federal Institute of Technology Zurich (ETH Zurich), Switzerland
- Water Resources Research Institute (WRRI) of North Carolina
- North American Membrane Society (NAMS)
- Wiley-VCH (Encyclopedia of Membrane Science and Technology)
- Journals: Science, Science Advances, Nature Nanotechnology, Journal of the American Chemical Society (JACS), ACS Applied Materials & Interfaces, Environmental Science and Technology (ES&T), Environmental Science and Technology Letters (ES&T Letters), Water Research, Journal of Membrane Science (JMS), Polymer, Desalination, Industrial & Engineering Chemistry Research (IECR), 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, 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)

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)

ACADEMIC AND PROFESSIONAL DEVELOPMENT

CFE = Center for Faculty Excellence at UNC-Chapel Hill

NAMS = North American Membrane Society

Research, Funding and Entrepreneurship Workshops Attended

- 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)
- Science and technology of forward osmosis, NAMS, June 2011 (1 day)
- Measurement methods for membranes, NAMS, June 2010 (1 day)

Teaching and Advising Workshops Attended

- 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)