GEOFFREY MATTHEW GEISE

Associate Professor, Department of Chemical Engineering, University of Virginia
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EDUCATION:

Ph.D.	Chemical Engineering, The University of Texas at Austin – Austin, Texas	*August 2012*
M.S.E.	Chemical Engineering, The University of Texas at Austin – Austin, Texas	*December 2010*
B.S.	Chemical Engineering (with High Distinction) The Pennsylvania State University – University Park, Pennsylvania	*May 2007*

APPOINTMENTS:

- **The University of Virginia** – Charlottesville, Virginia
  Associate Professor, Department of Chemical Engineering *August 2020 to Present*
  Associate Professor, Department of Materials Science & Engineering (by courtesy) *August 2020 to Present*
  Assistant Professor, Department of Chemical Engineering *August 2014 to August 2020*
- **The Pennsylvania State University** – University Park, Pennsylvania
  Postdoctoral Scholar, Materials Science and Engineering *September 2012 to May 2014*
  Research Advisors: Prof. Michael A. Hickner and Prof. Bruce E. Logan
- **The University of Texas at Austin** – Austin, Texas
  Graduate Research Assistant, Department of Chemical Engineering *August 2007 to August 2012*
  Thesis Advisors: Prof. Donald R. Paul and Prof. Benny D. Freeman

HONORS / AWARDS:

Robert A. Moore, Jr. Award in Chemical Engineering 2021
2020 Class of Influential Researchers (*Industrial & Engineering Chemistry Research*) 2020
Best *ES&T Letters* Paper for 2019 (https://doi.org/10.1021/acs.estlett.0c00347) 2020
Hartfield Excellence in Teaching Award (Jefferson Scholars Foundation) 2019
University of Virginia Student Council Teaching Award 2019
All-University Teaching Award from the University of Virginia 2019
Selected by the U.S. National Academy of Sciences as a Delegate for the 6th Arab-American Frontiers of Science, Engineering, and Medicine Symposium 2018
Robert A. Moore, Jr. Award in Chemical Engineering 2018
National Science Foundation Faculty Early Career Development Program (CAREER) Award 2018
University of Virginia SEAS Research Innovation Award 2018
ACS Excellence in Review Award (Industrial & Engineering Chemistry Research) 2018
University of Virginia SEAS Research Innovation Award 2017
Ralph E. Powe Junior Faculty Award 2016
Engineering Conferences International New Professor Travel Award 2016
North American Membrane Society (NAMS) Young Membrane Scientist Award 2015
Excellence in Diversity Fellowship (University of Virginia) 2014
First Prize Poster Presentation in the Penn State University Postdoc Research Exhibition 2013
The Pennsylvania State University Office of Postdoctoral Affairs Travel Award 2013
University of Texas Office of Graduate Studies Professional Development Award 2011
International Congress on Membranes & Membrane Processes (ICOM) Outstanding Oral Presentation Award 2011
North American Membrane Society (NAMS) Travel Award 2011
University of Texas Office of Graduate Studies Professional Development Award 2010
University of Texas Graduate Engineering Council Travel Grant 2010
University of Texas Graduate Fellowship in Engineering ..... 2007 – 2011

Selected to represent the Pennsylvania State University Class of 2007
B.S. Chemical Engineers as Student Marshall at Commencement 2007
Merck & Co. Inc. Student Fellowship 2006

PUBLICATIONS:

47. W.-A.S. Agata, J. Thompson, G.M. Geise, Layer-by-layer approach to enable polyamide formation on microporous supports for thin-film composite membranes, *Journal of Applied Polymer Science*, (2021) e51201.

46. K. Chang, H. Luo, S.M. Bannon, S.Y. Lin, W.-A.S. Agata, G.M. Geise, Methoxy groups increase water and decrease salt permeability properties of sulfonated polysulfone desalination membranes, *Journal of Membrane Science*, 630 (2021) 119298.

45. G.M. Geise, Why polyamide reverse-osmosis membranes work so well, *Science*, 371 (2021) 31-32.

44. K. Chang, H. Luo, G.M. Geise, Influence of salt concentration on hydrated polymer relative permittivity and state of water properties, *Macromolecules*, 54 (2021) 637-646.

43. L.U. Yoon, M.R. Alpert, H. Luo, M.I. Schapowal, E. Holmgren, G.M. Geise, C. Paolucci, J.J. Choi , The impact of cation and anion pairing in ionic salts on surface defect passivation in cesium lead bromide nanocrystals, *Journal of Materials Chemistry C*, 9 (2021) 991-999.

42. L. Huelsenbeck, H. Luo, P. Verma, J. Dane, R. Ho, E. Beyer, H. Hall, G.M. Geise, G. Giri, A generalized approach for rapid aqueous MOF synthesis by controlling solution pH, *Crystal Growth & Design*, 20 (2020) 6787-6795.

41. H. Luo, W.-A.S. Agata, G.M. Geise, Connecting the ion separation factor to the sorption and diffusion selectivity of ion exchange membranes, *Industrial & Engineering Chemistry Research*, 59 (2020) 14189-14206. **[Invited Special Issue Contribution]**

40. P.M. McCormack, H. Luo, G.M. Geise, G.M. Koenig Jr., Conductivity, permeability, and stability properties of chemically tailored poly(phenylene oxide) membranes for Li^+ conductive non-aqueous redox flow battery separators, *Journal of Power Sources*, 460 (2020) 228107. **[Invited Special Issue Contribution]**

39. Y. Ji, H. Luo, G.M. Geise, Effects of fixed charge group physicochemistry on anion exchange membrane permselectivity and ion transport, *Physical Chemistry Chemical Physics*, 22 (2020) 7283-7293.

38. G.M. Geise, Experimental characterization of polymeric membranes for selective ion transport, *Current Opinion in Chemical Engineering*, 28 (2020) 36-42. **[Invited Special Issue Contribution]**

37. G. Venugopalan, K. Chang, J.D. Nijoka, S. Livingston, G.M. Geise, C.G. Arges, Stable and highly conductive polycation-polybenzimidazole membrane blends for intermediate temperature polymer electrolyte membrane fuel cells, *ACS Applied Energy Materials*, 3 (2020) 573-585.

36. K. Chang, G.M. Geise, Dielectric permittivity properties of hydrated polymers: Measurement and connection to ion transport properties, *Industrial & Engineering Chemistry Research*, 59 (2020) 5205-5217. **[Invited Special Issue Contribution]**

35. Q. Zhang, Y.-X. Deng, H. Luo, C.-Y. Shi, G.M. Geise, B.L. Feringa, H. Tian, D.-H. Qu, Assembling a natural small molecule into a supramolecular network with high structural order and dynamic functions, *Journal of the American Chemical Society*, 141 (2019) 12804-12814. **[Selected for the Cover of the Issue]**

34. H. Luo, K. Chang, K. Bahati, G.M. Geise, Functional group configuration influences salt transport in desalination membrane materials, *Journal of Membrane Science*, 590 (2019) 117295.

33. H. Luo, K. Chang, K. Bahati, G.M. Geise, Engineering selective desalination membranes via molecular control of polymer functional groups, *Environmental Science & Technology Letters*, 6 (2019) 462-466. **[Selected as an ACS Editors' Choice® Article]**

32. C. Capparelli, C. Fernandez Pulido, R. Lopez-Hallman, G.M. Geise, M.A. Hickner, Anion exchange membranes with dynamic redox responsive properties, *ACS Applied Materials and Interfaces*, 11 (2019) 29187-29194.

31. K. Chang, H. Luo, G.M. Geise, Water content, relative permittivity, and ion sorption properties of polymers for membrane desalination, *Journal of Membrane Science*, 574 (2019) 24-32.

30. G.M. Geise, Desalination: Water for an increasingly thirsty world, *EuropeNow* (Dec. 11, 2018).

29. K. Chang, A. Korovich, T. Xue, W.A. Morris, L.A. Madsen, G.M. Geise, Influence of rubbery versus glassy backbone dynamics on multiscale transport in polymer membranes, *Macromolecules*, 51 (2018) 9222-9233.

28. Y. Ji, H. Luo, G.M. Geise, Specific co-ion sorption and diffusion properties influence membrane permselectivity, *Journal of Membrane Science*, 563 (2018) 492-504.

27. K. Chang, T. Xue, G.M. Geise, Increasing salt size selectivity in low water content polymers via polymer backbone dynamics, *Journal of Membrane Science*, 552 (2018) 43-50.

26. H. Luo, J. Aboki, Y. Ji, R. Guo, G.M. Geise, Water and salt transport properties of triptycene-containing sulfonated polysulfone materials for desalination membrane applications, *ACS Applied Materials and Interfaces*, 10 (2018) 4102-4112.

25. Y. Ji, G.M. Geise, The role of experimental factors in membrane permselectivity measurements, *Industrial & Engineering Chemistry Research*, 56 (2017) 7559-7566.

24. H. Zhang, G.M. Geise, Modeling the water permeability and water/salt selectivity tradeoff in polymer membranes, *Journal of Membrane Science*, 520 (2016) 790-800.

23. C. Nam, T.J. Zimudzi, G.M. Geise, M.A. Hickner, Increased hydrogel swelling induced by absorption of small molecules, *ACS Applied Materials & Interfaces*, 8 (2016) 14263-14270.

22. L. Ni, J. Meng, G.M. Geise, Y. Zhang, J. Zhou, Water and salt transport properties of zwitterionic polymer films, *Journal of Membrane Science*, 491 (2015) 73-81.

21. M.J. Wallack, G.M. Geise, M.C. Hatzell, M.A. Hickner, B.E. Logan, Reducing nitrogen crossover in microbial reverse-electrodialysis cells by using adjacent anion exchange membranes and anion exchange resin, *Environmental Science: Water Research & Technology*, 1 (2015) 865-873.

20. G.M. Geise, H.J. Cassady, D.R. Paul, B.E. Logan, M.A. Hickner, Specific ion effects on membrane potential and the permselectivity of ion exchange membranes, *Physical Chemistry Chemical Physics*, 16 (2014) 21673-21681.

19. N.M. Vargas-Barbosa, G.M. Geise, M.A. Hickner, T.E. Mallouk, Assessing the utility of bipolar membranes for use in photoelectrochemical water-splitting cells, *ChemSusChem*, 7 (2014) 3017-3020.

18. J. Liu, G.M. Geise, X. Luo, H. Hou, F. Zhang, Y. Feng, M.A. Hickner, B.E. Logan, Patterned ion exchange membranes for improved power production in microbial reverse-electrodialysis cells, *Journal of Power Sources*, 271 (2014) 437-443.

17. G.M. Geise, A.J. Curtis, M.C. Hatzell, M.A. Hickner, B.E. Logan, Effect of salt concentration differences on membrane and reverse electrodialysis stack ionic resistances, *Environmental Science & Technology Letters*, 1 (2014) 36-39.

16. G.M. Geise, C.M. Doherty, A.J. Hill, B.D. Freeman, D.R. Paul, Free volume characterization of sulfonated styrenic pentablock copolymers using positron annihilation lifetime spectroscopy, *Journal of Membrane Science*, 453 (2014) 425-434.

15. G.M. Geise, B.D. Freeman, D.R. Paul, Fundamental water and salt transport properties of polymeric materials, *Progress in Polymer Science*, 39 (2014) 1-42.

14. G.M. Geise, M.A. Hickner, B.E. Logan, Ionic resistance and permselectivity tradeoffs in anion exchange membranes, *ACS Applied Materials & Interfaces*, 5 (2013) 10294-10301.

13. G.M. Geise, M.A. Hickner, B.E. Logan, Ammonium bicarbonate transport in anion exchange membranes for salinity gradient energy, *ACS Macro Letters*, 2 (2013) 814-817.

12. Y.–H. La, J. Diep, R. Al–Rasheed, D. Miller, L. Krupp, G.M. Geise, A. Vora, B. Davis, M. Nassar, B.D. Freeman, M. McNeil, G. Dubois, Enhanced desalination performance of polyamide bi-layer membranes prepared by sequential interfacial polymerization, *Journal of Membrane Science*, 437 (2013) 33-39.

11. G.M. Geise, C.L. Willis, C.M. Doherty, A.J. Hill, T.J. Bastow, J. Ford, K.I. Winey, B.D. Freeman, D.R. Paul, Characterization of aluminum-neutralized sulfonated styrenic pentablock copolymer films, *Industrial & Engineering Chemistry Research*, 52(3) (2013) 1056-1068.

10. G.M. Geise, B.D. Freeman, D.R. Paul, Sodium chloride diffusion in sulfonated polymers for membrane applications, *Journal of Membrane Science*, 427 (2013) 186-196.

9. G.M. Geise, L.P. Falcon, B.D. Freeman, D.R. Paul, Sodium chloride sorption in sulfonated polymers for membrane applications, *Journal of Membrane Science*, 423-424 (2012) 195-208.

8. W. Xie, G.M. Geise, B.D. Freeman, H.-S. Lee, G. Byun, J.E. McGrath, Polyamide interfacial composite membranes prepared from *m*-phenylene diamine, trimesoyl chloride and a new disulfonated diamine, *Journal of Membrane Science*, 403-404 (2012) 152-161.

7. W. Xie, G.M. Geise, B.D. Freeman, C.H. Lee, J.E. McGrath, Influence of processing history on water and salt transport properties of films prepared from disulfonated polysulfone random copolymers, *Polymer*, 53 (2012) 1581-1592.

6. G.M. Geise, B.D. Freeman, D.R. Paul, Comparison of the permeation of $MgCl_2$ vs. NaCl in highly-charged sulfonated polymer membranes, In: Modern Applications in Membrane Science and Technology, I. C. Escobar, B. Van der Bruggen, Eds. American Chemical Society: Washington, D.C., (2011) 239-245.

5. W. Xie, H. Ju, G. Geise, B. Freeman, J. Mardel, A. Hill, J. McGrath, Effect of free volume on water and salt transport properties in directly copolymerized disulfonated poly(arylene ether sulfone) random copolymers, *Macromolecules*, 44 (2011) 4428-4438.

4. G.M. Geise, H.B. Park, A.C. Sagle, B.D. Freeman, J.E. McGrath, Water permeability and water/salt selectivity tradeoff in polymers for desalination, *Journal of Membrane Science*, 369 (2011) 130-138.

3. C.H. Lee, D. Van Houten, O. Lane, J.E. McGrath, J. Hou, L.A. Madsen, J. Spano, S. Wi, J. Cook, W. Xie, H.J. Oh, G.M. Geise, B.D. Freeman, Disulfonated poly(arylene ether sulfone) random copolymer blends tuned for rapid water permeation via cation complexation with poly(ethylene glycol) oligomers, *Chemistry of Materials*, 23 (2011) 1039-1049.

2. G.M. Geise, B.D. Freeman, D.R. Paul, Characterization of a novel sulfonated pentablock copolymer for desalination applications, *Polymer*, 51 (2010) 5815-5822.

1. G.M. Geise, H.–S. Lee, D.J. Miller, B.D. Freeman, J.E. McGrath, D.R. Paul, Water purification by membranes: The role of polymer science, *Journal of Polymer Science Part B: Polymer Physics*, 48 (2010) 1685-1718. **[Selected for the Cover of the Issue]**

INVITED LECTURES:

24. G.M. Geise, "Engineering ion transport in polymer membranes for water purification and energy applications" *Department of Materials Science & Engineering, University of Virginia* (Charlottesville, VA), September 21, 2020.

23. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Department of Chemical Engineering, University of Virginia* (Charlottesville, VA), July 15, 2020.

22. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Joint Center for Artificial Photosynthesis (JCAP) Polymers Group, Lawrence Berkeley National Laboratory* (Berkeley, CA), July 8, 2020.

21. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Departments of Chemical Engineering and Earth and Environmental Engineering, Columbia University* (New York, NY), February 28, 2020.

20. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Department of Chemical & Biomolecular Engineering, University of Connecticut* (Storrs, CT), November 21, 2019.

19. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Department of Chemical and Biological Engineering, University at Buffalo* (Buffalo, NY), October 9, 2019.

18. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Ralph E. Martin Department of Chemical Engineering, University of Arkansas* (Fayetteville, AR), September 12, 2019.

17. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Department of Chemical and Biomolecular Engineering, University of Notre Dame* (South Bend, IN), April 9, 2019.

16. G.M. Geise, "Structure/property relationships in polymers for membrane applications" *DOW Water & Process Solutions* (Edina, MN), August 10, 2018.

15. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Don Paul 50 Years Symposium, University of Texas at Austin* (Austin, TX), October 13, 2017.

14. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Department of Chemical & Biological Engineering, Colorado School of Mines* (Golden, CO), September 29, 2017.

13. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Department of Chemical & Biomolecular Engineering, Clemson University* (Clemson, SC), March 2, 2017.

12. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Materials Science & Engineering Division, National Institute of Standards and Technology* (Gaithersburg, MD), September 23, 2016.

11. G.M. Geise, "Structure/property relationships in polymer membranes for water purification and energy applications" *Center for Nanophase Materials Sciences (CNMS) at Oak Ridge National Laboratory* (Oak Ridge, TN), January 14, 2016.

10. G.M. Geise, "Grand challenges for fresh water availability and emerging polymer membrane technologies for water purification and energy" *National Science Foundation Workshop: FEWS: Food-Energy-Water Systems Challenging Chemists in the 21st Century* (Arlington, VA), October 15, 2015.

9. G.M. Geise, "Structure/property relationships in polymer membranes for water and energy" *Virginia Commonwealth University, Department of Chemical and Life Science Engineering* (Richmond, VA), February 11, 2015.

8. G.M. Geise, B.D. Freeman, D.R. Paul, "Structure/Property relationships in polymer membranes for water purification and power generation" *The Pennsylvania State University, Department of Materials Science & Engineering* (University Park, PA), February 28, 2012.

7. G.M. Geise, J.E. McGrath, B.D. Freeman, D.R. Paul, "Fundamental salt sorption and permeability properties of polymeric membrane materials" *DOW Water & Process Solutions* (Edina, MN), October 18, 2011.

6. G.M. Geise, B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for desalination applications" *Université Paul Cézanne* (Aix-en-Provence, France), May 7, 2010.

5. G.M. Geise, B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for desalination applications" *Université Paul Sabatier* (Toulouse, France), May 5, 2010.

4. G.M. Geise, B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for desalination applications" *The University of Melbourne Department of Chemical Engineering* (Melbourne, VIC Australia), March 11, 2010.

3. G.M. Geise, B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for desalination applications" *Victoria University* (Werribee, VIC Australia), March 4, 2010.

2. G.M. Geise, B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes" *The University of New South Wales* (Sydney, NSW Australia), February 16, 2010.

1. G.M. Geise, B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes" *Commonwealth Scientific and Industrial Research Organisation – CSIRO* (Clayton, VIC Australia), January 29, 2010.

PRESENTATIONS:

72. L. Huelsenbeck (Presenting), H. Luo, P. Verma, J. Dane, R. Ho, E. Beyer, H. Hall, G.M. Geise, Gaurav Giri, "Generalized approach for rapid aqueous MOF synthesis by controlling solution pH" (Oral Presentation) *AIChE Fall National Meeting* (Virtual), November 17, 2020.

71. P.M. McCormack, H. Luo, G.M. Koenig Jr., G.M. Geise (Presenting), "Selective ion conducting membranes for non-aqueous redox flow battery applications" (Oral Presentation) *North American Membrane Society (NAMS) Meeting* (Virtual), May 21, 2020.

70. H. Luo (Presenting), K. Chang, K. Bahati, G.M. Geise, "Engineering selective desalination membranes by controlling functional group configuration" (Oral Presentation) *North American Membrane Society (NAMS) Meeting* (Virtual), May 21, 2020.
[Invited Contribution – NAMS Student Fellowship Award (H. Luo)]

69. Y. Ji, H. Luo, K. Chang, G.M. Geise (Presenting), "Controlling water and ion transport in hydrated polymer membranes via chemical functionality" (Oral Presentation) *2019 MRS® Fall Meeting & Exhibit* (Boston, MA), December 4, 2019. **[Invited Contribution]**

68. Y. Ji, H. Luo, K. Chang, G.M. Geise (Presenting), "Controlling water and ion transport in hydrated polymer membranes via chemical functionality" (Oral Presentation) *ACS Fall National Meeting & Exposition* (San Diego, CA), August 28, 2019. **[Invited Contribution]**

67. H. Luo, K. Chang, T. Xue, W.A. Morris, G.M. Geise (Presenting), "Structure/property relationships in polymers for membrane applications" (Oral Presentation) *Tech Connect World* (Boston, MA), June 19, 2019. **[Invited Contribution]**

66. K. Chang (Presenting), H. Luo, G.M. Geise, "Relative permittivity properties of hydrated polymer membranes for desalination applications" (Poster Presentation) *North American Membrane Society (NAMS) Meeting* (Pittsburgh, PA), May 13, 2019.

65. G.M. Geise (Presenting), "Ion transport in charged polymers for electromembrane applications" (Oral Presentation) *ACS Spring National Meeting & Exposition* (Orlando, FL), April 4, 2019.

64. P. McCormack (Presenting), G. Koenig, G. Geise, "Poly(phenylene oxide) based ion conducting polymers for electrochemical applications" (Oral Presentation) *ACS Spring National Meeting & Exposition* (Orlando, FL), April 4, 2019.

63. G.M. Geise (Presenting), "Influence of relative permittivity properties on ion transport in hydrated polymer membranes" (Oral Presentation) *ACS Spring 2019 National Meeting & Exposition* (Orlando, FL), April 3, 2019.

62. Y. Ji, H. Luo, K. Chang, G.M. Geise (Presenting), "Ion transport in and permittivity properties of hydrated polymer membranes" (Oral Presentation) *Polymers for Fuel Cells, Energy Storage, and Conversion* (Pacific Grove, CA), February 26, 2019. **[Invited Contribution]**

61. G.M. Geise (Presenting), "Engineering advanced water purification membranes using fundamental structure/property relationships" (Poster Presentation) *6th Arab-American Frontiers of Science, Engineering, and Medicine Symposium* (Kuwait City, Kuwait), November 4, 2018. **[Invited Contribution]**

60. Y. Ji (Presenting), H. Luo, G.M. Geise, "Ion specific effects in charged polymers for membrane applications" (Oral Presentation) *AIChE Fall National Meeting* (Pittsburgh, PA), November 1, 2018.

59. K.C. Chang (Presenting), A. Korovich, W.A. Morris, T. Xue, L.A. Madsen, B. Frieberg, C.M. Stafford, G.M. Geise, "Influence of polymer backbone rigidity on the water and ion transport properties of low water content membrane polymers" (Oral Presentation) *AIChE Fall National Meeting* (Pittsburgh, PA), October 30, 2018.

58. G.M. Geise (Presenting), K.C. Chang, H. Luo, "Relative permittivity properties of hydrated polymers for desalination membrane applications" (Poster Presentation) *10th Conference on Broadband Dielectric Spectroscopy and its Applications* (Brussels, Belgium), August 29, 2018.

57. Y. Ji, H. Luo, G.M. Geise (Presenting), "Ion specific effects in charged polymers for electromembrane applications" (Oral Presentation) *North American Membrane Society (NAMS) National Meeting* (Lexington, KY), June 13, 2018.

56. H. Luo, K. Chang, Y. Ji, T. Xue, W.A. Morris, G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Oral Presentation) *North American Membrane Society (NAMS) National Meeting* (Lexington, KY), June 11, 2018.

55. K. Chang, T. Xue, W.A. Morris, G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Oral Presentation) *255th ACS National Meeting* (New Orleans, LA), March 20, 2018. **[Invited Contribution]**

54. A. Korovich (Presenting), K. Chang, T. Xue, W.A. Morris, L.A. Madsen, G.M. Geise, "Investigating multi-scale transport in random copolymer membranes for use in molecular separations" (Oral Presentation) *255th ACS National Meeting* (New Orleans, LA), March 18, 2018.

53. L.A. Madsen (Presenting), A. Korovich, L.M. Thieu, L. Zhu, K. Chang, G.M. Geise, M.A. Hickner, "Measuring multi-scale tortuosity in polymer membranes" (Oral Presentation) *255th ACS National Meeting* (New Orleans, LA), March 18, 2018.

52. Y. Ji, H. Luo, G.M. Geise (Presenting), "Ion specific effects in charged polymers for membrane applications" (Oral Presentation) *255th ACS National Meeting* (New Orleans, LA), March 18, 2018. **[Invited Contribution]**

51. G.M. Geise (Presenting), "Ion specific effects in charged polymer membranes for water purification and energy applications" (Oral Presentation) *AIChE Fall National Meeting* (Minneapolis, MN), October 31, 2017.

50. G.M. Geise (Presenting), "Ion specific effects in charged polymers for membrane applications" (Oral Presentation) *International Congress on Membranes and Membrane Processes (ICOM)* (San Francisco, CA), August 3, 2017.

49. G.M. Geise (Presenting) and Y. Ji, "Ion specific effects in charged polymer membranes for water purification and energy applications" (Oral Presentation) *American Physical Society (APS) March Meeting* (New Orleans, LA), March 6, 2017.

48. G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Oral Presentation) *AIChE Fall National Meeting* (San Francisco, CA), November 16, 2016.

47. H. Zhang, T. Xue, G.M. Geise (Presenting), "Influence of polymer backbone rigidity on water and salt transport properties of low water content membrane polymers for desalination" (Oral Presentation) *Engineering Conferences International: Advanced Membrane Technology VII* (Cork, Ireland), September 14, 2016.

46. Y. Ji (Presenting), G.M. Geise, "Specific ion effects in charged polymer membranes" (Oral Presentation) *252nd ACS National Meeting* (Philadelphia, PA), August 24, 2016.

45. G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Poster Presentation) *Gordon Research Conference on Membranes: Materials and Processes* (New London, NH), August 1-2, 2016.

44. G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Poster Presentation) *Gordon Research Conference on Polymer Physics* (South Hadley, MA), July 27-28, 2016.

43. Y. Ji, T. Xue, A.M. Biedermann, G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Oral Presentation) *American Physical Society (APS) March Meeting* (Baltimore, MD), March 17, 2016. **[Invited Contribution]**

42. G.M. Geise (Presenting), "Ion transport structure/property relationships in charged polymer membranes" (Oral Presentation) *Pacifichem 2015* (Honolulu, HI), December 18, 2015. **[Invited Contribution]**

41. T. Xue, G.M. Geise (Presenting), "Water/salt selectivity properties of hydrophilic polymer membranes" (Oral Presentation) *Pacific Polymer Conference 14* (Koloa, HI), December 10, 2015. **[Invited Contribution]**

40. G.M. Geise (Presenting), "Ion transport structure/property relationships in charged polymer membranes" (Oral Presentation) *AIChE Fall National Meeting* (Salt Lake City, UT), November 10, 2015.

39. G.M. Geise (Presenting), "Ion Sorption And Transport in Charged Polymers for Membrane Applications" (Oral Presentation) *North American Membrane Society (NAMS) National Meeting* (Boston, MA), June 3, 2015. **[Invited Contribution]**

38. G.M. Geise (Presenting), "Material Properties of Chlorine Tolerant Sulfonated Polysulfone for Water Purification Applications" (Oral Presentation) *North American Membrane Society (NAMS) National Meeting* (Boston, MA), June 2, 2015. **[Invited Contribution]**

37. G.M. Geise (Presenting), "Ion Sorption And Transport in Charged Polymers for Membrane Applications" (Oral Presentation) *Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification* (Pacific Grove, CA), February 16, 2015. **[Invited Contribution]**

36. G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water and energy" (Oral Presentation) *Macromex 2014* (Nuevo Vallarta, Mexico), December 6, 2014. **[Invited Contribution]**

35. G.M. Geise (Presenting), "Structure/property relationships in polymer membranes for water purification and energy applications" (Oral Presentation) *AIChE Fall National Meeting* (Atlanta, GA), November 18, 2014.

34. G.M. Geise (Presenting), H.J. Cassady, M.A. Hickner, B.E. Logan, "Ionic resistance and permselectivity of ion exchange membranes" (Poster Presentation) *North American Meeting of the International Society for Microbial Electrochemistry and Technology, NA-ISMET* (University Park, PA), May 14, 2014.

33. G.M. Geise (Presenting), M.A. Hickner, B.E. Logan, "Ion transport in anion exchange membranes for water purification and power generation applications" (Oral Presentation) *AIChE Fall National Meeting* (San Francisco, CA), November 8, 2013.

32. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Salt transport structure/property relationships in polymer membranes for water purification and power generation" (Oral Presentation) *AIChE Fall National Meeting* (San Francisco, CA), November 4, 2013. **[Invited Contribution]**

31. G.M. Geise (Presenting) "Structure/Property relationships in polymer membranes for water purification and energy applications" (Poster Presentation) *AIChE Fall National Meeting* (San Francisco, CA), November 3, 2013.

30. G.M. Geise (Presenting), B.E. Logan, M.A.Hickner, "Ion transport in anion exchange membranes for power generation applications" (Poster Presentation) *Penn State Postdoc Research Exhibition* (University Park, PA), September 13, 2013.

29. G.M. Geise (Presenting), B.E. Logan, M.A.Hickner, "Ion transport in anion exchange membranes for power generation applications" (Poster Presentation) *Gordon Research Conference on Polymers* (South Hadley, MA), June 13, 2013.

28. G.M. Geise (Presenting), C.L. Willis, C.M. Doherty, A.J. Hill, T.J. Bastow, J. Ford, K.I. Winey, B.D. Freeman, D.R. Paul, "Characterization of aluminum-neutralized sulfonated styrenic pentablock copolymer films" (Oral Presentation) *AIChE Fall National Meeting* (Pittsburgh, PA), October 31, 2012.

27. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Diffusive water transport: Relating hydraulic permeability to the apparent water diffusion coefficient in water-swollen polymers" (Oral Presentation) *AIChE Fall National Meeting* (Pittsburgh, PA), October 30, 2012.

26. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Salt transport structure/property relationships and modeling in polymer membranes for water purification and power generation" (Oral Presentation) *AIChE Fall National Meeting* (Pittsburgh, PA), October 30, 2012.

25. G.M. Geise (Presenting) "Structure/property relationships in polymer membranes for water purification and power generation" (Poster Presentation) *AIChE Fall National Meeting* (Pittsburgh, PA), October 28, 2012.

24. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Structure/property relationships in polymer membranes for water purification and power generation" (Oral Presentation) *244th ACS National Meeting* (Philadelphia, PA), August 19, 2012. **[Invited Contribution]**

23. G.M. Geise (Presenting), J.E. McGrath, B.D. Freeman, D.R. Paul, "Fundamental salt sorption and permeability properties of polymeric membrane materials" (Oral Presentation) *AIChE Fall National Meeting* (Minneapolis, MN), October 18, 2011.

22. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Salt transport characteristics of a sulfonated styrenic pentablock copolymer for desalination applications" (Oral Presentation) *The International Congress on Membranes and Membrane Processes - ICOM* (Amsterdam, The Netherlands), July 28, 2011.

21. G.M. Geise (Presenting), H. Ju, W. Xie, A.C. Sagle, C.M. Doherty, J.I. Mardel, A.J. Hill, J.E. McGrath, B.D. Freeman, D.R. Paul, "Positron annihilation lifetime spectroscopy (PALS) characterization of polymeric membrane materials for desalination applications" (Oral Presentation) *The International Congress on Membranes and Membrane Processes - ICOM* (Amsterdam, The Netherlands), July 27, 2011.

20. C.H. Lee, K. Lee, B. Sundell, O. Lane, J. Cook, W. Xie, G. Geise, B.D. Freeman, J.E. McGrath (Presenting), "Crosslinkable chlorine resistant membranes for reverse and forward osmosis (RO,FO)" (Keynote Presentation) *The International Congress on Membranes and Membrane Processes - ICOM* (Amsterdam, The Netherlands), July 25, 2011. **[Invited Contribution]**

19. Y.–H. Na (Presenting), R. Sooriyakumaran, R.D. Allen, G. Geise, B. Freeman, "Enhanced RO performance of polyamide bi-layer membranes prepared by sequential interfacial polymerization" (Oral Presentation) *Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification* (Pacific Grove, CA), March 1, 2011.

18. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Characterization of novel sulfonated styrenic pentablock copolymer materials for desalination applications" (Poster Presentation) *Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification* (Pacific Grove, CA), February 28, 2011.

17. G.M. Geise (Presenting), H. Ju, W. Xie, A.C. Sagle, C.M. Doherty, J.I. Mardel, A.J. Hill, J.E. McGrath, B.D. Freeman, D.R. Paul, "Positron annihilation lifetime spectroscopy characterization of membrane polymers" (Oral Presentation) *The International Congress of Pacific Basin Societies – Pacifichem* (Honolulu, HI), December 18, 2010.

16. G.M. Geise (Presenting), L.K. Passaniti, J.E. McGrath, B.D. Freeman, D.R. Paul, "Understanding the ion sorption and salt transport differences between highly charged and less-highly charged membrane polymers" (Oral Presentation) *The International Congress of Pacific Basin Societies – Pacifichem* (Honolulu, HI), December 16, 2010.

15. G.M. Geise (Presenting), A.J. Hill, B.D. Freeman, D.R. Paul, "Fundamental water transport properties of a sulfonated styrenic pentablock copolymer" (Oral Presentation) *AIChE Fall National Meeting* (Salt Lake City, UT), November 11, 2010.

14. G.M. Geise (Presenting), L.K. Passaniti, J.E. McGrath, B.D. Freeman, D.R. Paul, "Characterization of individual cation and anion sorption related to salt transport in highly charged sulfonated polymers for desalination applications" (Oral Presentation) *AIChE Fall National Meeting* (Salt Lake City, UT), November 11, 2010.

13. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Understanding the effect of ion exchange on water and salt transport properties of a highly-charged sulfonated pentablock copolymer" (Oral Presentation) *240th ACS National Meeting* (Boston, MA), August 24, 2010. **[Invited Contribution]**

12. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and salt transport in a sulfonated pentablock copolymer for desalination applications" (Oral Presentation) *North American Membrane Society (NAMS) National Meeting* (Washington, DC), July 21, 2010.

11. G.M. Geise (Presenting), A.J. Hill, B.D. Freeman, D.R. Paul, "Water transport in a novel sulfonated pentablock copolymer analyzed using positron annihilation lifetime spectroscopy (PALS)" (Oral Presentation) *North American Membrane Society (NAMS) National Meeting* (Washington, DC), July 19, 2010.

10. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Characterization of novel sulfonated styrenic pentablock copolymer materials for desalination applications" (Poster Presentation) *North American Membrane Society (NAMS) National Meeting* (Washington, DC), July 19, 2010.

9. G.M. Geise (Presenting), J.E. McGrath, B.D. Freeman, D.R. Paul, "Water and salt transport in novel sulfonated polymer materials for desalination applications" (Oral Presentation) *Advances in Science and Engineering for Brackish Water and Seawater Desalination* (Cetraro, Italy), May 10, 2010. **[Invited Contribution]**

8. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Characterization of novel sulfonated styrenic pentablock copolymer materials for desalination applications" (Poster Presentation) *Advances in Science and Engineering for Brackish Water and Seawater Desalination* (Cetraro, Italy), May 9, 2010.

7. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and ion transport properties of Nexar™: A novel sulfonated pentablock copolymer for desalination applications" (Oral Presentation) *239th ACS National Meeting* (San Francisco, CA), March 21, 2010.

6. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and ion transport characterization of a novel sulfonated pentablock copolymer for desalination membrane applications" (Oral Presentation) *Membrane Society of Australasia Student Symposium* (Wollongong, Australia), February 19, 2010.

5. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and ion transport in a novel sulfonated pentablock copolymer" (Oral Presentation) *34th Annual Condensed Matter and Materials Meeting* (Auckland, New Zealand), February 4, 2010.

4. G.M. Geise (Presenting), L.K. Passaniti, J.E. McGrath, B.D. Freeman, D.R. Paul, "Ion transport through sulfonated polymer membranes for desalination applications" (Oral Presentation) *AIChE Fall National Meeting* (Nashville, TN), November 12, 2009.

3. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for desalination applications" (Oral Presentation) *238th ACS National Meeting* (Washington, DC), August 17, 2009. **[Invited Contribution]**

2. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for reverse osmosis applications" (Oral Presentation) *67th Annual Technical Conference – Society of Plastics Engineers* (Chicago, IL), June 22, 2009. **[Peer-Reviewed Conference Paper]**

1. G.M. Geise (Presenting), B.D. Freeman, D.R. Paul, "Water and ion transport through sulfonated styrenic pentablock copolymer membranes for reverse osmosis applications" (Poster Presentation) *Advances in Materials and Processes for Polymeric Membrane Mediated Water Purification* (Pacific Grove, CA), February 23, 2009.

PATENTS:

1. G.M. Koenig, G.M. Geise, P.M. McCormack, "Ion Selective Membranes for Organic Electrochemical Processes" *International Application No. PCT/US21/23280* Filed on March 25, 2021.

PROFESSIONAL ACTIVITIES:

Editorial Advisory Board Member, *Journal of Membrane Science Letters* (Elsevier) (2021 – present)

Editorial Advisory Board Member, *Polymer* (Elsevier) (2021 – present)

Chemical Engineering Undergraduate UVA Engineering (2018, 2020 – present)

Undergraduate Curriculum Committee, UVA Engineering (2018, 2020 – present)

Libraries Committee, University of Virginia (2019 – present)

Virginia Community College System – Chemical Engineering Transfer Student Working Group (2020 – present)

UVA Engineering Continuity of Operations Committee (2020 – 2021)

2015 & 2019 Co-Organizer and Session Chair for the Virginia Soft Matter Workshop
-A day-long meeting (funded by a 4-VA grant) of soft materials researchers from Virginia Tech, Virginia Commonwealth University, and James Madison University

Volunteer Pipeline Committee Member (2016 – 2019), American Chemical Society (ACS) Division of Polymeric Materials: Science and Engineering (PMSE)

Discussion Leader, 2018 Gordon Research Conference – Membranes: Materials and Processes

2018 Committee on Academic Standards, UVA School of Engineering and Applied Science

Guest Editor, Special Issue: *New Polymeric Materials and Characterization Methods for Water Purification*, Volume 103, 2016, Polymer (Elsevier)

2015-2016 Ignite Program at the University of Virginia

2015 Invited Participant and Speaker at the National Science Foundation workshop titled, "FEWS: Food-Energy-Water Systems Challenging Chemists in the 21st Century"

2015 Course Design Institute at the University of Virginia

2014-2016 Department of Chemical Engineering Safety Committee Co-Chair

2014 Excellence in Diversity Fellowship at the University of Virginia

2011 Graduates Linked with Undergraduates in Engineering (GLUE)
-Part of the Women in Engineering Program (WEP) at the University of Texas at Austin
-Volunteered as a graduate student mentor

2007-2009 ExploreUT Community Outreach Open House at the University of Texas at Austin
-Organized and volunteered for the 'Playing with Plastic!' exhibit in 2009
-Volunteered for the 'Playing with Plastic!' exhibit in 2007 and 2008

2008 International Congress on Membranes and Membrane Processes (ICOM)
Proceedings Committee Chairperson and Administrative Student Staff Member
-Coordinated the compilation, editing, and production of proceedings material
-Responsible for leading the proceedings committee that consisted of 7 graduate students
-Assisted with logistics for running the largest membrane science conference in the world

Research Mentor/Advisor
-Graduate student advisees (8): Wendy-Angela Saringi Agata, Sean Bannon, Kevin Chang (Ph.D., 2020), Hongxi Luo, Yuanyuan Ji (Ph.D., 2019 & M.S., 2017), Patrick M. McCormack (M.E., 2018), Tianyi Xue (M.S., 2016), and Huan Zhang (M.E., 2015)
-Post-doctoral scholar advisees (1): Dr. William A. Morris
-Mentored/Advised 26 undergraduate students as they completed individual research projects
-Hosted and mentored 3 visiting French engineering interns

North American Membrane Society (NAMS) – Member
American Chemical Society (ACS) – Member
American Institute of Chemical Engineers (AIChE) – Member
American Physical Society (APS) – Member
Materials Research Society (MRS) – Member

OTHER CERTIFICATIONS:

U.S. Federal Aviation Administration Private Pilot Certificate and Instrument Rating