

## Research Papers

### Fuel Cell Electrodes

1. W. Zhang and P. N. Pintauro, "High Performance Nanofiber Fuel Cell Electrodes", *ChemSusChem*, **4**, 1753-1757 (2011).
2. 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).
3. 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).
4. 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).
5. 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).
6. 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 Society*, **166**, F3202-F3209 (2019).
7. 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).
8. 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).
9. 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).
10. 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).

## Ion-Exchange and Bipolar Membranes

1. 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).
2. 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).
3. 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).
4. J. B. Ballengee and P. N. Pintauro, "Morphological Control of Electrospun Nafion Nanofiber Mats". *Journal of the Electrochemical Society*, **158**, B568-B572 (2011).
5. J. B. Ballengee and P. N. Pintauro, "Composite Fuel Cell Membranes from Dual-Nanofiber Electrospun Mats", *Macromolecules*, **44**, 7307-7314 (2011).
6. K. M. Lee, R. Wycisk, M. Litt, and P. N. Pintauro, "Alkaline Fuel Cell Membranes from Xylylene Block Ionenets", *Journal of Membrane Science*, **383**, 254-261 (2011).
7. A. M Park and P. N. Pintauro, "Alkaline Fuel Cell Membranes from Electrospun Fiber Mats", *Electrochemical and Solid-State Letters*, **15**, B27-B30 (2012).
8. 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).
9. 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).
10. 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).
11. 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).
12. 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).
13. 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).

14. 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).
15. 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).
16. 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).
17. Chunhui Shen, Ryszard Wycisk, and Peter N. Pintauro, "High performance electrospun bipolar membrane with a 3D junction", *Energy & Environmental Science*, **10**, 1435-1442 (2017).
18. 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<sub>2</sub>/Br<sub>2</sub> Fuel Cells", *Journal of Membrane Science*, **541**, 85-92 (2017).
19. Yuguang C. Li, Zhifei Yan, Jeremy Hitt, Ryszard Wycisk, Peter N. Pintauro, Thomas E. Mallouk, "Bipolar Membranes Inhibit Product Crossover in CO<sub>2</sub> Electrolysis Cells". *Advanced Sustainable Systems*, **2**, 1700187(2018).
20. 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).
21. D. Powers, R. Wycisk, and P. N. Pintauro, "Electrospun Tri-layer Membranes for H<sub>2</sub>/Air Fuel Cells", *Journal of Membrane Science*, **573**, 107-116 (2019).
22. L. Dos Santos, D. Powers, R. Wycisk, and P. N. Pintauro, "Electrospun Hybrid Perfluorosulfonic Acid/Sulfonated Silica Composite Membranes," *Membranes*, **10**, 250-267 (2020).
23. Z. Shang, R. Wycisk, and P. Pintauro, "Electrospun Composite Proton-Exchange and Anion-Exchange Membranes for Fuel Cells", *Energies* **14**, 6709-6720 (2021).

## Battery Electrodes

1. 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).
2. 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).
3. E. Self, E. McRen, R. Wycisk, and P. N. Pintauro, "LiCoO<sub>2</sub>-Based Fiber Cathodes for Electrospun Full Cell Li-ion Batteries", *Electrochimica Acta*, **214**, 139–146 (2016).
4. R. Wycisk, E. Self, and P. N. Pintauro, Electrospun Nanofiber Electrodes and Membranes for Energy Conversion and Storage", *HDIAC Journal*, 8-13 (2017).
5. 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/LiCoO<sub>2</sub> Batteries from Electrospun Composite Fiber Mats", *ChemSusChem*, **10**, 1823 – 1831 (2017).