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CURRICULUM VITAE

Present Position: H. Eugene McBrayer Professor of Chemical Engineering, Department of Chemical and Biomolecular Engineering, Vanderbilt University, Nashville, TN

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Peter Pintauro is the H. Eugene McBrayer Professor of Chemical Engineering in the Department of Chemical and Biomolecular Engineering at Vanderbilt University. He received B.S. and M.S. degrees in Chemical Engineering from the University of Pennsylvania and a Ph.D. from the University of California, Los Angeles. He joined the faculty of Tulane University in 1986, where he rose to the rank of Professor of Chemical Engineering in 1994. In July 2002, he moved to Case Western Reserve University, as Chair of the Department of Chemical Engineering, and was appointed Kent Hale Smith Professor of Engineering in October 2004. From 2008 until 2013, he was Department Chair at Vanderbilt. He is a Fellow of the Electrochemical Society, a Fellow of the American Institute of Chemical Engineers, and a past President of the North American Membrane Society. His research interests are in the areas of electrochemical engineering and membrane science. He is considered a world leader and pioneer in the use of nanofiber electrospinning for the fabrication of membranes and electrodes for fuel cells and batteries.

EDUCATION

B.S. University of Pennsylvania, Philadelphia, PA, Department of Chemical Engineering, 1973
M.S. University of Pennsylvania, Philadelphia, PA, Department of Chemical Engineering, 1975
Ph.D. University of California, Los Angeles, CA, Department of Chemical and Nuclear Engineering, 1980

PROFESSIONAL EXPERIENCE

2009	H. Eugene McBrayer Professor of Chemical Engineering, Department of Chemical and Biomolecular Engineering, Vanderbilt University, Nashville, TN
2008-2013	Professor and Chair, Department of Chemical and Biomolecular Engineering, Vanderbilt University, Nashville, TN
2004	Kent Hale Smith Professor of Engineering, Case Western Reserve University, Cleveland, OH
2002-2008	Professor and Chair, Department of Chemical Engineering, Case Western Reserve University, Cleveland, OH
1994	Professor, Department of Chemical Engineering, Tulane University, New Orleans, LA
1991	Associate Professor, Department of Chemical Engineering, Tulane University, New Orleans, LA
1986	Assistant Professor, Department of Chemical Engineering, Tulane University, New Orleans, LA.

1981	Postdoctoral Scholar and Staff Engineer (Research Assistant Professor), Department of Chemical Engineering, University of California, Los Angeles, CA.
1980	Assistant Professor, Chemical Engineering Department, Manhattan College, Bronx, NY

AWARDS

- Fuel Cell R&D Award, U. S. Department of Energy (2018)
- Fellow of the American Institute of Chemical Engineers (2014)
- Fellow of the Electrochemical Society (2010)
- Outstanding Researcher Award, School of Engineering, Tulane University (2001).

PUBLICATIONS (Google Scholar h-index: 51)
Refereed Journal Articles

1. P. N. Pintauro and D. N. Bennion, "Mass Transport of Electrolytes in Membranes. I. Development of a Mathematical Transport Model," *Industrial and Engineering Chemistry Fundamentals***, 23**, 230-234 (1984).

2. P. N. Pintauro and D. N. Bennion, "Mass Transport of Electrolytes in Membranes. II. Determination of NaCl Equilibrium and Transport Parameters for Nafion," *Industrial and Engineering Chemistry Fundamentals*, **23**, 234-243 (1984).

3. P. N. Pintauro, D. K. Johnson, K. Park, M. M. Baizer, and K. Nobe, "The Paired Electrochemical Synthesis of Sorbitol and Gluconic Acid in Undivided Flow Cells. I.," *Journal of Applied Electrochemistry*, **14**, 209-220 (1984).

4. K. Park, P. N. Pintauro, M. M. Baizer, and K. Nobe, "Flow Reactor Studies of the Paired Electro-oxidation and Electro-reduction of Glucose," *Journal of the Electrochemical Society*, **132**, 1850-1855 (1985).

5. P. N. Pintauro, "An Electrochemical Method for Determining Natural Convection Mass Transfer Boundary Layer Thicknesses," *International Journal of Heat and Mass Transfer*, **29**, 741-751 (1986).

6. K. Park, P. N. Pintauro, M. M. Baizer, and K. Nobe, "Current Efficiencies and Regeneration of Poisoned Raney Nickel Catalyst during the Electro-Hydrogenation of Glucose to Sorbitol," *Journal of Applied Electrochemistry*, **16**, 941-946 (1986).

7. V. Anantharaman, P. N. Pintauro, and L. Nanis, "Analysis of Convective Mass Transfer by Potential Relaxation. I. Steady-State Copper Deposition with Laminar Natural Convection Stirring," *Journal of the Electrochemical Society*, **136**, 1727-1733 (1989).

8. P. N. Pintauro and M. Verbrugge, "The Electric Potential Profile in Ion Exchange Membranes Pores," *Journal of Membrane Science*, **44**, 197-212 (1989).

9. S. Capeci, P. N. Pintauro, and D. N. Bennion, "The Molecular-Level Interpretation of Salt Solubility and Anion Transport in Nafion," *Journal of the Electrochemical Society*, **136**, 2876-2882 (1989).

10. M. Vohra and P. N. Pintauro, "Analysis of Convective Mass Transfer by Potential Relaxation. II. Transient Natural Convection Copper Deposition," *Journal of the Electrochemical Society*, **137**, 141-148 (1990).

11. V. Anantharaman and P. N. Pintauro, "Determination of Mass Transfer Boundary Layer Thicknesses by a Linear Overpotential Relaxation Technique," *Journal of the Electrochemical Society*, **137**, 1321-1322 (1990).

12. S. Roy and P. N. Pintauro, "Analysis of Convective Mass Transfer by Potential Relaxation. III. Active and Passive Copper Dissolution at a Copper Rotating Disk," *Journal of the Electrochemical Society*, **137**, 2502-2509 (1990).

13. A Guzman-Garcia, P. N. Pintauro, M. W. Verbrugge, and R. F. Hill, "Development of a Space-Charge Transport Model for Ion Exchange Membranes," *AIChE Journal*, **36**, 1061-1074 (1990).

14. Y. Song and P. N. Pintauro, "The Electrochemical Synthesis of Aminonitriles. I. H-Cell Studies with Adiponitrile and Azelanitrile," *Journal of Applied Electrochemistry*, **21**, 21-27 (1991).

15. T. S. Devarajan and P. N. Pintauro, "A Kinetic Study of the Base-Catalyzed Hydrolysis of Aminocapronitrile and Aminononanenitrile," *Industrial and Engineering Chemistry Research*, **29**, 581-585 (1991).

16. P. N. Pintauro and J. Bontha, "The Role of Supporting Electrolyte During the Electrocatalytic Hydrogenation of Aromatic Compounds," *Journal of Applied Electrochemistry*, **21**, 799-804 (1991).

17. A. Guzman-Garcia, P. N. Pintauro, M. W. Verbrugge, and E. Schneider, "Analysis of Radiation-Grafted Membranes for Fuel-Cell Applications," *Journal of Applied Electrochemistry*, **22**, 204-214 (1992).

18. P. N. Pintauro and S. Roy, "Analysis of Convective Mass Transfer by Potential Relaxation. IV. Active, Prepassive, and Transpassive Iron Dissolution at a Rotating Disk," *Journal of the Electrochemical Society*, **139**, 177-186 (1992).

19. G. Yusem and P. N. Pintauro, "The Electrocatalytic Hydrogenation of Soybean Oil," *Journal of the American Oil Chemists' Society*, **69**, 399-404 (1992).

20. J. Bontha and P. N. Pintauro, "Prediction of Ion Solvation Free Energies in a Polarizable Dielectric Continuum," *Journal of Physical Chemistry,* **96**, 7778-7782 (1992).

21. S. Roy and P. N. Pintauro, "Analysis of Mixed Natural and Forced Convection Copper Deposition below the Limiting Current," *Electrochimica Acta*, **38**, 1461-1470 (1993).

22. S. Roy and P. N. Pintauro, "Analysis of Convective Mass Transfer by Potential Relaxation. V. Copper Deposition in the Presence of Organic Plating Additives," *Journal of the Electrochemical Society*, **140**, 3167-3175 (1993).

23. K. Jian and P. N. Pintauro, "Integral Asymmetric Polyvinylidene Fluoride (PVDF) Pervaporation Membranes," *Journal of Membrane Science,* **85**, 301-309 (1993).

24. V. Anantharaman and P. N. Pintauro, "The Electrocatalytic Hydrogenation of Glucose I. Kinetics of Hydrogen Evolution and Glucose Hydrogenation on Raney Nickel Powder," *Journal of the Electrochemical Society*, **141**, 2729-2741 (1994).

25. V. Anantharaman and P. N. Pintauro, "The Electrocatalytic Hydrogenation of Glucose. II. Raney Nickel Powder Flow-Through Reactor Model," *Journal of the Electrochemical Society*, **141**, 2742-2752 (1994).

26. J. R. Bontha and P. N. Pintauro, "Water Orientation and Ion Solvation Effects During Multicomponent Salt Partitioning in a Nafion Cation Exchange Membrane," *Chemical Engineering Science*, **49**, 3835-3851 (1994).

27. P. N. Pintauro, R. Tandon, L. Chao, W. Xu, and R. Evilia, "Equilibrium Partitioning of Monovalent/Divalent Cation-Salt Mixtures in Nafion Cation-Exchange Membranes," *Journal of Physical Chemistry*, **99**, 12915-12924 (1995).

28. Y. Yang, J. Walz, and P. N. Pintauro, "Curvature Effects on Electric Double Layer Forces. I. Comparisons with Parallel Plate Geometry," *Journal of the Chemical Society, Faraday Transactions*, **91**, 2827-2836 (1995).

29. C. Williams, P. N. Pintauro, and R. Rando, "A Transient Model of Mass Transfer and Kinetics in a Passive Vapor Sampler," *American Industrial Hygiene Association Journal*, **56**, 1074-1082 (1995).

30. J. Hong and P. N. Pintauro, "Desorption-Complexation-Dissolution Characteristics of Adsorbed Cadmium From Kaolin By Chelators," *Water, Air, and Soil Pollution*, **86**, 35-50 (1996).

31. R. Wycisk, P. N. Pintauro, W. Wang, and S. O'Connor, "Polyphosphazene Membranes. I. Solid-State Photocrosslinking of Poly[(4-ethylphenoxy)(phenoxy)phosphazene]," *Journal of Applied Polymer Science*, **59**, 1607-1617 (1996).

32. J. Hong and P. N. Pintauro, "Selective Removal of Heavy Metals from Contaminated Kaolin by Chelators," *Water, Air and Soil Pollution*, **87**, 73-91 (1996).

33. G. Yusem, P. N. Pintauro, P.-C. Cheng, and W. An, "The Electrocatalytic Hydrogenation of Soybean Oil in a Radial-Flow-Through Raney Nickel Powder Reactor," *Journal of Applied Electrochemistry*, **26**, 989-997 (1996).

34. K. Jian, P. N. Pintauro, and R. Ponangi, "Separation of Dilute Organic/Water Mixtures with Asymmetric Poly(vinylidene fluoride) Membranes," *Journal of Membrane Science*, **117**, 117-133 (1996).

35. R. Ponangi and P. N. Pintauro, "Separation of Volatile Organic Compounds from Dry and Humidified Nitrogen Using Polyurethane Membranes," *Industrial and Engineering Chemistry Research*, **35**, 2756-2765 (1996).

36. R. Wycisk and P. N. Pintauro, "Sulfonated Polyphosphazene Ion-Exchange Membranes," *Journal of Membrane Science*, **119**, 155-160 (1996).

37. Y. Yang, J. Walz, and P. N. Pintauro, "Curvature Effects on Electric Double Layer Forces. II Dependence of Forces on the Dielectric Constant," *Journal of the Chemical Society, Faraday Transactions*, **93**, 603-611 (1997).

38. G. Yusem and P. N. Pintauro, "Computer-Aided Electrochemical Process Design: Simulation and Economic Analysis of an Electrocatalytic Soybean Oil Hydrogenation Plant," *Journal of Applied Electrochemistry*, **27**, 1157-1171 (1997).

39. K. Jian and P. N. Pintauro, "Asymmetric PVDF Hollow Fiber Membranes for Organic/Water Pervaporation Separations," *Journal of Membrane Science*, **135**, 41-53 (1997).

40. R. Tandon and P. N. Pintauro, "Divalent/Monovalent Cation Uptake Selectivity in a Nafion Cation-Exchange Membrane," *Journal of Membrane Science*, **136**, 207-219 (1997).

41. R. Graves and P. N. Pintauro, "Polyphosphazene Membranes. II. Photo-crosslinking of Poly[(alkylphenoxy)(phenoxy)phosphazene] Films," *Journal of Applied Polymer Science*, **68**, 827-836 (1998).

42. R. Ponangi and Peter N. Pintauro, "Measurement and Interpretation of Equilibrium Organic Vapor Sorption in Polyurethane Membranes," *Journal of Membrane Science*, **144**, 25-35 (1998).

43. Weidong An, Jin Ki Hong, Peter N. Pintauro, K. Warner, and W. Neff, "The Electrochemical Hydrogenation of Edible Oils in a Solid Polymer Electrolyte Reactor. I. Reactor Design and Operation," *Journal of the American Oil Chemists' Society*, **75**, 917-925 (1998).

44. Weidong An, Jin Ki Hong, and Peter N. Pintauro, "Current Efficiency for Soybean Oil Hydrogenation in a Solid Polymer Electrolyte Reactor," *Journal of Applied Electrochemistry*, **28**, 947-954 (1998).

45. Quinhui Guo, Peter N. Pintauro, Hao Tang, and Sally O'Connor, "Sulfonated and Crosslinked Polyphosphazene-Based Proton-Exchange Membranes," *Journal of Membrane Science,* **154**, 175-181 (1999).

46 Hao Tang, Peter N. Pintauro, Q. Guo, and S. O'Connor, "Polyphosphazene Membrane III. Solid-State Characterization and Properties of Sulfonated Poly[bis(3-methylphenoxy)phosphazene]," *Journal of Applied Polymer Science*, **71**, 387-399 (1999).

47. Weidong An, Jin-Ki Hong, P. N. Pintauro, K. Warner, and W. Neff, "The Electrochemical Hydrogenation of Edible Oils in a Solid Polymer Electrolyte Reactor. II. Hydrogenation Selectivity Studies," *Journal of the American Oil Chemists' Society*, **76**, 215-222 (1999).

48. Hao Tang and Peter N. Pintauro, "Crystal Structure and Thermal Transition Behavior of Poly[bis(phenoxy)phosphazene]," *European Polymer Journal,* **35**, 1023-1035 (1999).

49. X. Xiao, C. Moresoli, A. Burczyk, P. Pintauro, and D. De Kee, "Transport of Organic Contaminants in Geomembranes Under Stress," *Journal of Environmental Engineering,***125**, 647-652 (1999).

50. Y. Li, D. De Kee, C. F. Chan Man Fong, P. Pintauro, and A. Burczyk, "The Influence of External Stress on the Barrier Properties of Rubber," *Journal of Applied Polymer Science*, **74**, 1584-1595 (1999).

51. Leslie Jones, Peter N. Pintauro, and Hao Tang, "Coion Exclusion Properties of Polyphosphazene Cation-Exchange Membranes," *Journal of Membrane Science*, **162**, 135-143 (1999).

52. Y. Yang and P. N. Pintauro, "Multicomponent Space-Charge Transport Model for Ion-exchange Membranes," *AIChE Journal*, **46**, 1177-1190 (2000).

53. R. Ponangi, P.N. Pintauro, and D. De Kee, "Free Volume Analysis of Organic Vapor Diffusion in Polyurethane Membranes," *Journal of Membrane Science,* **178**, 151-164 (2000).

54. D. De Kee, G. Yuan, C. F. Chan Man Fong, P. Pintauro, J. Hinestroza, and A. Burczyk, "Effects of Temperature and Elongation on the Diffusion of Solvents Through Rubber Membranes," *Journal of Applied Polymer Science,* **78**, 1250-1255 (2000).

55. K. Warner, W. Neff, G. R. List, and Peter N. Pintauro, "Electrochemical Hydrogenation of Edible Oils in a Solid Polymer Electrolyte Reactor. Sensory and Compositional Characteristics of Low Trans Soybean Oils," *Journal of the American Oil Chemists' Society*, **77**, 1113-1117 (2000).

56. H. Tang and P. N. Pintauro, "Polyphosphazene Membranes. IV. Polymer Morphology and Proton Conductivity in Sulfonated Poly[bis(3-methylphenoxy)phosphazene]," *Journal of Applied Polymer Science*, **79**, 49-59 (2001).

57. R. Carter, R. Evilia, and P. N. Pintauro, "Tracer-Desorption H^1-NMR Method for Measuring Methanol Diffusion Coefficients in Polyphosphazene Ion-Exchange Membranes," *Journal of Physical Chemistry B*, **105**, 2351-2355 (2001).

58. J. Hinestroza, D. De Kee, and P. N. Pintauro, "Apparatus Studying the Effect of Mechanical Deformation on the Permeation of Organics Through Polymeric Films," *Industrial & Engineering Chemistry Research*, **40**, 2183-2187 (2001).

59. R. Carter, R. Wycisk, H. Yoo, and P. N. Pintauro, "Blended Polyphosphazene/Polyacrylonitrile Membranes for Direct Methanol Fuel Cells," *Electrochemical and Solid-State Letters*, A195-A197 (2002).

60. J. Palomo and P. N. Pintauro, "Competitive Absorption of Quaternary Ammonium and Alkali Metal Cations into a Nafion Cation-Exchange Membranes," *Journal of Membrane Science*, **215**, 102-114 (2003).

61. Y. Yang and P. N. Pintauro, “Multicomponent Space-Charge Transport Model for Ion-Exchange Membranes with Variable Pore Properties,“ *Industrial & Engineering Chemistry Research*, **43**, 2957-2965 (2004).

62. R. Wycisk, J.K. Lee and P.N. Pintauro, “Sulfonated Polyphosphazene-Polybenzimidazole Membranes for Direct Methanol Fuel Cells,” *Journal of the Electrochemical Society*, **152**, A892-A898 (2005).

63. P.N. Pintauro, Maria Paula Gil, K. Warner, G. List, and W. Neff, “Electrochemical Hydrogenation of Soybean Oil with Hydrogen Gas,**”** *Industrial & Engineering Chemistry Research*, **44**, 6188-6195 (2005).

64. J. Lin, J. K. Lee, M. Kellner, R. Wycisk, and P. N. Pintauro, “Nafion-Flourinated Ethylene-Propylene Resin Membrane Blends for Direct Methanol Fuel Cells,” *Journal of the Electrochemical Society*, **153**, A1325-A1331 (2006).

65. R. J. Wycisk, J. Chisholm, J. Lee, J. Lin, and P. N. Pintauro, “Direct Methanol Fuel Cell Membranes from Nafion-Polybenzimidazole Blends,” *Journal of Power Sources*, **163**, 9-17 (2006).

66. J. Lin, R. Wycisk, P. N. Pintauro, and M. Kellner, “Stretched Recast Nafion for Direct Methanol Fuel Cells,” *Electrochemical and Solid State Letters*, **10**, B19-B22 (2007).

67. G. R. List, K. Warner, P. Pintauro, and M. Gil, “Low-trans Shortening and Spread Fats Produced by Electrochemical Hydrogenation,” *Journal of the American Oil Chemists’ Society*, **84**, 497-501 (2007).

68. Tim Malewitz and Peter N. Pintauro, “Multicomponent Absorption of Anions in Commercial Anion-Exchange Membranes,” *Journal of Membrane Science*, **30**1, 71-179 (2007).

69. J. Lin, P.-H.Wu, R.Wycisk, A. Trivisonno, Peter N. Pintauro, “Direct Methanol Fuel Cell Operation with Pre-stretched Recast Nafion,” *Journal of Power Sources*, **183**, 491–497 (2008).

70. J. Lin, P.-H. Wu, R. Wycisk, P. N. Pintauro, and Z. Shi. “Properties of Water in Pre-Stretched Nafion,” *Macromolecules*, **41**, 4284-4289 (2008).

71. J. Choi, K. M. Lee, R. Wycisk, P. N. Pintauro, and P. T. Mather, “Nanofiber Network Ion-Exchange Membranes,” *Macromolecules*, **41**, 4569-4572 (2008).

72. J. G. Muldoon, P. N. Pintauro, R. J.Wysick, J. Lin, C. Orme, F. F. Stewart, “Synthesis, Characterization, and Gas Permeability of a Series of 4-Phenylphenoxy/Phenoxy Substituted Polyphosphazene Membranes,” *Journal of Membrane Science*, **334**, 74-82 (2009).

73. R. Tandon and P.N. Pintauro, “Solvent Effects During Multicomponent Ion Uptake into a Nafion Cation-Exchange Membrane,” *Journal of Membrane Science*, **341**, 21-29 (2009).

74. J. Muldoon, J. Lin, R. Wycisk, N. Takeuchi, H. Hamaguchi, T. Saito, K. Hase, F. F. Stewart, and P. N. Pintauro, “High Performance Fuel Cell Operation with a Non-fluorinated Polyphosphazene Electrode Binder”, *Fuel Cells*, **9**, 518-521 (2009).

75. J. P. Mazzoccoli, D. L. Feke, H. Baskaran, P. N. Pintauro, "Mechanical and Cell Viability Properties of Crosslinked Low- and High-Molecular Weight Poly(Ethylene Glycol) Diacrylate Blends," *Journal of Biomedical Materials Research Part A,* **93A**, 558-566 (2010).

76. J. P. Mazzoccoli, D. L. Feke, H. Baskaran, P. N. Pintauro, "Development of Multi-Layered Cell-Hydrogel Composites Using an Acoustic Focusing Technique", *Biotechnology Progress*, **26**, 600-605 (2010).

77. J. Choi, K. M. Lee, R.Wycisk, P. N. Pintauro, and P. T. Mather, "Sulfonated Polysulfone/POSS Nanofiber Composite Membranes for PEM Fuel Cells", *Journal of the Electrochemical Society*, **157,** B914-B919 (2010).

78. J. Choi, K.M. Lee, R. Wycisk, P.N. Pintauro and P. T. Mather, "Nanofiber Composite Membranes With Low Equivalent Weight Perfluorosulfonic Acid Polymers", *Journal of Materials Chemistry*, **20**, 6282-6290 (2010).

79. J. Choi, W. Zhang, R. Wycisk, P. N. Pintauro, K. M. Lee and P. T. Mather, "High Conductivity Perfluorosulfonic Acid Nanofiber Composite Fuel Cell Membranes", *ChemSusChem,* **3,** 1245-1248 (2010).

80. J. B. Ballengee and P. N. Pintauro, "Morphological Control of Electrospun Nafion Nanofiber Mats". *Journal of the Electrochemical Society,* **158**, B568-B572 (2011).

81. J. B. Ballengee and P. N. Pintauro, "Composite Fuel Cell Membranes from Dual-Nanofiber Electrospun Mats", *Macromolecules*, **44**, 7307-7314 (2011).

82. K. M. Lee, R. Wycisk, M. Litt, and P. N. Pintauro, "Alkaline Fuel Cell Membranes from Xylylene Block Ionenes", *Journal of Membrane Science*, **383**, 254-261 (2011).

83. W. Zhang and P. N. Pintauro, "High Performance Nanofiber Fuel Cell Electrodes", *ChemSusChem*, **4**, 1753-1757 (2011).

84. A. M Park and P. N. Pintauro, "Alkaline Fuel Cell Membranes from Electrospun Fiber Mats", *Electrochemical and Solid-State Letters*, **15**, B27-B30 (2012).

85. S. W Crowder, Y. Liang, R. Rath, A. M. Park, S. Maltais, P. N. Pintauro, W. Hofmeister, C. C. Lim, X. Wang, and H.-J. Sung, "Poly(e-caprolactone)-carbon nanotube composite scaffolds for enhanced cardiac differentiation of human mesenchymal stem cells", *Nanomedicine*, **8**, 1763-1776 (2013).

86. J. Ballengee and P. N. Pintauro, "Preparation of Nanofiber Composite Proton-Exchange Membranes from Dual Fiber Electrospun Mats", *Journal of Membrane Science,* **442** 187-195 (2013).

87. J. B. Ballengee, G.M. Haugen, S.J. Hamrock, and P. N. Pintauro, "Properties and Fuel Cell Performance of a Nanofiber Composite Membrane with 660 Equivalent Weight Perfluorosulfonic Acid", *Journal of the Electrochemical Society*, **160,** F429-F435 (2013).

88. M. Brodt, R. Wycisk, and P. N. Pintauro, “Nanofiber Electrodes with Low Platinum Loading for High Power Hydrogen/Air PEM Fuel Cells”, *Journal of the Electrochemical Society*, **160**, F744-F749 (2013).

89. R. Wycisk, D. Barpaga, S. Pintauro, M. D. LeVan, and P. N. Pintauro, “Electrospun Zirconium Hydroxide Nanoparticle Fabrics as Sorptive/Reactive Media”, *Adsorption,* **20,** 261-266 (2014).

90. A.M. Park, F. E. Turley, R. J. Wycisk, and P. N. Pintauro, “Electrospun and Cross-Linked Nanofiber Composite Anion Exchange Membranes”, *Macromolecules*, **47**, 227-235 (2014).

91. R. Wycisk, P. N. Pintauro, and J.-W. Park, “New Developments in Proton Conducting Membranes for Fuel Cells”, *Current Opinions in Chemical Engineering*, **4**, 71-78 (2014).

92. W. Zhang, R. Wycisk, D. Kish, and P. N. Pintauro, “Pre-Stretched Low Equivalent Weight PFSA Membranes with Improved Fuel Cell Performance”, *Journal of the Electrochemical Society*, **161**, F1-F8 (2014).

93. A. Paneri, Y. Heo, G. Ehlert, A. Cottrill, H. Sodano, P. Pintauro, S. Moghaddam, “Proton Selective Ionic Graphene-Based Membrane for High Concentration Direct Methanol Fuel Cells”, *Journal of Membrane Science*, **467**, 217–225 (2014).

94. M. Brodt, T. Han, N. Dale, E. Niangar, R. Wycisk, and P. Pintauro, “Fabrication, In-Situ Performance, and Durability of Nanofiber Fuel Cell Electrodes”, *Journal of the Electrochemical Society*, **162**, F84-F91 (2015).

95. E. C. Self, R. Wycisk, and P. N. Pintauro, “Electrospun Titania-Based Fibers for High Areal Capacity Li-Ion Battery Anodes,” *Journal of Power Sources*, **282**, 187-193 (2015).

96. A.M. Park, F. E. Turley, R. J. Wycisk, and P. N. Pintauro, “Diol-Crosslinked Electrospun Composite Anion Exchange Membranes”, *Journal of the Electrochemical Society*, **162**, F560-F566 (2015).

97. H. Mendil-Jakani, S. Pouget, G. Gebel, and P. N. Pintauro, “Insight Into the Multiscale Structure of Pre-Stretched Recast Nafion Membranes: Focus on the Crystallinity Features”, *Polymer,* **63***,* 99-107 (2015).

98. J. W. Park, R. Wycisk, and P. N. Pintauro, “Nafion/PVDF Nanofiber Composite Membranes for Regenerative Hydrogen/Bromine Fuel Cells”, *Journal of Membrane Science,* **490**, 103–112 (2015).

99. P. N. Pintauro, “Perspectives on Membranes and Separators for Electrochemical Energy Conversion and Storage Devices”, *Polymer Reviews*, **55**, 201-207 (2015).

100. V. Yarlagadda, R. Dowd, Jr., J. W. Park, P. N. Pintauro, and T. V. Nguyen, "A Comprehensive Study of an Acid-Based Reversible H_2-Br_2 Fuel Cell System", *Journal of the Electrochemical Society*, **162**, F919-F926 (2015).

101. G. Lin, P.Y. Chong, V. Yarlagadda, T.V. Nguyen, R. J. Wycisk, P. N. Pintauro, M. Bates, S. Mukerjee, M. C. Tucker, and A. Z. Weber, "Advanced Hydrogen-Bromine Flow Batteries with Improved Efficiency, Durability and Cost", *Journal of the Electrochemical Society*, **163**, A5049-A5056 (2016).

102. A. Park, R. Wycisk, X. Ren, F. Turley, and P. N. Pintauro, "Poly(phenylene oxide)-Based Crosslinked Nanofiber Composite Membranes for Alkaline Fuel Cells", *Journal of Materials Chemistry A*, **4**, 132-141 (2016).

103. E. Self, E. McRen, and P. N. Pintauro, "High Performance C/PVDF Nanofiber Anodes for Li-ion Batteries using Particle/Polymer Electrospinning", *ChemSusChem*, **9**, 208-215 (2016).

104. M. Brodt, R. Wycisk, N. Dale, and P. Pintauro, "Power Output and Durability of Nanofiber Fuel Cell Cathodes with PVDF and Nafion/PVDF Binders", *Journal of the Electrochemical Society,* **163***,* F401-F410 (2016).

105. E. Self, E. McRen, R. Wycisk, and P. N. Pintauro, "$LiCoO_2$-Based Fiber Cathodes for Electrospun Full Cell Li-ion Batteries", *Electrochimica Acta*, **214**, 139–146 (2016).

106. J. W. Park, R. Wycisk, P. N. Pintauro, V. Yarlagadda and T.V. Nguyen, "Electrospun Nafion®/Polyphenylsulfone Composite Membranes for Regenerative Hydrogen Bromine Fuel Cells", *Materials*, **9**, 143 (2016).

107. M. Abu-Saied, R. Wycisk, M. Abbassy, G. E. El-Naim, F. El-Demerdash, M. Youssef , H. Bassuony, and P. Pintauro, "Sulfated Chitosan/Polyvinyl Alcohol Absorbent Membrane for Removal of Copper and Nickel Ions from Aqueous Solutions - Fabrication and Sorption Studies", *Carbohydrate Polymers* ,**165**, 149–158 (2017).

108. R. Wycisk, E. Self, and P. N. Pintauro, Electrospun NanofiberElectrodes and Membranes for Energy Conversion and Storage", *HDIAC Journal*, 8-13 (2017).

109. E. C. Self, M. Naguib, R. E. Ruther, E. C. McRen, R. Wycisk,G. Liu, J. Nanda, and P. N. Pintauro, "High Areal Capacity Si/LiCoO2 Batteries from Electrospun Composite Fiber Mats", *ChemSusChem*, **10**, 1823 – 1831 (2017).

110. Chunhui Shen, Ryszard Wycisk, and Peter N. Pintauro, "High performance electrospun bipolar membrane with a 3D junction", *Energy & Environmental Science*,**10**,1435-1442 (2017).

111. Regis P. Dowd Jr, Devon Powers, Ryszard Wycisk, Peter N. Pintauro, and Trung Van Nguyen, "Hydrogen-Vanadium Reversible Fuel Cell Crossover Study", *Journal of the Electrochemical Society*, **164**, F1608-F1614 (2017).

112. Jun Woo Park, Ryszard Wycisk, Guangyu Lin, Pau Ying Chong, Devon Powers, Trung Van Nguyen, Regis P. Dowd Jr, and Peter N. Pintauro, "Electrospun Nafion/PVDF Single-fiber Blended Membranes for Regenerative H_2/Br_2 Fuel Cells", *Journal of Membrane Science,* **541**, 85-92 (2017).

113. J. Slack, B. Halevi, G. McCool, J. Li, R. Pavlicek, R. Wycisk, S. Mukerjee, P. N. Pintauro, "Electrospun Fiber Mat Cathode with PGM-free Catalyst Powder and Nafion/PVDF Binder", *ChemElectroChem*, **5**, 1537-1542 (2018).

114. Yuguang C. Li, Zhifei Yan, Jeremy Hitt, Ryszard Wycisk, Peter N. Pintauro, Thomas E. Mallouk, "Bipolar Membranes Inhibit Product Crossover in CO_2 Electrolysis Cells". *Advanced Sustainable Systems,* **2**, 1700187(2018).

115. Zhifei Yan, Liang Zhu, Yuguang C. Li, Ryszard Wycisk, Peter N. Pintauro, Michael A. Hickner, Thomas E. Mallouk, "The Balance of Electric Field and Interfacial Catalysis in Promoting Water Dissociation in Bipolar Membranes", *Energy and Environmental Science*,**11**, 2235--2245 (2018).

116. D. Powers, R. Wycisk, and P. N. Pintauro, "Electrospun Tri-layer Membranes for H_2/Air Fuel Cells", *Journal of Membrane Science*, **573**, 107-116 (2019).

117. G. Nawn, K. Vezzu`,E. Negro, G. Pace, J. W. Park, R. Wycisk, G. Cavinato, P. N. Pintauro, and V. Di Noto, "Structural analyses of blended Nafion/PVDF electrospun nanofibers", *Physical Chemistry Chemical Physics*, **21**, 10357-10369, (2019)

118. J. J. Slack, C. Gumeci, N. Dale, J. Parrondo, N. Macauley, R. Mukundan, D. Cullen, B. Sneed, K. More, P.N. Pintauro, "Nanofiber Fuel Cell MEAs with a PtCo/C Cathode", *Journal of the Electrochemical Soc*iety, **166**, F3202-F3209 (2019).

119. S. Carl, K. Waldrop, P. Pintauro, L. Thompson, and W. Tarpeh, "Selective Hydrogenation of Furfural in a Proton Exchange Membrane Reactor Using Hybrid Pd/Pd black on Alumina", *ChemElectroChem*, **6**, 1-9, (2019).

120. A. Hohenadel, D. Powers, R. Wycisk, M. Adamski, P. Pintauro, and S. Holdcroft, "Electrochemical Characterization of Hydrocarbon Bipolar Membranes with Varying Junction Morphology," *ACS Applied Energy Materials*, **2**, 6817-6824 (2019).

121. K. Vezzu`, G. Nawn, E. Negro G. Crivellaro, J. W. Park, R. Wycisk, G. Cavinato, P. N. Pintauro, and V. Di Noto, "Electric Response and Conductivity Mechanism of Blended Polyvinylidene Fluoride/Nafion Electrospun Nanofibers"' *J. Am. Chem. Soc.*, **142**, 801-814 (2020).

122. J. Slack, M. Brodt, D. A. Cullen, K. S. Reeves, K. L. More, and P. N. Pintauro, "Impact of Polyvinylidene Fluoride on Nanofiber Cathode Structure and Durability in Proton Exchange Membrane Fuel Cells", *Journal of the Electrochemical Society,* **167**, 054517 (2020).

123. H. Lu, L. Wang, Ry. Wycisk, P. N. Pintauro and S. Lin, "Quantifying the kinetics-energetics performance tradeoff in bipolar membrane electrodialysis" , *Journal of Membrane Sci*ence, **612**, in press (2020).

124. K. Waldrop, R. Wycisk, and P. N. Pintauro, "Application of electrospinning for the fabrication of proton-exchange membrane fuel cell electrodes," *Current Opinion in Electrochemistry,* **21**, 257-265 (2020).

125. M. Shen, M. Xie, J. Slack, K. Waldrop, Z. Chen, Z. Lyu, S. Cao, M. Zhao, M. Chi, P. N. Pintauro, R. Cao and Y. Xia, "Pt–Co truncated octahedral nanocrystals were synthesized and evaluated as a class of highly active and durable catalysts toward oxygen reduction", *Nanoscale*, **12**, 11718-11727 (2020).

126. L. Dos Santos, D.Powers, R. Wycisk, and P. N. Pintauro, "Electrospun Hybrid Perfluorosulfonic Acid/Sulfonated Silica Composite Membranes," *Membranes*, **10**, 250-267 (2020).

127. D. Salvatore, C. Gabardo, A. Reyes, C. O'Brien, S. Holdcroft, P. Pintauro, B. Bahar, M. Hickner, C. Bae, D. Sinton, E. H. Sargent, and C. P. Berlinguette, "Designing Anion Exchange Membranes for CO_2 Electrolyzers", *Nature Energy,* **6**, 339–348 (2021).

128. Z. Yan, R. J. Wycisk, L. Xiao, Y. Yoon, P. N. Pintauro, and T. E. Mallouk, "High-voltage aqueous redox flow batteries based on catalyzed water dissociation and acid-base neutralization in bipolar membranes", *ACS Cent. Sci.*, **7**, 1028–1035 (2021).

129. Z. Shang, R. Wycisk, and P. Pintauro, "Electrospun Composite Proton-Exchange and Anion-Exchange Membranes for Fuel Cells", *Energies* **14**, 6709-6720 (2021).

130. A. Metlay, B. Chyi, Y. Yoon, R. Wycisk, P. Pintauro, and T. Mallouk, "A Three-Chamber Design for Aqueous Acid-Base Redox Flow Batteries", *ACE Energy Letters*, **7**, 908-913 (2022).

Proceedings Papers

1. D. N. Bennion and P. N. Pintauro, "Membrane Transport Fundamentals," in Lectures in Electrochemical Engineering, *AIChE Symposium Series* No. 204, **Vol. 77**, pp. 190-203 (1981).

2. M-H. Pham, P. N. Pintauro, and K. Nobe, "Application of a Multicomponent Membrane Transport Model to Reverse Osmosis Separation Processes," *in Reverse Osmosis and Ultrafiltration*, ACS Symposium Series No. 281, pp. 153-165 (1985).

3. P. N. Pintauro, "An Electrochemical Engineering Approach to Modeling Membrane Transport," in Electrochemistry and Solid State Science Education at the Graduate and Undergraduate Level, *Electrochemical Society Proceedings* **Vol. 87-3**, pp. 261-277 (1987).

4. P. N. Pintauro, N. Phan, M. M. Baizer, and K. Nobe, "The Electrochemical Hydrogenation of Organic Compounds on Raney-Type Metal Catalysts," in Electrochemical Engineering Applications, *AIChE Symposium Series* No. 254, **Vol. 83**, pp. 34-39 (1987).

5. V. Anantharaman and P. N. Pintauro, "Modeling of Constant and Pulsed Current Operation of a Packed Bed Flow-Through Electrocatalytic Hydrogenation Reactor," in Metal Deposition and Dissolution, *Electrochemical Society Proceedings* **Vol. 92-23**, pp. 255-266 (1992).

6. S. Roy and P. N. Pintauro, "Examination and Analysis of Mass Transfer and Hydrodynamic Slip during Electrodeposition in the Presence of Organic Plating Additives," in Metal Deposition and Dissolution, *Electrochemical Society Proceedings* **Vol. 92-23**, pp. 255-266 (1992).

7. K. Jian and P. N. Pintauro, "Asymmetric Fluoropolymer Pervaporation Membranes for Organic/Water Separations," *Adv. Filtr. Sep. Technol.*, **7**, 477-480 (1993).

8. P. N. Pintauro and J. Bontha, "Multicomponent Equilibrium Ion Partitioning in a Nafion Cation Exchange Membrane," *Electrochemical Society Proceedings,* **Vol. 94-22** , pp. 276-295 (1994).

9. P. N. Pintauro and Y. Yang, "Structure/Function Modeling: A Rational Approach to Ion-Exchange Membrane Design," *Electrochemical Society Proceedings,* **Vol. 95-11**, pp. 266-279 (1995).

10. J. K. Hong, W. An, and P. N. Pintauro, "The Hydrogenation of Soybean Oil in a SPE Reactor," in Fundamentals and Potential Applications of Electrochemical Synthesis, *Electrochemical Society Proceeding,* **Vol. 97-6**, 58-68 (1997).

11. P. N. Pintauro, H. Tang, Q. Guo, and S. O'Connor, "Polyphosphazene-Based Cation-Exchange Membranes: Polymer Manipulation and Membrane Fabrication," *Polymr. Mater. Sci. Engr.,* **77**, 349 (1997).

12. Hao Tang and Peter N. Pintauro, "Cluster Structure of Sulfonated Poly[bis(3-methylphenoxy)phosphazene] films," *Polym. Mater. Sci. Eng*. **80**, 333-334 (1999).

13. Peter N. Pintauro and Yahan Yang, "Mathematical Analysis of Transport in Ion-Exchange Membranes," *Electrochemical Society Proceedings*, **99-14**, 178-190 (1999).

14. Qunhui Guo, Hao Tang, Peter N. Pintauro, and Sally O'Connor, "Polyphosphazene-Based Cation-Exchange Membranes: Polymer Manipulation and Membrane Fabrication," in *Membrane Formation and Modification,* ACS Symposium Series No. 744, pp. 162-173 (2000).

15. Ryszard Wycisk, Roy Carter, and Peter N. Pintauro, "Ion-Exchange Membranes from Blends of Sulfonated Polyphosphazene and Kynar FLEX PVDF," *Polym. Mater. Sci. Eng*., **85**, 519 (2001).

16. R. Wycisk, R. Carter, P. N. Pintauro, and C. Byrne, "Ion exchange Membranes from Blends of Sulfonated Polyphosphazene and Kynar Flex PVDF," in *Advanced Materials for Membrane Separations*, ACS Symposium Series No. 876, pp. 335-351 (2004).

17. Jun Lin, Ryszard Wycisk, Peter N. Pintauro, and Michael Kellner, "Stretched Recast Nafion for Direct Methanol Fuel Cells," Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry, **51(2)**, 680-681 (2006).

18. J. Lin, A. Trivisonno, R. Wycisk, Peter N. Pintauro, "Optimized DMFC Performance Comparison for Modified and Unmodified Nafion Membranes," *Electrochemical Society Transactions, Proton Exchange Membrane Fuel Cells 6*, **3**, 63-71 (2006).

19. Jun Lin, Pin-Han Wu, Ryszard Wycisk, and Peter N. Pintauro, "Structure and Properties of Stretched Recast Nafion," Preprints of Symposia - American Chemical Society, Division of Fuel Chemistry, **52(2)**, 325-326 (2007).

20. Peter N. Pintauro, Patrick Mather, Olivier Arnoult, Jonghyun Choi, Ryszard Wycisk, and Kyung Min Lee, "Composite Membranes for Hydrogen/Air PEM Fuel Cells," in Proton Exchange Membrane Fuel Cells 7, *Electrochemical Society Transactions*, **11(1)**, 79-87 (2007).

21. Jonghyun Choi, Kyung Min Lee, Ryszard Wycisk, Peter N. Pintauro, and Patrick T. Mather, "Composite Nanofiber Network Membranes for PEM Fuel Cells," in Proton Exchange Membrane Fuel Cells 8, *Electrochemical Society Transactions*, **16(2)**, 1433 (2008)

22. Jun Lin, Pin-Han Wu, Ryszard Wycisk, and Peter Pintauro, "PEM Fuel Cell Properties of Pre-Stretched Recast Nafion®," in Proton Exchange Membrane Fuel Cells 8, *Electrochemical Society Transactions,* **16(2)**, 1195 (2008).

23. K. M. Lee, J. Choi, R. Wycisk, P. N. Pintauro, and P. T. Mather, "Nafion Nanofiber Membranes," in Proton Exchange Membrane Fuel Cells 9, *Electrochemical Society Transactions*, **25(1)**, 1451-1458 (2009).

24. J. B. Ballengee and P. N. Pintauro, "Morphological Control of Electrospun Nafion Nanofiber Mats," *Electrochemical Society Transactions*, **33(1)**, 647-658 (2010).

25. W. Zhang, D. L. Kish, and P. Pintauro, "Morphology and Performance of Stretched PFSA for Direct Methanol Fuel Cells, " *Electrochemical Society Transactions*, **33(1)**, 635-645 (2010).

26. H. M. Haille and P. N. Pintauro, "Proton transport for Fuel Cells," *Journal of Materials Chemistry*, **20(30),** 6211-6213 (2010)

27. W. Zhang, M. Brodt, and P. N. Pintauro, "Nanofiber Cathodes for Low and High Humidity Hydrogen Fuel Cell Operation", *ECS Transactions, Polymer Electrolyte Fuel Cells 11,* **41(1)**, 891-899 (2011).

28. J. Ballengee and P. N. Pintauro, "Nanofiber-Based Composite Membranes for Fuel Cells", *ECS Transactions, Polymer Electrolyte Fuel Cells 11,* **41(1)**, 1507-1516 (2011).

29. A. M. Park and P. N. Pintauro, "Electrospun Composite Membranes for Alkaline Fuel Cells", *ECS Transactions, Polymer Electrolyte Fuel Cells 11,* **41(1)**, 1817-1826 (2011).

30. J. B. Ballengee and P. N. Pintauro, "Fuel Cell Performance of Electrospun Membranes with 660 Equivalent Weight Perfluorosulfonic Acid", *Electrochemical Society Transactions*, **50(2)**, 897-906 (2013).

31. J.W. Park, R. Wycisk, and P. N. Pintauro, "Membranes for a Regenerative H_2/Br_2 Fuel Cell", *Electrochemical Society Transactions*, **50(2)**, 1217-1231 (2013).

32. R. P. Dowd, T. Nguyen, D. S. Moore, P. N. Pintauro, and J. W. Park, "Conductive AFM Study to Differentiate between the Surface Ionic Conductivity of Nafion and Electrospun Membranes", *Electrochemical Society Transactions,* **58(1)**, 607-613 (2013).

33. M. Brodt, R. Wycisk, P.N. Pintauro, T. Han, N. Dale, and K. Adjemian, "Nanofiber Fuel Cell Electrodes I. Fabrication and Performance with Commercial Pt/C Catalysts" *Electrochemical Society Transactions,***58(1)**, 381-390 (2013).

34. A. M. Park, F. E. Turley, R. Wycisk, and P.N. Pintauro, “Polysulfone-Based Electrospun Anion Exchange Membranes”, *Electrochemical Society Transactions,* **58(1)**, 405-416 (2013).

35. J.J. Slack, R. Wycisk, N. Dale, A. Kumar, P.N. Pintauro, “Electrospun nanofiber fuel cell MEA cathodes with PtCo/C catalyst”, *Electrochemical Society Transactions*, **80(8)**, 829 (2017).

36. K. Waldrop, J. Slack, C. Gumeci, N. Dale, K.S. Reeves, D.A. Cullen, K.L. More, P. N. Pintauro, “Electrospun Particle/Polymer Fiber Electrodes with a Neat Nafion Binder for Hydrogen/Air Fuel Cells”, *Electrochemical Society Transactions*, **92(8)**, 595 (2019).

37. K. Chintam, K. Waldrop, A. M. Baker, M. J. Workman, R. Mukundan, J.M. LaManna, D. S. Hussey, D. L. Jacobson, C. Gumeci, N. Dale, J. J. Slack, R. L. Borup, P. N Pintauro, “Improved Water Management of Electrospun Nanofiber Membrane Electrode Assemblies at High Current Densities Measured in Operando Using Neutron Radiography”, *Electrochemical Society Transactions*, **92(8**), 125 (2019).

38. M. Hossain, Z. Shang, R. Wycisk, P.N. Pintauro, “Pore-Filled PEMs from Poly (Phenylene Sulfonic Acid) s and Electrospun Poly (Phenylene Sulfone) Fiber Mats”, *Electrochemical Society Transactions*, **98(9**), 367 (2020).

Active Patents

1. US Patent 7,943,675 “Electrolytes for fuel cell electrodes”
2. US Patent 8,227,135 “Electrolytes to enhance oxygen reduction reaction (ORR) in the cathode layer of PEM fuel cell”
3. US Patent 8741454, “Proton exchange membrane for fuel cell”
4. US patent: 9,252,445, “Nanofiber Membrane-Electrode-Assembly and Method of Fabricating Same”
5. US Patent 9,522,371 “Self-regulating gas generator and method”
6. US Patent 9,716,285 “Porous nano-fiber mats to reinforce proton conducting membranes for PEM applications”
7. US patent: 9,876,246, “Nanofiber Membrane-Electrode-Assembly and Method of Fabricating Same “
8. US patent: 9,905,870, “Nanofiber Electrode and Method of Forming Same”
9. Japanese patent: 5964846, “Nanofiber Electrode and Method of Forming Same”
10. Chinese patent: ZL201180062942.7,“Nanofiber Electrode and Method of Forming Same”
11. EPO patent: 2633581, “Nanofiber Electrode and Method of Forming Same”
12. US patent: 9,350,036, “Composite Membranes, Methods of Making Same, and Applications of Same”
13. US patent: 10,141,593, “Composite Membranes, Methods of Making Same, and Applications of Same”
14. US Patent: 11,011,756, “Nanofiber-Based Bipolar Membranes, Fabricating Methods and Applications of Same”
15. US Patent: 11,020,939, “Nanofiber Electrodes, Fabricating Methods and Applications of Same”

BOOK CHAPTERS/EDITORSHIPS

1. Co-Editor (with R. E. White), AIChE Symposium Series, "Industrial Membrane Processes" (1986).

2. Co-Editor (with D. T. Chin) Electrochemical Society Symposium Series, "Modeling and Simulation of Electrolytic Solution Processes" (1988).

3. M. W. Verbrugge and P. N. Pintauro, "Transport Models for Ion Exchange Membranes" in Modern Aspects of Electrochemistry, Vol. 19, 1989, pp. 1-67.

4. R. Wycisk and P. N. Pintauro, "Polyphosphazenes" in Encyclopedia of Polymer Science and Technology, Vol. 7, pp. 603-625, John Wiley, NY (2003).

5. R. Wycisk and P.N. Pintauro, "Sulfonated Polyphosphazene Membranes for Direct Methanol PEM Fuel Cells" in Phosphazenes: A Worldwide Insight, M. Gleria and R. DeJaeger (Eds.), Nova Science Publishers, Hauppauge NY (2004).

6. P. N. Pintauro and R. Wycisk, "Fuel Cell Membranes" in Advanced Membrane Technology and Applications, edited by Norman Li, Anthony Fane, W. S. Winston Ho, and Takeshi Matsuura, Wiley, pp. 755-786 (2008).

7. R. Wycisk and P. N. Pintauro, "Polyphosphazene Membranes" in Advances in Polymer Science: Fuel Cells II, edited by Günther Scherer, Springer, pp. 157-183 (2008).

8. Jun Lin, Ryszard Wycisk, and Peter N. Pintauro, "Modified Nafion® as the Membrane Material for Direct Methanol Fuel Cells" in Polymer Membranes for Fuel Cells, edited by Zaidi and Matsuura, Springer, pp. 341-359 (2008).

9. P. N. Pintauro, "Principles and Applications of Electrochemical Engineering" in Albright's Chemical Engineering Handbook, edited by L. Albright, CRC Press, pp. 1747-1840 (2008).

10. P. N. Pintauro, "Electrocatalytic Hydrogenation of Edible Oils" in Hydrogenation of Fats and Oils: Theory and Practice, 2nd Edition, edited by G. List and J. W. King, American Oil Chemists' Society, pp. 279-304 (2011).

11. R. Wycisk, J. Ballengee and Peter N. Pintauro, "Polymer Membranes for Fuel Cells" in Encyclopedia of Membrane Science and Technology, edited by Eric M. V. Hoek and Volodymyr V. Tarabara, pp.1-33 (2013).

12. R. Wycisk and P. N. Pintauro, "Electrospun Proton-Conducting Membranes for PEM Fuel Cells" in Polymer Applications in Fuel Cells: Recent Advances (2018)

INVITED LECTURES – more than 160

CONFERENCE PRESENTATIONS – more than 175

SCIENTIFIC AND PROFESSIONAL SOCIETIES

The Electrochemical Society
American Institute of Chemical Engineers
American Chemical Society
North American Membrane Society
American Society of Mechanical Engineers

PROFESSIONAL ACTIVITIES

- North American Regional Editor, *Journal of Applied Electrochemistry* (1997-2002).
- Editorial Advisory Board, *Journal of Applied Electrochemistry* (1994-present)
- Editorial Advisory Board, *Energies* (open access journal) (2015-2020)
- Editorial Advisory Board, *Membranes* (open access journal) (2018-present)
- Guest Editor, *Polymer Reviews* special issue on "Polymeric Membranes for Fuel Cells and Batteries" (2015)
- Guest Editor, *Journal of Materials Chemistry* special issue on "Proton Transport for Fuel Cells" (2010).
- President (2006-2008) and Vice-President (2006), North American Membrane Society
- Board of Directors, North American Membrane Society (2003-2010, 2012-present)
- Co-Chair, *Gordon Research Conference on Membranes: Materials and Processes* (2008)
- Co-Chair, *Gordon Research Conference on Fuel Cells (*2014)
- Meeting Co-Chair, North American Membrane Society Annual Meeting, Las Vegas, June 2011
- Meeting Co-Chair, Southeast Chemical Engineering Department Head and Chairs Meeting, Destin, FL, June 2013.
- Member, Finance Committee (2007-10) and Ways and Means Committee (2011-2013), The Electrochemical Society
- Chair, Honors and Awards Committee (2012-2015), The Electrochemical Society
- Editor, ECS Transactions, Industrial Electrochemistry and Electrochemical Engineering Division of The Electrochemical Society (2008).
- Fuel Cell Membranes Workshop Instructor, North American Membrane Society Meetings (2003, 2004, 2005) and International Congress on Membranes (2005 and 2008).
- Chairman, Electrochemical Fundamentals Committee of American Institute of Chemical Engineers (1994-97).
- Member, Industrial Electrolysis and Electrochemical Engineering Executive Committee, The Electrochemical Society.
- Member, Energy Technology Executive Committee, The Electrochemical Society.