

## **(JOE) YOSSEF A. ELABD, Ph.D.**

Interim Vice Chancellor for Research

### **The Texas A&M University System (TAMUS)**

Associate Dean for Research, College of Engineering

Axalta Coating Systems Chair II, Artie McFerrin Department of Chemical Engineering

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#### **EDUCATION**

2001 Ph.D., **Johns Hopkins University**, Chemical Engineering

1995 B.S., **University of Maryland, Baltimore County**, Chemical Engineering

#### **APPOINTMENTS**

2014-present **TAMUS & TAMU**, College Station, TX

2021-present Interim Vice Chancellor for Research, TAMUS

2020-present Axalta Coating Systems Chair II, Chemical Engineering

2019-present Associate Dean for Research, Engineering

2017-present Professor, Materials Science and Engineering (Courtesy Appointment)

2014-present Professor, Chemical Engineering (Primary Appointment)

2017-2020 Joe M. Nesbitt Professor, Chemical Engineering

2016-2019 Associate Department Head, Chemical Engineering

2016-2019 Undergraduate Program Director, Chemical Engineering

2003-2014 **Drexel University**, Philadelphia, PA

2013-2014 Professor, Chemical and Biological Engineering

2009-2013 Associate Professor, Chemical and Biological Engineering

2003-2009 Assistant Professor, Chemical and Biological Engineering

2008-2018 **Università di Bologna (UNIBO)**, Bologna, Italy

2018, 2 wk. Visiting Professor (UNIBO funded)

2015, 1 mo. Senior Fellow, Istituto di Studi Avanzati (UNIBO funded)

2010, 2 wk. Visiting Scholar (NSF Funded)

2008, 2 mo. Visiting Scholar (NSF Funded)

2011 **Food & Drug Administration**, Silver Spring, MD

2011, 5 mo. Scholar in Residence, Biomedical Devices Division (NSF Funded)

2001-2003 **U.S. Army Research Laboratory**, Aberdeen, MD

2001-2003 NRC Postdoctoral Fellow, Materials Division

1996 **SCM Chemicals**, Baltimore, MD

1996 R&D Chemical Engineer

#### **HONORS AND AWARDS**

2020-present Axalta Coating Systems Chair II

2017-2020 Joe M. Nesbitt Professorship

2016	American Physical Society Fellow
2015	Senior Fellowship, Instituto di Studi Avanzati, Università di Bologna (UNIBO)
2007-2012	NSF CAREER Award
2005-2006	DuPont Science and Engineering Award
2004-2007	ARO Young Investigator Award
2001-2003	NRC Postdoctoral Award
1994	Phi Kappa Phi Honors
1993	AIChE Donald F. Othmer Sophomore Academic Excellence Award
1992	Memorial Scholarship of the Engineering Society of Baltimore

## **RESEARCH**

### **RESEARCH EXPERTISE**

Materials – Polymer Science and Engineering  
 Energy – Electrochemical Engineering

### **EXTERNAL RESEARCH SPONSORS**

Current – ARO, DOE, Kraton Corp., NSF, Seadrift LLC

Previous – ARL, ARO, Axalta Coating Systems, Benjamin Franklin Technology Partners, DuPont, Kraton Corp., DTRA, Kuraray America, Inc., NSF, Perma Pure LLC, USDA

### **PUBLICATIONS**

- Hwang, M.; Nixon, K.; Sun, R.; Willis, C.; Elabd, Y.A. Sulfonated Pentablock Terpolymers as Membranes and Ionomers in Hydrogen Fuel Cells. *J. Membr. Sci.* **2021**, 633, 119330, 1-11.
- Hwang, M.; Sun, R.; Willis, C.; Elabd, Y.A. Solid-State Alkaline Fuel Cell Performance of Pentablock Terpolymer with Methylpyrrolidinium Cations as Anion Exchange Membrane and Ionomer. *Fuel Cells* **2020**, 20, 624-633.
- Chen, T.-L.; Sun, R.; Willis, C.; Krutzer, B.; Morgan, B.; Beyer, F.L.; Han, K.S.; Murugesan, V.; Elabd, Y.A. Impact of Ionic Liquid on Lithium Ion Battery with a Solid Poly(Ionic Liquid) Pentablock Terpolymer as Electrolyte and Separator. *Polymer* **2020**, 209, 122975, 1-12.
- Li, Y.; Van Cleve, T.; Sun, R.; Gawas, R.; Wang, G.; Tang, M. Elabd, Y.A.; Snyder, J.; Neyerlin, K.C. Modifying the Electrocatalyst-Ionomer Interface via Sulfonated Poly(ionic liquid) Block Copolymers to Enable High-Performance Polymer Electrolyte Fuel Cells. *ACS Energy Lett.* **2020**, 5, 1726-1731.
- Lathrop, P.M.; Duan, Z.; Ling, C.; Elabd, Y.A.; Kravaris, C. Modeling and Observer-Based Monitoring of RAFT Homopolymerization Reactions. *Processes* **2019**, 7, 768. **Invited Contribution, Special Issue on Computational Methods for Polymers**
- Hwang, M.; Karenson, M.O.; Elabd, Y.A. High Production Rate of High Purity, High Fidelity Nafion Nanofibers via Needleless Electrospinning. *ACS Appl. Polym. Mater.* **2019**, 1, 2731-2740.
- Sun, R.; Meek, K.M.; Ho, H.C.; Elabd, Y.A. Nitrogen-Doped Carbons Derived from Poly(ionic liquid)s of Various Backbones and Cations. *Polym. Int.* **2019**, 68, 1599-1609. **Invited Contribution, Special Issue on Ionic Liquids in Polymer Science & Engineering: From Molecular Design to Energy & Beyond**
- Sun, R.; Elabd, Y.A. Synthesis and High Alkaline Chemical Stability of Polyionic Liquids with Methylpyrrolidinium, Methylpiperidinium, Methylazepanium, Methylazocanium, and Methylazonanium Cations. *ACS Macro Letters* **2019**, 8, 540-545.
- Elabd, Y.A. Ion Transport in Hydroxide Conducting Block Copolymers. *Molecular Systems Design & Engineering*, **2019**, 4, 519-530. **Invited Contribution, Special Issue on Charge Transporting Nanostructured Polymers for Electrochemical Systems**

10. Hwang, M.; Elabd, Y.A. Impact of Ionomer Resistance in Nanofiber-Nanoparticle Electrodes for Ultra-Low Platinum Fuel Cells. *Int. J. Hydrogen Energy* **2019**, *44*, 6245-6256.
11. Chen, T.-L.; Sun, R.; Willis, C.; Morgan, B.F.; Beyer, F.L.; Elabd, Y.A. Lithium Ion Conducting Polymerized Ionic Liquid Pentablock Terpolymers as Solid-State Electrolytes. *Polymer* **2019**, *161*, 128-138.
12. Meek, K.M.; Sun, R.; Willis, C.; Elabd, Y.A. Hydroxide Conducting Polymerized Ionic Liquid Pentablock Terpolymer Anion Exchange Membranes with Methylpyrrolidinium Cations. *Polymer* **2018**, *134*, 221-226.
13. Santos, M.C.; Bendiksen, B.; Elabd Y.A. Diffusion of Liquid Water in Free-Standing Polymer Films using Pressure-Contact Time-Resolved Fourier Transform Infrared Attenuated Total Reflectance Spectroscopy. *Ind. Eng. Chem. Res.* **2017**, *56*, 3464-3476.
14. Chen, T.-L.; Elabd, Y.A. Hybrid-Capacitors with Polyaniline/Carbon Electrodes Fabricated via Simultaneous Electrospinning/Electrospraying. *Electrochimica Acta* **2017**, *229*, 65-72.
15. Nykaza, J.R.; Li, Y.; Elabd, Y.A.; Snyder, J.D. Effect of Alkaline Exchange Polymerized Block Copolymer Ionomers on the Kinetics of Fuel Cell Half Reactions. *J. Electroanalytical Chem.* **2016**, *783*, 182-187.
16. Nykaza, J.R.; Savage, A.M.; Pan, Q.; Wang, S.; Beyer, F.L.; Tang, M.H.; Li, C.Y.; Elabd, Y.A. Polymerized Ionic Liquid Diblock Copolymer as Solid-State Separator and Electrolyte in Lithium-Ion Battery. *Polymer* **2016**, *101*, 311-318.
17. Nykaza, J.R.; Benjamin, R.; Meek, K.M. Elabd, Y.A. Polymerized Ionic Liquid Diblock Copolymer as an Ionomer and Anion Exchange Membrane for Alkaline Fuel Cells. *Chemical Engineering Science* **2016**, *154*, 119-127. **Invited Contribution, Special Issue on Recent Advances in Energy Conversion and Storage Devices**
18. Meek, K.M.; Elabd, Y.A. Sulfonated Polymerized Ionic Liquid Block Copolymers. *Macromolecular Rapid Comm.* **2016**, *37*, 1200-1206. **Invited Contribution, Special Issue on Ionic Liquids in Polymer Design**
19. Meek, K.M.; Nykaza, J.R.; Elabd, Y.A. Alkaline Chemical Stability and Ion Transport in Polymerized Ionic Liquids with Various Backbones and Cations. *Macromolecules* **2016**, *49*, 3382-2294.
20. Santos, M.; Jing, Y.; Fang, L.; Chaplin, B.P; Elabd Y.A. Highly Porous Ti<sub>4</sub>O<sub>7</sub> Reactive Electrode Water Filtration Membranes via Simultaneous Electrospinning/Electrospraying Method. *AIChE J.* **2016**, *62*, 508-524. **Invited Contribution, Special Issue on Advances in Materials**
21. Nykaza, J.R.; Ye, Y.; Nelson, R.L.; Jackson, A.C.; Beyer, F.L.; Davis, E.M.; Page, K.A. Sharick, S.; Winey, K.I.; Elabd, Y.A. Polymerized Ionic Liquid Diblock Copolymers: Impact of Water/Ion Clustering on Ion Conductivity. *Soft Matter* **2016**, *12*, 1133-1144.
22. Long, T.E.; Elabd, Y.A.; Yuan, J. Ionic Liquids in Polymer Design. *Macromolecular Rapid Comm.* **2016**, *37*, 1105. **Invited Contribution, Special Issue on Ionic Liquids in Polymer Design**
23. Meek, K.M.; Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers for Electrochemical Energy. *Journal of Materials Chemistry A* **2015**, *3*, 24187-24194. **Invited Contribution**
24. Meek, K.M.; Elabd, Y.A. Alkaline Chemical Stability of Polymerized Ionic Liquids with Various Cations. *Macromolecules* **2015**, *48*, 7071-7084.
25. Tran, C.; Lawrence, D.; Richey, F.W.; Dillard, C.; Elabd, Y.A.; Kalra, V. Binder-free Three-dimensional High Energy Density Electrodes for Ionic-Liquid Supercapacitors. *Chem. Commun.* **2015**, *51*, 13670-13763.
26. Meek, K.M.; Sharick, S.; Ye, Y.; Winey, K.I.; Elabd, Y.A. Bromide and Hydroxide Conductivity-Morphology Relationships in Polymerized Ionic Liquid Block Copolymers. *Macromolecules* **2015**, *48*, 4850-4862.

27. Ansaloni, L.; Nykaza, J.R.; Ye, Y.; Elabd, Y.A.; Giacinti Baschetti, M. Influence of Water Vapor on the Gas Permeability of Polymerized Ionic Liquid Membranes. *J. Membr. Sci.*, **2015**, *487*, 199-208.
28. Salazar, M.; Richey, F.; Elabd, Y.A.; Reznikov, M. Further Improvement of the Ionic Thermoelectric Generator. *IEEE Transactions on Industrial Applications* **2015**, *51*, 1132-1136.
29. Richey, F.W.; Tran, C.; Kalra, V.; Elabd, Y.A. Ionic Liquid Dynamics in Nanoporous Carbon Nanofibers in Supercapacitors Measured with *in operando* Infrared Spectroelectrochemistry. *J. Phys. Chem. C*, **2014**, *118*, 21846-21855.
30. Forrey, C.; Saylor, D.M.; Silverstein, J.S.; Douglas, J.F.; Davis, E.M.; Elabd, Y.A. Prediction and Validation of Diffusion Coefficients in a Model Drug Delivery System Using Microsecond Atomistic Molecular Dynamics Simulation and Vapor Sorption Analysis. *Soft Matter* **2014**, *10*, 7480-7494.
31. Nykaza, J.R.; Ye, Y.; Elabd, Y.A. Polymerized Ionic Liquid Diblock Copolymers with Long Alkyl Side-Chain Length. *Polymer* **2014**, *55*, 3360-3369. **Invited Contribution, Special Issue on Polymerized Ionic Liquids**
32. Wang, X.; Richey, F.W.; Wujcik, K.; Ventura, R.; Mattson, K.; Elabd, Y.A. Effect of Polytetrafluoroethylene on Ultra-Low Platinum Loaded Electrospun/Electrosprayed Electrodes in Proton Exchange Membrane Fuel Cells. *Electrochimica Acta* **2014**, *139*, 217-224.
33. Zhang, L.; Kucera, L.R.; Ummadisetty, S.; Nykaza, J.R.; Elabd, Y.A.; Story, R.F.; Cavicchi, K.A.; Weiss, R.A. Supramolecular Multiblock Polystyrene-Polyisobutylene Copolymers via Ionic Interactions. *Macromolecules* **2014**, *47*, 4387-4396.
34. Wang, X.; Richey, F.W.; Wujcik, K.; Elabd, Y.A. Ultra-Low Platinum Loadings in Proton Exchange Membrane Fuel Cell Electrodes Fabricated via Simultaneous Electrospinning/Electrospraying Method. *J. Power Sources* **2014**, *264*, 42-48.
35. Dever, D.O.; Cairncross, R.A.; Elabd, Y.A. Nanofiber Cathode Catalyst Layer Model for a Proton Exchange Membrane Fuel Cell. *J. Fuel Cell Sci. & Tech.* **2014**, *11*, 041007, 1-13.
36. Choi, U.H.; Ye, Y.; Salas de la Cruz, D.; Liu, W.; Winey, K.I., Elabd, Y.A.; Runt, J.; Colby, R.H. Dielectric and Viscoelastic Responses of Imidazolium-Based Ionomers with Different Counterions and Side Chain Lengths. *Macromolecules* **2014**, *47*, 777-790.
37. Liu, Y.; Kim, E.; Lee, M.E.; Zhang, B.; Elabd, Y.A.; Wang, Q.; White, I.M. Bentley, W.E.; Payne, G.F. Enzymatic Writing to Soft Films: Potential to Filter, Store and Analyze Biologically-relevant Chemical Information. *Adv. Funct. Mater.* **2014**, *24*, 480-491.
38. Davis, E.M.; Elabd, Y.A. Water Clustering in Glassy Polymers. *J. Phys. Chem. B* **2013**, *117*, 10629-10640.
39. Price, S.C.; Ren, X.; Jackson, A.C.; Ye, Y.; Elabd, Y.A.; Beyer, F.L. Bicontinuous Alkaline Fuel Cell Membranes from Strongly Self-Segregating Block Copolymers. *Macromolecules* **2013**, *46*, 7332-7340.
40. Davis, E.M.; Elabd Y.A. Prediction of Water Solubility in Glassy Polymers Using Nonequilibrium Thermodynamics. *Ind. Eng. Chem. Res.* **2013**, *52*, 12865-12875.
41. Richey, F.W.; Dyatkin, B.; Gogotsi, Y.; Elabd, Y.A. Ion Dynamics in Porous Carbon Electrodes in Supercapacitors using *in situ* Infrared Spectroelectrochemistry. *J. Amer. Chem. Soc.* **2013**, *135*, 12818-12826.
42. Choi, J.-H.; Ye, Y.; Elabd, Y.A.; Winey, K.I. Network Structure and Strong Microphase Separation for High Ion Conductivity in Polymerized Ionic Liquid Block Copolymers. *Macromolecules* **2013**, *46*, 5290-5300.

43. Davis, E.M.; Minelli, M.; Baschetti, M.G.; Jr.; Elabd, Y.A. Non-Fickian Diffusion of Water in Polylactide. *Ind. Eng. Chem. Res.* **2013**, *52*, 8664-8673. **Invited Contribution, Professor Giulio Sarti Festschrift**
44. Ye, Y.; Wang, S.; Davis, E.M.; Winey, K.I.; Elabd, Y.A. High Hydroxide Conductivity in Polymerized Ionic Liquid Block Copolymers. *ACS Macro Letters* **2013**, *2*, 575-580.
45. Ye, Y.; Stokes, K.K.; Beyer, F.L.; Elabd, Y.A. Development of Phosphonium-based Bicarbonate Anion Exchange Polymer Membranes. *J. Membrane Sci.* **2013**, *443*, 93-99.
46. Richey, F.W.; Elabd, Y.A. In Situ Spectroscopic Measurements of Individual Cation and Anion Dynamics in a RuO<sub>2</sub> Electrochemical Capacitor. *J. Electrochem. Soc.* **2013**, *160*, A862-A868.
47. Salerno, H.L.S.; Elabd, Y.A. Anion Exchange Membranes Derived from Nafion Precursor for Alkaline Fuel Cells: Effect of Cation Type on Properties. *J. Appl. Polym. Sci.* **2013**, *127*, 298-307.
48. Salazar, M.; Richey, F.; Elabd, Y.; Reznikov, M. Further Improvement of Ionic Thermoelectric Generator. *2013 IEEE Industrial Applications Society Annual Meeting Proceedings*, **2013**, 1-3.
49. Richey, F.W.; Elabd, Y.A. In Situ Molecular Level Measurements of Ion Dynamics in an Electrochemical Capacitor. *J. Phys. Chem. Lett.* **2012**, *3*, 3297-3301.
50. Davis, E.M.; Minelli, M.; Baschetti, M.G.; Jr.; Sarti, G.C.; Elabd, Y.A. Nonequilibrium Sorption of Water in Polylactide. *Macromolecules*, **2012**, *45*, 7486-7494.
51. Ye, Y.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Polymerized Ionic Liquid Block and Random Copolymers: Effect of Weak Microphase Separation on Ion Transport. *Macromolecules* **2012**, *45*, 7027-7035.
52. Salerno, H.L.S.; Beyer, F.L.; Elabd, Y.A. Anion Exchange Membranes Derived from Nafion Precursor for Alkaline Fuel Cells. *J. Polym. Sci. Part B: Polym. Phys.* **2012**, *50*, 552-562.
53. Salas-de la Cruz, D.; Green, M.D.; Ye, Y.; Elabd, Y.A.; Long, T.E.; Winey, K.I. Correlating Backbone-to-Backbone Distance to Ionic Conductivity in Amorphous Polymerized Ionic Liquids. *J. Polym. Sci.: Part B: Pol. Phys.* **2012**, *50*, 338-346.
54. Smith, D.M.; Dong, B.; Marron, R.W.; Birnkrant, M.J.; Elabd, Y.A.; Natarajan, L.V.; Tondiglia, V.P.; Bunning, T.J.; Li, C.Y. Tuning Ionic Conducting Pathways Using Holographic Polymerization. *Nano Letters* **2012**, *12*, 310-314.
55. Ye, Y.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Polymerized Ionic Liquids: Comparing Ion Transport-Morphology Relationships in Block and Random Copolymers. *ACS Polymer Preprints* **2012**, *53* (1), 252-253.
56. Weber, R.L.; Ye, Y.; Schmitt, A.L.; Banik, S.M.; Elabd, Y.A.; Mahanthappa, M.K. Nanostructured Polymerized Ionic Liquid Block Copolymers. *ACS Polymer Preprints* **2012**, *53* (1), 250-251.
57. Davis, E.M.; McDermott, M.K.; Benetatos, N.M.; Elabd, Y.A. Drug Delivery in Biodegradable Polymer Coatings used in Drug-Eluting Medical Devices: An Infrared Spectroscopic Investigation. *ACS Polymeric Materials: Science and Engineering* **2012**, *106*, 167-168.
58. Ye, Y.; Elabd, Y.A. Chemical Stability of Anion Exchange Membranes for Alkaline Fuel Cells; In *Polymers for Energy Storage and Delivery: Polyelectrolytes for Batteries and Fuel Cells*. Page, K.A.; Soles, C.L.; Runt, J., Eds.; Oxford University Press, 2012; ACS Symposium Series 1096, pp 234-251. **Invited Contribution**
59. Green, M.D.; Salas-de la Cruz, D.; Ye, Y.; Layman, J.M.; Elabd, Y.A.; Winey, K.I.; Long, T.E. Alkyl-Substituted *N*-Vinylimidazolium Polymerized Ionic Liquids: Thermal Properties and Ionic Conductivities. *Macromol. Chem. Phys.* **2011**, *212*, 252-2528.

60. Ye, Y.; Elabd, Y.A. Relative Chemical Stability of Alkaline Exchange Polymerized Ionic Liquids. *Macromolecules* **2011**, *44*, 8494-8503.
61. Davis, E.M.; Theryo, G.; Hillmyer, M.A.; Cairncross, R.A.; Elabd, Y.A. Liquid Water Transport in Polylactide Homo and Graft Copolymers. *ACS Applied Materials & Interfaces* **2011**, *3*, 3997-4006.
62. Davis, E.M.; Benetatos, N.M.; Regnault, W.F.; Winey, K.I.; Elabd, Y.A. The Influence of Thermal History on the Structure and Water Transport in Parylene C Coatings. *Polymer* **2011**, *52*, 5378-5386.
63. Weber, R.L.; Ye, Y.; Banik, S.M.; Elabd, Y.A.; Hickner, M.A.; Mahanthappa, M.K. Thermal and Ion Transport Properties of Hydrophilic and Hydrophobic Polymerized Styrenic Imidazolium Ionic Liquids. *J. Polym. Sci.: Part B: Pol. Phys.* **2011**, *49*, 1287-1296.
64. Weber, R.L.; Ye, Y.; Schmitt, A.L.; Banik, S.M.; Elabd, Y.A.; Mahanthappa, M.K. Effect of Nanoscale Morphology on the Conductivity of Polymerized Ionic Liquid Block Copolymers. *Macromolecules* **2011**, *44*, 5727-5735.
65. McPeak, K.M.; Le, T.P.; Britton, N.G.; Nickolov, Z.S.; Elabd, Y.A.; Baxter, J.B. Chemical Bath Deposition of ZnO Nanowires at Near-Neutral pH Conditions without Hexamethylenetetramine (HMTA): Understanding the Role of HMTA in ZnO Nanowire Growth. *Langmuir* **2011**, *27*, 3672-3677.
66. Ye, Y.; Elabd, Y.A. Anion Exchanged Polymerized Ionic Liquids: High Free Volume Single Ion Conductors. *Polymer* **2011**, *52*, 1309-1317.
67. Elabd, Y.A.; Hickner, M.A. Block Copolymers for Fuel Cells. *Macromolecules* **2011**, *44*, 1-11. **Invited Contribution, Perspective Article**
68. Dong, B.; Chen, H.; Snyder, J.; Elabd, Y.A. Super Proton Conductive Nafion Nanofibers: Discovery, Fabrication, Properties, and Fuel Cell Performance. *Electrochemical Society Transactions* **2011**, *41* (1), 1503-1507.
69. Weber, R.L.; Ye, Y.; Elabd, Y.A.; Mahanthappa, M.K. Molecular Structure and Morphology Influence Ionic Conductivity in Polymerized Ionic Liquid Homopolymers and Block Copolymers. *ACS Polymeric Materials: Science and Engineering* **2011**, *105*, 783.
70. Ye, Y.; Mace, E.J.; Elabd, Y.A. Stable Hydroxide Anion Exchange Polymerized Ionic Liquid. *ACS Polymer Preprints* **2011**, *52* (1), 566-567.
71. Davis, E.M.; Minelli, M.; Baschetti, M.G.; Sarti, G.C.; Elabd, Y.A. Sorption and Diffusion of Water Vapor in Polylactide: Experiments and Model Predictions. *ACS Polymer Preprints* **2011**, *52* (1), 313-314.
72. Gwee, L.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Block Copolymer/Ionic Liquid Films: The Effect of Ionic Liquid Composition on Morphology and Ion Conduction. *Polymer* **2010**, *51*, 5516-5524.
73. Dong, B.; Gwee, L.; Salas-de la Cruz, D.; Winey, K.I. Elabd, Y.A. Super Proton Conductive High Purity Nafion Nanofibers. *Nano Letters* **2010**, *10*, 3785-3790.
74. Hallinan, D.T., Jr.; De Angelis, M.G.; Baschetti, M.G.; Jr.; Sarti, G.C.; Elabd, Y.A. Non-Fickian Diffusion of Water in Nafion. *Macromolecules* **2010**, *43*, 4667-4678.
75. Rahmathullah, M. Aflal M.; Snyder, J.D.; Elabd, Y.A.; Palmese, G.R. Nanoporous and Proton Conductive Hydrophobic-Hydrophilic Copolymer Thermoset Membranes. *J. Polym. Sci.: Part B: Pol. Phys.* **2010**, *48*, 1245-1255.
76. Antonietti, M.; Shen, Y.; Nakanishi, T.; Manuelian, M.; Campbell, R.; Gwee, L.; Elabd, Y.A.; Tambe, N.; Crombez, R.; Texter, J. Single Wall Carbon Nanotube Latexes. *ACS Applied Materials & Interfaces* **2010**, *2*, 649-653.

77. Rahmathullah, M. Aflal M.; Elabd, Y.A.; Palmese G.R. Kinetic and Thermomechanical Analysis of Hydrophobic-Hydrophilic Copolymer Thermosets Synthesized via Free-Radical Polymerization. *J. Appl. Polym. Sci.* **2010**, *115*, 1419-1427.
78. Hallinan, D.T., Jr.; De Angelis, M.G.; Baschetti, M.G.; Jr.; Sarti, G.C.; Elabd, Y.A. Water Transport in Proton Exchange Membranes: Insights from Time-Resolved Infrared Spectroscopy. *Electrochemical Society Transactions* **2010**, *33* (1), 1029-1033.
79. Davis, E.M.; Elabd, Y.A.; Winey, K.I.; Regnault, W.F.; Benetatos, N.M. New Characterization Techniques for Assessing the Structure and Water Transport of Parylene Coatings. *ACS Polymeric Materials: Science and Engineering* **2010**, *102*, 59-60.
80. Schaeffer, H.; Elabd, Y.A. Nafion-Based Anion Exchange Membranes for the Alkaline Fuel Cell. *ACS Polymeric Materials: Science and Engineering* **2010**, *102*, 439-440.
81. Ye, Y.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ion Conduction in Polymerized Ionic Liquids: The Effect of Anion Type. *ACS Polymer Preprints* **2010**, *51* (1), 688-689.
82. Gwee, L.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Ionic Liquid-Polymer Solid-State Films: The Effect of Ionic Liquid Composition on Morphology and Ion Conduction. *ACS Polymer Preprints* **2010**, *51* (1), 421-422.
83. Chen, L.; Hallinan, D.T. Jr.; Elabd, Y.A.; Hillmyer, M.A. Highly Selective Polymer Electrolyte Membranes From Reactive Block Polymers. *Macromolecules*, **2009**, *42*, 6075-6085.
84. Chen, H.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Polymerized Ionic Liquids: The Effect of Copolymer Composition on Ion Conduction. *Macromolecules* **2009**, *42*, 4809-4816.
85. Chen, H.; Elabd, Y.A. Electrospinning and Solution Properties of Polymerized Ionic Liquids. *Macromolecules* **2009**, *42*, 3368-3373.
86. Hallinan, D.T., Jr.; Elabd, Y.A. Diffusion of Water in Nafion using Time-Resolved FTIR-ATR Spectroscopy. *J. Phys. Chem. B* **2009**, *113*, 4257-4266.
87. Snyder, J.D.; Elabd, Y.A. Nafion<sup>®</sup> Nanofibers and Their Effect on Polymer Electrolyte Membrane Fuel Cell Performance. *J. Power Sources* **2009**, *186*, 385-392.
88. Chen, H.; Gwee, L.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Conduction in Polymerized Ionic Liquids and Ionic Liquid-Polymer Mixtures. *ACS Polymeric Materials: Science and Engineering* **2009**, *100*, 696-697.
89. Chen, H.; Rahmathullah, A.M.; Palmese, G.R.; Elabd, Y.A. Polymer-Polymer Nanocomposite Membranes as Breathable Barriers with Electro-Sensitive Permeability; In *Nanoscience and Nanotechnology for Chemical and Biological Defense*. Nagarajan, R.; Zukas, W.; Hatton, T.A.; Lee, S., Eds.; Oxford University Press, 2009; ACS Symposium Series 1016, pp 307-322. **Invited Contribution**
90. Chen, H.; Snyder, J.D.; Elabd, Y.A. Electrospinning and Solution Behavior of Nafion and Poly(acrylic acid). *Macromolecules* **2008**, *41*, 128-135.
91. Chen, H.; Elabd, Y.A. Ionic Liquid Polymers: Electrospinning and Solution Properties. *ACS Polymeric Materials: Science and Engineering* **2008**, *99*, 646-647.
92. Chen, H.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Liquid Polymers: The Effect of Copolymer Composition on Structure and Ion Conduction. *ACS Polymeric Materials: Science and Engineering* **2008**, *99*, 21-22.

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## PATENTS

1. U.S. Patent 10,112,001, November 6, 2018.
2. U.S. Patent 9,806,314, October 31, 2017.
3. U.S. Patent 9,365,688, June 14, 2016.
4. U.S. Patent 8,853,286, October 7, 2014.
5. U.S. Patent 8,686,054, April 1, 2014.
6. U.S. Patent 8,173,713, May 8, 2012.
7. U.S. Patent 7,307,127, December 11, 2007. **Featured in Homeland Security Daily Wire, February 2008.**

## PRESENTATIONS (Presenter Underlined)

1. Elabd, Y.A. Hydroxide Conducting Block Copolymers. American Physical Society Meeting, March 2021. *Oral Presentation (Virtual)* **Invited Speaker**
2. Sun, R.; Agrawal, M.; Elabd, Y.A. Proton Conducting Sulfonated Poly(ionic liquid) Block Copolymers. AIChE Annual Meeting, Orlando, FL, November 2019. *Oral Presentation*
3. Chen, T.-L.; Sun, R.; Willis, C.; Elabd, Y.A. Poly(ionic liquid) Pentablock Terpolymer Electrolytes in Solid-State Lithium Ion Batteries. AIChE Annual Meeting, Orlando, FL, November 2019. *Oral Presentation*
4. Lathrop, P.; Elabd, Y.A. ABC Polymeric Ionic Liquid Terpolymers. AIChE Annual Meeting, Orlando, FL, November 2019. *Poster Presentation*
5. Elabd, Y.A. Hydroxide Conducting Block Copolymers. Fall National Meeting of the American Chemical Society, San Diego, CA, August 2019. *Oral Presentation* **Invited Speaker**
6. Chen, T.-L.; Sun, R.; Willis, C.L.; Morgan, B.; Beyer, F.L.; Elabd, Y.A. Room Temperature Solid-State Lithium Polymer Battery with Polyionic Liquid Pentablock Terpolymer Electrolyte, 235<sup>th</sup> Electrochemical Society Meeting, Dallas, TX, May 2019. *Oral Presentation*
7. Hwang, M.; Willis, C.L.; Elabd, Y.A. Alkaline Fuel Cell Performance of Saturated *N*-Heterocyclic Cationic Multiblock Polymers, 235<sup>th</sup> Electrochemical Society Meeting, Dallas, TX, May 2019. *Oral Presentation*
8. Elabd, Y.A. Transport-Morphology Relationships in Polymerized Ionic Liquid Multiblock Polymers. Spring National Meeting of the American Chemical Society, Orlando, FL, April 2019. *Oral Presentation* **Invited Speaker**

9. Elabd, Y.A. Ion Transport in Anion Exchange Membranes for Alkaline Fuel Cells. Spring National Meeting of the American Chemical Society, Orlando, FL, April 2019. *Oral Presentation* **Invited Speaker**
10. Mara, N.; Hwang, M.; Elabd, Y.A. Pentablock Terpolymer Nanofiber-Particle Electrodes for Ultra-Low Platinum Alkaline Fuel Cells. Regional AIChE Meeting, Lubbock, TX, March 2019. *Poster Presentation*
11. Sun, R.; Hwang, M.; Willis, C.L.; Elabd, Y.A. Saturated N-Heterocyclic Cationic Polymers as Anion Exchange Membranes in Alkaline Fuel Cells. AIChE Annual Meeting, Pittsburgh, PA, November 2018. *Oral Presentation*
12. Chen, T.-L.; Sun, R.; Willis, C.L.; Morgan, B.; Beyer, F.L.; Elabd, Y.A. Lithium Ion Conducting Multiblock Polymers as Solid-State Electrolytes for Lithium Ion Batteries. AIChE Annual Meeting, Pittsburgh, PA, November 2018. *Oral Presentation*
13. Elabd, Y.A.; Meek, K.M.; Sun, R.; Hwang, M.; Chen, T.-L.; Willis, C. Saturated N-Heterocyclic Multiblock Polymers as Solid-State Separators in Alkaline Fuel Cells and Lithium Ion Batteries. Fall National Meeting of the American Chemical Society, Boston, MA, August 2018. *Oral Presentation* **Invited Speaker**
14. Hwang, M.; Karenson, M.; Elabd, Y.A. High Production Rate of Nafion Nanofibers *via* Needleless Electrospinning. AIChE Annual Meeting, Pittsburgh, PA, November 2018. *Poster Presentation*
15. Hwang, M.; Willis, C.L.; Elabd, Y.A. Alkaline Fuel Cell Performance of Saturated N-Heterocyclic Multiblock Polymers. AIChE Annual Meeting, Pittsburgh, PA, November 2018. *Poster Presentation*
16. Sun, R.; Elabd, Y.A. Saturated N-Heterocyclic Cationic Polymers. Spring National Meeting of the American Chemical Society, New Orleans, LA, March 2018. *Poster Presentation*
17. ACS Division of Polymer Chemistry (POLY) Webinar, “The Power of Plastics: Polymerized Ionic Liquids and Nanosstructured Polymers for Battery and Other Applications, April 18, 2017, Moderator: Marc Hilmyer, University of Minnesota, Speakers: Yossef A. Elabd, Texas A&M University, and Thomas Epps III, University of Delaware. *Webinar* YouTube: [https://youtu.be/\\_T41tQzz91A](https://youtu.be/_T41tQzz91A)
18. Hwang, M.; Elabd, Y.A. Impact of Ionomer Resistance in Nanofiber-Nanoparticle Electrodes for Ultra-Low Platinum Fuel Cells. AIChE Annual Meeting, Minneapolis, MN, November 2017. *Oral Presentation*
19. Sun, R.; Meek, K.M.; Elabd, Y.A. Carbon Derived from Polymerized Ionic Liquids. AIChE Annual Meeting, Minneapolis, MN, November 2017. *Oral Presentation*
20. Meek, K.M.; Nykaza, J., Sun, R.; Willis, C.L.; Elabd, Y.A. Chemical Stability and Ion Transport in Polymerized Ionic Liquid Anion Exchange Membranes. Fall National Meeting of the American Chemical Society, Washington, D.C., August 2017. *Oral Presentation* **Selected as DSM Science & Technology Award Finalist**
21. Chen, T.-L.; Elabd, Y.A. Polymerized Ionic Liquid Pentablock Terpolymer for Lithium-Metal Batteries. AIChE Annual Meeting, Minneapolis, MN, November 2017. *Poster Presentation*
22. Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers for Alkaline Fuel Cells. Materials Research Society Fall National Meeting, Boston, MA, November 2016. *Oral Presentation* **Invited Speaker**
23. Meek, K.M.; Nykaza, J., Sun, R.; Willis, C.L.; Elabd, Y.A. Chemical Stability and Ion Transport in Polymerized Ionic Liquid Anion Exchange Membranes. AIChE Annual Meeting, San Francisco, CA, November 2016. *Oral Presentation* **Selected for Excellence in Graduate Polymer Research Session – Received 2<sup>nd</sup> Place Award in Session**
24. Santos, M.; Elabd, Y.A. *In Situ* Pressure-Contact Time-Resolved Fourier Transform Infrared Attenuated Total Reflectance Spectroscopy: A New Method to Measure Liquid Diffusion in Free-Standing Polymer Films. AIChE

- Annual Meeting, San Francisco, CA, November 2016. AIChE, San Francisco, CA, November 2016. *Oral Presentation*
25. Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers for Alkaline Fuel Cells. American Chemical Society Southwest Regional Meeting (ACS-SWRM), Galveston, TX, November 2016. *Oral Presentation* **Invited Speaker**
  26. Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers. American Chemical Society Meeting on Advanced Polymer Materials (ACS-APM), Houston, TX, November 2016. *Oral Presentation* **Invited Speaker**
  27. Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers for Alkaline Fuel Cells. 15<sup>th</sup> International Symposium on Polymer Electrolytes. Uppsala, Sweden, August 2016. *Oral Presentation* **Invited Speaker**
  28. Elabd, Y.A. Membranes for Fuel Cells. European Membrane Society Summer School, Bertinoro, Italy, June 2016. *Oral Presentation* **Invited Speaker**
  29. Sun, R.; Meek, K.M.; Elabd, Y.A. PIL-Derived Carbon. AIChE Annual Meeting, San Francisco, CA, November 2016. *Poster Presentation*
  30. Hwang, M.; Elabd, Y.A. Exploration of Nanofiber-Nanoparticle Electrodes Fabricated *via* Simultaneous Electrospinning/Electrospraying for Ultra-Low Platinum Fuel Cells. AIChE Annual Meeting, San Francisco, CA, November 2016. *Poster Presentation*
  31. Chen, T.-L.; Elabd, Y.A. Hybrid-Capacitors with Polyaniline/Carbon Electrodes Fabricated *via* Simultaneous Electrospinning/Electrospraying. AIChE Annual Meeting, San Francisco, CA, November 2016. *Poster Presentation*
  32. Lathrop, P.; Elabd, Y.A. Polymerized Ionic Liquid Triblock Terpolymers: Synthesis and Characterization. AIChE Annual Meeting, San Francisco, CA, November 2016. *Poster Presentation*
  33. Santos, M.; Jing, Y.; Fang, L.; Chaplin, B.; Elabd, Y.A. Highly Porous Ti<sub>4</sub>O<sub>7</sub> Reactive Electrode Membranes for Water Filtration. AIChE Annual Meeting, Salt Lake City, UT, November 2015. *Oral Presentation*
  34. Meek, K.M.; Savage, A.M.; Beyer, F.L.; Elabd, Y.A. Chemical Stability and Ion Transport in Polymerized Ionic Liquid Block Copolymer Anion Exchange Membranes with Various Cations. AIChE Annual Meeting, Salt Lake City, UT, November 2015. *Oral Presentation*
  35. Nykaza, J.R.; Li, Y.; Elabd, Y.A.; Snyder, J. The Hydroxide Conductivity and Chemical Stability of a Polymerized Ionic Liquid Diblock Copolymer for Alkaline Fuel Cells Using Rotating Disk Electrode. AIChE Annual Meeting, Salt Lake City, UT, November 2015. *Oral Presentation*
  36. Elabd, Y.A. Polymerized Ionic Liquid Block Copolymer as Anion Exchange Membranes. Fall National Meeting of the American Chemical Society, Boston, MA, August 2015. *Oral Presentation* **Invited Speaker**
  37. Meek, K.M.; Beyer, F.L.; Elabd, Y.A. Transport and Morphology of Polymerized Ionic Liquid Block Copolymer Anion Exchange Membranes with Various Cations. Spring National Meeting of the American Chemical Society, Denver, CO, March 2015. *Oral Presentation*
  38. Nykaza, J.R.; Sharick, S.; Davis, E.M.; Ye, Y.; Page, K.A.; Jackson, A.; Beyer, F.L.; Winey, K.I.; Elabd, Y.A. Impact of Alkyl Chain Length on Ion Conduction and Morphology in Polymerized Ionic Liquid Diblock Copolymers. Spring National Meeting of the American Chemical Society, Denver, CO, March 2015. *Oral Presentation*
  39. Elabd, Y.A. Water in Renewable Polymers: Nonequilibrium Thermodynamics. American Physical Society Meeting, San Antonio, TX, March 2015. *Oral Presentation* **Invited Speaker**

40. Weiss, R.A.; Zhang, L.; Cavicchi, K.A.; Story R.F.; Kucera, L.R.; Ummadisetty, S.; Elabd, Y.A.; Nykaza, J.R. Synthesis and Properties of Supramolecular Multiblock Copolymers Formed From Ionic Bonds. Materials Research Society Fall Meeting, Boston, MA, December 2014. *Oral Presentation*
41. Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers: Highly Versatile Ion Conductors. Annual Meeting of the American Institute of Chemical Engineers, Atlanta, GA, November 2014. *Oral Presentation* **Invited Speaker**
42. Ye, Y.; Nykaza, J.R.; Meek, K.M.; Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers as Anion Exchange Membranes for Alkaline Fuel Cells. Annual Meeting of the American Institute of Chemical Engineers, Atlanta, GA, November 2014. *Oral Presentation* **Invited Speaker**
43. Ansaloni, L.; Nykaza, J.R.; Minelli, M.; Elabd, Y.A.; Giacinti Baschetti, M. Polymerized Ionic Liquid Membranes for CO<sub>2</sub> Capture: The Effect of Water Vapor. Annual Meeting of the American Institute of Chemical Engineers, Atlanta, GA, November 2014. *Oral Presentation*
44. Richey, F.W.; Hallinan, Jr., D.T.; Elabd, Y.A. In Situ Time-Resolved Infrared Spectroelectrochemistry of Fuel Cells and Electrochemical Capacitors. Spring National Meeting of the American Chemical Society, Dallas, TX, March 2014. *Oral Presentation* **Invited Speaker**
45. Nykaza, J.R.; Ye, Y.; Elabd, Y.A. Synthesis of Long-Chain Polymerized Ionic Liquid Diblock Copolymers with High Ion Conductivity. Spring National Meeting of the American Chemical Society, Dallas, TX, March 2014. *Oral Presentation*
46. Meek, K.M.; Ye, Y.; Elabd, Y.A. Chemical Stability of Polymerized Ionic Liquid Block Copolymer Anion Exchange Membranes with Various Cations. Spring National Meeting of the American Chemical Society, Dallas, TX, March 2014. *Oral Presentation*
47. Sharick, S.; Meek, K.; Ye, Y.; Elabd, Y.A.; Winey, K.I. Morphology and Ionic Conductivity of Humidity-Responsive Polymerized Ionic Liquid Block Copolymers. American Physical Society Meeting, Denver, CO, March 2014. *Oral Presentation*
48. Benjamin, R.; Nykaza, J.R.; Elabd, Y.A. Alkaline Fuel Cell Performance with a Polymerized Ionic Liquid Block Copolymer as Anion Exchange Membrane. Annual Meeting of the American Institute of Chemical Engineers, Atlanta, GA, November 2014. *Poster Presentation* **Received 3<sup>rd</sup> Place Award in the Materials Science and Engineering Poster Competition**
49. Nykaza, J.R.; Elabd, Y.A. Polymerized Ionic Liquid Block Copolymers as Solid-State Polymer Electrolytes for Lithium-Ion Batteries. Annual Meeting of the American Institute of Chemical Engineers, Atlanta, GA, November 2014. *Poster Presentation*
50. Jackson, A.C.; Li, Y.; Nykaza, J.R.; Elabd, Y.A.; Knauss, D.M.; Beyer, F.L.; Walck, S.D. HAADF STEM of Phase Separated Anion Exchange Membranes Prepared by Ultramicrotomy. Microscopy and Microanalysis Meeting, Hartford, CT, August 2014. *Poster Presentation*
51. Ansaloni, L.; Nykaza, J.; Minelli, M.; Elabd, Y.A.; Giacinti Baschetti, M. Characterization of the Gas Transport Properties of PILs Membranes under Humid Conditions. ICOM 2014 - The 10<sup>th</sup> International Congress on Membranes and Membrane Processes, Suzhou, China, July 2014. *Poster Presentation*
52. Dyatkin, B.; Richey, F.W.; Elabd, Y.A.; Gogotsi, Y. Novel in situ Infrared Spectroelectrochemistry Technique for Analyzing Ionic Liquid Electrolyte Dynamics at Interfaces of Carbon Supercapacitor Electrodes. Materials Research Society Meeting, Boston, MA, December 2013. *Oral Presentation*
53. Nykaza, J.R.; Meek, K.M.; Ye, Y.; Elabd, Y.A. Invited Talk: Block Copolymers as Anion Exchange Membranes for Alkaline Fuel Cells. Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2013. *Oral Presentation* **Invited Speaker**

54. Richey, F.W.; Dyatkin, B.; Gogotsi, Y.; Elabd, Y.A. Time-Resolved Ion Dynamics in Carbon Supercapacitor Electrodes Using In Situ Infrared Spectroscopy. Ion Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2013. *Oral Presentation*
55. Davis, E.M.; Elabd, Y.A. Water Sorption and Diffusion in Glassy Polymers: Nonequilibrium Thermodynamics and States of Water. Ion Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2013. *Oral Presentation*
56. Richey, F.W.; Dyatkin, B.; Gogotsi, Y.; Elabd, Y.A. Time-Resolved Ion Dynamics in Carbon Supercapacitor Electrodes Using In Situ Infrared Spectroscopy. 224<sup>th</sup> Electrochemical Society Meeting, San Francisco, CA, October 2013. *Oral Presentation* **Received ECS Student Travel Award**
57. Dyatkin, B.; Richey, F.W.; Elabd, Y.A.; Gogotsi, Y. Time-Resolved Ion Mobility in Supercapacitor Electrodes Studied Using In Situ Attenuated Total Reflectance Infrared Spectroscopy. Materials Research Society Meeting, San Francisco, CA, April 2013. *Oral Presentation*
58. Wang, S.; Ye, Y.; Elabd, Y.A.; Winey, K.I. Morphologies and Ionic Conductivity in Polymerized Ionic Liquid Block Copolymers. Materials Research Society Meeting, San Francisco, CA, April 2013.
59. Elabd, Y.A. Fuel Cell Membranes. Short course on Membranes for Clean Water and Energy. American Physical Society Meeting, Baltimore, MD, March 2013. *Oral Presentation* **Invited Speaker**
60. Davis E.M.; Elabd, Y.A. States of Water in Non-Equilibrium Glassy Polymers. American Physical Society Meeting, Baltimore, MD, March 2013. *Oral Presentation*
61. Beyer, F.L.; Price, S.; Jackson, A.; Ren, X.; Chu, D.; Ye, Y.; Elabd, Y.A. Anion Exchange Membranes Based on Reactive Block Copolymers. American Physical Society Meeting, Baltimore, MD, March 2013. *Oral Presentation*
62. Wang, S.; Ye, Y.; Elabd, Y.A.; Winey, K.I. Ordered and Disordered Polymerized Ionic Liquid Block Copolymers: Morphology and Ion Conductivity. American Physical Society Meeting, Baltimore, MD, March 2013. *Oral Presentation*
63. Choi, J.-H.; Ye, Y.; Elabd, Y.A.; Winey, K.I. Effect of Morphology on Ion Transport in Polymerized Ionic Liquid Block Copolymers. American Physical Society Meeting, Baltimore, MD, March 2013. *Oral Presentation*
64. Elabd, Y.A. Block Copolymers in Fuel Cells. Advanced in Materials for Proton Exchange Membrane Fuel Cells Systems Meeting, sponsored by The Division of Polymer Chemistry (POLY) of the American Chemical Society, Asilomar, CA, February 2013. *Oral Presentation* **Invited Speaker**
65. Dyatkin, B.; Richey, F.W.; Elabd, Y.A.; Gogotsi, Y. Ionic Liquid Electrolyte Dynamics in Porous Architectures of Supercapacitor Electrodes Determined via in situ Infrared Spectroelectrochemistry. Materials Research Society Meeting, Boston, MA, December 2013. *Poster Presentation*
66. Nykaza, J.R.; Ye, Y.; Elabd, Y.A. Synthesis of Imidazolium-based Polymerized Ionic Liquid Diblock Copolymers. Gordon Research Conference – Polymers, South Hadley, MA, June 2013. *Poster Presentation*
67. Meek, K.M.; Elabd, Y.A. Chemical Stability of Imidazolium-based Block Copolymers as Anion Exchange Membranes. Gordon Research Conference – Polymers, South Hadley, MA, June 2013. *Poster Presentation*
68. Benjamin, R.R.; Nykaza, J.R.; Meek, K.M.; Ye, Y.; Elabd, Y.A. Development and Characterization of Solid State Polymer Electrolyte Membranes for Use in Alkaline Fuel Cells. National Conference on Undergraduate Research (NCUR), University of Wisconsin – La Crosse, La Crosse, Wisconsin, April 2013. *Poster Presentation*

69. Ye, Y.; Choi, J.; Wang, S.; Winey, K.I.; Elabd, Y.A. Hydroxide Conducting Polymerized Ionic Liquid Block Copolymers for Alkaline Fuel Cells. Annual Meeting of the American Institute of Chemical Engineers, Pittsburgh, PA October 2012. *Oral Presentation* **Invited Speaker**
70. Davis, E.M.; Elabd, Y.A. Non-Equilibrium Sorption and Anomalous Diffusion in Glassy Polymers. Annual Meeting of the American Institute of Chemical Engineers, Pittsburgh, PA October 2012. *Oral Presentation*
71. Kim, E.; Gordonov, T.; Liu, Y.; Elabd, Y.A.; Bentley, W.E.; Payne, G.F. Bio-based Redox-Capacitor to Intercede in Microbe-Electrode Electron Flow. Annual Meeting of the American Institute of Chemical Engineers, Pittsburgh, PA October 2012. *Oral Presentation*
72. Richey, F.W.; Dyatkin, B.; Gogotsi, Y.; Elabd, Y.A. Measuring Ion Transport in Energy Storage Devices Using In Situ Time-Resolved Infrared Spectroscopy. 222<sup>nd</sup> Electrochemical Society Meeting, Honolulu, HI, October 2012. *Oral Presentation*
73. Ye, Y.; Choi, J.; Wang, S.; Winey, K.I.; Elabd, Y.A. Ion Transport in Polymerized Ionic Liquid Block and Random Copolymers. World Polymer Congress, International Union of Pure and Applied Chemistry (IUPAC), Blacksburg, VA, June 2012. *Oral Presentation* **Invited Speaker**
74. Choi, J.; Ye, Y.; Green, M.D.; Elabd, Y.A.; Long, T.E.; Winey, K.I. Ion Conduction in Polymerized Ionic Liquid Thin Films. World Polymer Congress, International Union of Pure and Applied Chemistry (IUPAC), Blacksburg, VA, June 2012. *Oral Presentation*
75. Price, S.C.; Jackson, A.C.; Stokes, K.K.; Beyer, F.L.; Ye, Y.; Elabd, Y.A. Developing Ionomers with Controlled Morphologies for Anion Exchange Membranes. World Polymer Congress, International Union of Pure and Applied Chemistry (IUPAC), Blacksburg, VA, June 2012. *Oral Presentation*
76. Ye, Y.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Polymerized Ionic Liquids: Comparing Ion Transport-Morphology Relationships in Block and Random Copolymers. Spring National Meeting of the American Chemical Society, San Diego, CA, March 2012. *Oral Presentation*
77. Weber, R.L.; Ye, Y.; Schmitt, A.L.; Banik, S.M.; Elabd, Y.A.; Mahanthappa, M.K. Nanostructured Polymerized Ionic Liquid Block Copolymers. Spring National Meeting of the American Chemical Society, San Diego, CA, March 2012. *Oral Presentation*
78. Davis, E.M.; McDermott, M.K.; Benetatos, N.M.; Elabd, Y.A. Drug Delivery in Biodegradable Polymer Coatings used in Drug-Eluting Medical Devices: An Infrared Spectroscopic Investigation. Spring National Meeting of the American Chemical Society, San Diego, CA, March 2012. *Oral Presentation*
79. Richey, F.; Elabd, Y.A. Ion Dynamics in Solid-State Polymer Electrolyte Electrochemical Cells using in situ Time-Resolved Infrared Spectroscopy. American Physical Society Meeting, Boston, MA, March 2012. *Oral Presentation*
80. Choi, J.-H.; Ye, Y.; Green, M.D.; Elabd, Y.A.; Long, T.E.; Winey, K.I. Ion Conduction in Polymerized Ionic Liquid Thin Films. American Physical Society Meeting, Boston, MA, March 2012. *Oral Presentation*
81. Choi, U.-H.; Lee, M.; Mittal, A.; Ye, Y.; Elabd, Y.A.; Gibson, H.; Runt, J.; Colby, R. Ion Conduction and Dielectric Response of Imidazolium-Based Single-Ion Conductors. American Physical Society Meeting, Boston, MA, March 2012. *Oral Presentation*
82. Elabd, Y.A.; Ye, Y.; Choi, J.-H.; Winey, K.I. Ion Transport in Polymerized Ionic Liquid Block and Random Copolymers. American Physical Society Meeting, Boston, MA, March 2012. *Oral Presentation*
83. Davis, E.D.; Minelli, M.; Baschetti, M.B.; Sarti, G.C.; Elabd, Y.A. Non-Equilibrium Water-Glassy Polymer Dynamics. American Physical Society Meeting, Boston, MA, March 2012. *Oral Presentation*

84. Beyer, F.L.; Price, S.; Jackson, A.; Gold, C.; Ye, Y.; Elabd, Y.A. Synthesis and Physical Behavior of Model Polymer Electrolyte Membranes for Alkaline Fuel Cells. American Physical Society Meeting, Boston, MA, March 2012. *Poster Presentation*
85. Wang, T.-S.; Ye, Y.; Elabd, Y.A.; Winey, K.I. Effect of Water Uptake on Morphology of Polymerized Ionic Liquid Block Copolymers and Random Copolymers. American Physical Society Meeting, Boston, MA, March 2012. *Poster Presentation*
86. Davis, E.D.; Minelli, M.; Baschetti, M.G.; Sarti, G.C.; Elabd, Y.A. Non-Equilibrium Sorption and Diffusion of Water In Polylactide: Experiments and Model Predictions. Annual Meeting of the American Institute of Chemical Engineers, Minneapolis, MN, October 2011. *Oral Presentation*
87. Dong, B.; Chen, H.; Snyder, J.D.; Elabd, Y.A. Super Conductive Nafion Nanofibers: Discovery, Fabrication, Properties and Fuel Cell Performance. 220<sup>th</sup> Electrochemical Society Meeting, Boston, MA, October 2011. *Oral Presentation*
88. Choi, U.H.; Ye, Y.; Lee, M.; Mittal, A.; Gibson, H.W.; Elabd, Y.A. Runt, J.; Colby, R.H. Conductivity and Dielectric Behavior of Imidazolium-based Polymers: Structure-Property Relationships. 4<sup>th</sup> Congress on Ionic Liquids, Arlington, VA, June 2011. *Oral Presentation*
89. Ye, Y.; Mace, E.J.; Elabd, Y.A. Stable Hydroxide Anion Exchange Polymerized Ionic Liquid. Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2011. *Oral Presentation* **Invited Speaker**
90. Choi, U.H.; Ye, Y.; Lee, M.; Mittal, A.; Gibson, H.W.; Elabd, Y.A. Runt, J.; Colby, R.H. Time Scales of Ion Transport in Imidazolium-based Polymers. American Physical Society Meeting, Dallas, TX, March 2011. *Oral Presentation*
91. Beyer, F.L.; Stokes, K.; Orlicki, J.; Ye, Y.; Elabd, Y.A. Morphology and Transport Properties of Phosphonium-containing Styrenic Ionomers with Random Charge Placement. American Physical Society (DPOLY) Meeting, Dallas, TX, March 2011. *Oral Presentation*
92. Elabd, Y.A. Transport Phenomena in Proton Exchange Membranes: A Molecular Perspective. Advanced in Materials for Proton Exchange Membrane Fuel Cells Systems Meeting, sponsored by The Division of Polymer Chemistry (POLY) of the American Chemical Society, Asilomar, CA, February 2011. *Oral Presentation* **Invited Speaker**
93. Richey, F.; Elabd, Y.A. Ion Transport in Ionic Polymer Actuators using In Situ Time-Resolved Infrared Spectroscopy. 220<sup>th</sup> Electrochemical Society Meeting, Boston, MA, October 2011. *Poster Presentation* **Received 1<sup>st</sup> Place Award**
94. Davis, E.M.; Minelli, M.; Baschetti, M.G.; Sarti, G.C.; Elabd, Y.A. Sorption and Diffusion of Water Vapor in Polylactide: Experiments and Model Predictions. Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2011. *Poster Presentation* **Received Excellence in Polymer Graduate Research Symposium Award**
95. Hallinan, D.T., Jr.; Elabd, Y.A. Understanding Water Diffusion and Ion Conductivity in Polymer Electrolyte Membranes. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2010. *Oral Presentation*
96. Ye, Y.; Elabd, Y.A. Imidazolium-Based Polymerized Ionic Liquids for Solid Polymer Electrolytes: The Effect of Anion Type. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2010. *Oral Presentation*
97. Hallinan, D.T., Jr.; De Angelis, M.G.; Baschetti, M.G.; Jr.; Sarti, G.C.; Elabd, Y.A. Water Transport in Proton Exchange Membranes: Insights from Time-Resolved Infrared Spectroscopy. 218<sup>th</sup> Electrochemical Society Meeting, Las Vegas, NV, October 2010. *Oral Presentation* **Invited Speaker**



98. Davis, E.M.; Elabd, Y.A.; Winey, K.I.; Regnault, W.F.; Benetatos, N.M. New Characterization Techniques for Assessing the Structure and Water Transport of Parylene Coatings. Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010. *Oral Presentation*
99. Hallinan, D.T., Jr.; Elabd, Y.A. Real-Time Molecular Measurements of Water Dynamics in Nafion using Fourier-Transform Infrared, Attenuated Total Reflectance Spectroscopy. Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010. *Oral Presentation* **Invited Speaker**
100. Ye, Y.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ion Conduction in Polymerized Ionic Liquids: The Effect of Anion Type. Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010. *Oral Presentation* **Invited Speaker**
101. Choi, J.-H.; Gwee, L.; Elabd, Y.A.; Winey, K.I. Morphologies in Diblock Copolymer and Ionic Liquid Mixtures. American Physical Society Meeting, Portland, OR, March 2010. *Oral Presentation*
102. Ye, Y.; Elabd, Y.A. Ion Conduction in Polymers Derived From Ionic Liquids. Gordon Research Conference – Polymer Physics, South Hadley, MA, June 2010. *Poster Presentation*
103. Davis, E.M.; Regnault, W.F.; Benetatos, N.M.; Elabd, Y.A. Water Transport in Glassy Polymers: Diffusion-Relaxation Phenomena. Gordon Research Conference – Polymer Physics, South Hadley, MA, June 2010. *Poster Presentation*
104. Gwee, L.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Ionic Liquid-Polymer Solid-State Films: The Effect of Ionic Liquid Composition on Morphology and Ion Conduction. Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010. *Poster Presentation* **Received Excellence in Polymer Graduate Research Symposium Award**
105. Schaeffer, H.; Elabd, Y.A. Nafion-Based Anion Exchange Membranes for the Alkaline Fuel Cell. Spring National Meeting of the American Chemical Society, San Francisco, CA, March 2010. *Poster Presentation*
106. Schaeffer, H.; Elabd, Y.A. Nafion-Based Anion Exchange Membranes for the Alkaline Fuel Cell. Annual Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009. *Oral Presentation*
107. Hallinan, D.T., Jr.; De Angelis, M.G.; Baschetti, M.G.; Jr.; Sarti, G.C.; Elabd, Y.A. Understanding Mechanisms of Non-Fickian Water Diffusion in Polymer Electrolyte Membranes. Annual Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009. *Oral Presentation*
108. Chen, H.; Ye, Y.; Gwee, L.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Conduction in Polymerized Ionic Liquids. Polymers and Ionic Liquids Conference, Arlington, VA, September 2009. *Oral Presentation* **Invited Speaker**
109. Elabd, Y.A. Transport Phenomena in Polymer Electrolyte Membrane Fuel Cells. University of Pennsylvania Fuel Cell Symposium, Philadelphia, PA, September 2009. *Oral Presentation* **Invited Speaker**
110. Chen, H.; Gwee, L.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Conduction in Polymerized Ionic Liquids and Ionic Liquid-Polymer Mixtures. Spring National Meeting of the American Chemical Society, Salt Lake City, UT, March 2009. *Oral Presentation* **Invited Speaker**
111. Choi, J.-H.; Gwee, L.; Elabd, Y.A.; Winey, K.I. Morphology and Ion Transport in Mixtures of Polymers and Ionic Liquid. American Physical Society Meeting, Pittsburgh, PA, March 2009. *Oral Presentation*
112. Choi, U.H.; Chen, H.; Liu, W.; Elabd, Y.A.; Colby, R.H. Understanding Ion Transport in Polymerized Ionic Liquids using Dielectric Spectroscopy. American Physical Society Meeting, Pittsburgh, PA, March 2009. *Oral Presentation*

113. Davis, E.M.; Theryo, G.; Hillmyer, M.A.; Cairncross, R.A.; Elabd, Y.A. Liquid Water Transport in Poly lactide Using Time-Resolved FTIR-ATR Spectroscopy, Annual Meeting of the American Institute of Chemical Engineers, Nashville, TN, November 2009. *Poster Presentation*
114. Ye, Y.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Conduction in Polymerized Ionic Liquids: The Effect of Anion Type. Polymers and Ionic Liquids Conference, Arlington, VA, September 2009. *Poster Presentation*
115. Gwee, L.; Choi, J.-H.; Winey, K.I.; Elabd, Y.A. Ionic Liquid-Block Copolymer Solid-State Films: The Effect of Ionic Liquid Composition on Ion Conduction and Morphology. Polymers and Ionic Liquids Conference, Arlington, VA, September 2009. *Poster Presentation*
116. Gwee, L.; Elabd, Y.A. In Situ Time-Resolved FTIR-ATR Spectroscopy Measurements of Polymer-Ionic Liquid Actuators Under an Applied Electric Field. Polymers and Ionic Liquids Conference, Arlington, VA, September 2009. *Poster Presentation*
117. Ye, Y.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Conduction in Polymerized Ionic Liquids: The Effect of Anion Type. University of Pennsylvania Fuel Cell Symposium, Philadelphia, PA, September 2009. *Poster Presentation*
118. Schaeffer, H.; Elabd, Y.A. Nafion-Based Anion Exchange Membranes for the Alkaline Fuel Cell. University of Pennsylvania Fuel Cell Symposium, Philadelphia, PA, September 2009. *Poster Presentation*
119. Schaeffer, H.; Elabd, Y.A. Nafion-Based Anion Exchange Membranes for the Alkaline Fuel Cell. 11<sup>th</sup> Grove Fuel Cell Symposium, London, England, September 2009. *Poster Presentation*
120. Hallinan, D.T., Jr.; De Angelis, M.G.; Giacinti Baschetti, M.; Sarti, G.C.; Elabd, Y.A. Non-Fickian Diffusion of Water in Nafion. Annual Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008. *Oral Presentation*
121. Gwee, L.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Highly Conductive Ionic Liquid-Homopolymer Mixtures. Annual Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008. *Oral Presentation*
122. Dever, D.; Cairncross, R.A.; Elabd, Y.A. Planar Model for the Cathode Layer for Polymer Electrolyte Fuel Cells. Annual Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008. *Oral Presentation*
123. Chen, H.; Choi, J.-H.; Salas-de la Cruz, D.; Winey, K.I.; Elabd, Y.A. Ionic Liquid Polymers: The Effect of Copolymer Composition on Structure and Ion Conduction. Fall National Meeting of the American Chemical Society, Philadelphia, PA, August 2008. *Oral Presentation*
124. Schaeffer, H.; Elabd, Y.A. Nafion-Based Anion Exchange Membranes for the Alkaline Fuel Cell. Annual Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008. *Poster Presentation*
125. Throckmorton, J.A.; Hallinan, D.T., Jr.; Elabd, Y.A. Diffusion of Water and Methanol in Nafion: In Situ Infrared Experiments and Multicomponent Models. Annual Meeting of the American Institute of Chemical Engineers, Philadelphia, PA, November 2008. *Poster Presentation* **Received 2<sup>nd</sup> Place Award in the Materials Science and Engineering Poster Competition**
126. Chen, H.; Elabd, Y.A. Ionic Liquid Polymers: Electrospinning and Solution Properties. Fall National Meeting of the American Chemical Society, Philadelphia, PA, August 2008. *Poster Presentation*
127. Hallinan, D.T., Jr.; De Angelis, M.G.; Giacinti Baschetti, M.; Elabd, Y.A. Non-Fickian Diffusion of Water in Nafion. Gordon Research Conference – Polymer Physics, Newport, RI, July 2008. *Poster Presentation*

128. Chen, H.; Snyder, J.D.; Elabd, Y.A. Electrospinning Nafion<sup>®</sup> Nanofibers. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Oral Presentation*
129. Hallinan, D.T., Jr.; Elabd, Y.A. Water Transport in Nafion<sup>®</sup> Using Time-Resolved FTIR-ATR Spectroscopy. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Oral Presentation*
130. DeLuca, N.W.; Elabd Y.A. Effects of Membrane Preparation and Treatment on Transport Properties in Recast Nafion<sup>®</sup> Membranes. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Oral Presentation*
131. Rahmathullah, A.M.; Elabd Y.A.; Palmese, G.R. Design of Nanoporous, Proton-Conductive Polymer Thermosets. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Oral Presentation*
132. Schaeffer, H.; Chen, H.; Snyder, J.D.; Rahmathullah, A.M.; Palmese, G.R.; Elabd, Y.A. Electrosensitive Permeability of Polymer-Polymer Nanocomposite Membranes. Fall National Meeting of the American Chemical Society, Boston, MA, August 2007. *Oral Presentation*
133. Elabd, Y.A. Transport Phenomena in Polymer Electrolyte Membranes for the Direct Methanol Fuel Cell. NATO Advanced Study Institute on Mini-Micro Fuel Cells as Electric Energy Generators, Cesme, Izmir, Turkey, July 2007. *Oral Presentation* **Invited Speaker**
134. Hallinan, D.T., Jr.; Elabd, Y.A. Transport of Water in Nafion<sup>®</sup> using Time-Resolved FTIR-ATR Spectroscopy. Annual Meeting of the North American Membrane Society, Orlando, FL, May 2007. *Oral Presentation*
135. Elabd, Y.A. Methanol Crossover: New Insights and Experimental Techniques. Advanced in Materials for Proton Exchange Membrane Fuel Cells Systems Meeting, sponsored by The Division of Polymer Chemistry (POLY) of the American Chemical Society, Asilomar, CA, February 2007. *Oral Presentation* **Invited Speaker**
136. Gwee, L.; Elabd, Y.A. Highly Conductive Ionic Liquid-Polymer Membranes. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Poster Presentation*
137. Eirich, B.D.; Elabd, Y.A. Ion-Exchanged Carbon Supported Platinum Catalysts for Hydrogen Fuel Cells. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Poster Presentation*
138. Schaeffer, H.; Elabd Y.A. Transport in Polymer-Polymer Nanocomposite Membranes. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Poster Presentation*
139. Snyder, J.D.; Elabd Y.A. Nafion<sup>®</sup> Nanofibers and their Effect on Polymer Electrolyte Membrane Fuel Cell Performance. Annual Meeting of the American Institute of Chemical Engineers, Salt Lake City, UT, November 2007. *Poster Presentation* **Received 2<sup>nd</sup> Place Award in the Materials Science and Engineering Poster Competition**
140. DeLuca, N.W.; Elabd, Y.A. Blend Membranes with Sulfonated Poly(vinyl alcohol) for the Direct Methanol Fuel Cell. Annual Meeting of the North American Membrane Society, Orlando, RL, May 2007. *Poster Presentation* **Received Elias Klein Founders' Travel Award (\$500)**
141. Jeff-eke, D.; Hallinan D.T., Jr.; Elabd, Y.A. Nafion<sup>®</sup>/Clay Nanocomposites for Direct Methanol Fuel Cells (DMFCs): Preparation Techniques, Characterization, and Conductivity Analysis. 21<sup>st</sup> National Conference on Undergraduate Research (NCUR<sup>®</sup>), Dominican University of California, CA, April 2007. *Poster Presentation*
142. Hallinan, Jr., D.T.; Elabd, Y.A. Transport of Water in Nafion<sup>®</sup> using Time-Resolved FTIR-ATR Spectroscopy. Fuel Cells 2007 Meeting, sponsored by The Division of Polymer Chemistry (POLY) of the American Chemical Society, Asilomar, CA, February 2007. *Poster Presentation*

143. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Plasma-Radiation Enhanced Nanofiber-Thermoplastic Composites. Materials Research Society Fall Meeting, Boston, MA, November 2006. *Oral Presentation*
144. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Structure, Property and Cure Kinetics of Thermosetting Copolymers. Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006. *Oral Presentation*
145. Hallinan, D.T., Jr.; Elabd, Y.A. Multicomponent Transport of Water and Methanol in Nafion<sup>®</sup>. Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006. *Oral Presentation* **Received Schering-Plough Research Institute Travel Award (\$2,000)**
146. DeLuca, N.W.; Elabd, Y.A. Nafion<sup>®</sup> Blend Membranes for the Direct Methanol Fuel Cell. Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006. *Oral Presentation*
147. Chen, H.; Palmese, G.R.; Elabd, Y.A. Membranes with Oriented Polyelectrolyte Nanodomains. Fall National Meeting of the American Chemical Society, San Francisco, CA, September 2006. *Oral Presentation*
148. Chen, H.; Palmese, G.R.; Elabd, Y.A. Membranes with Oriented Polyelectrolyte Nanodomains as Breathable Barriers for Protective Clothing. 25<sup>th</sup> Army Science Conference, Orlando, FL, November 2006. *Poster Presentation*
149. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Plasma-Radiation Enhanced Nanofiber-Thermoplastic Composites. Annual Meeting of the American Institute of Chemical Engineers, San Francisco, CA, November 2006. *Poster Presentation*
150. DeLuca, N.W.; Elabd, Y.A. Nafion<sup>®</sup>/Poly(vinyl alcohol) Blend Membranes for the Direct Methanol Fuel Cell. Annual Meeting of the North American Membrane Society, Chicago, IL, May 2006. *Poster Presentation*
151. Hallinan, D.T., Jr.; Elabd, Y.A. Multicomponent Transport of Water and Methanol in Nafion<sup>®</sup>. Annual Meeting of the North American Membrane Society, Chicago, IL, May 2006. *Poster Presentation* **Received NAMS Poster Award (\$500) and NAMS Annual Meeting Student Travel Award (\$1,000)**
152. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Multifunctional Nanoporous Thermosetting Copolymer Membranes: Synthesis and Characterization. Annual Meeting of the North American Membrane Society, Chicago, IL, May 2006. *Poster Presentation* **Received Elias Klein Founders' Travel Award (\$500)**
153. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Multifunctional Nanoporous Thermosetting Copolymers. American Chemical Society Local Section 6<sup>th</sup> Annual Poster Session, Villanova University, Philadelphia, PA, January 2006. *Poster Presentation* **Received the EssTech Polymers and Materials Science Award**
154. Hronec, C.; Elabd, Y.A. Catalyst Layer Network Formation in Polymer Electrolyte Membrane Fuel Cells. Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Oral Presentation*
155. Chen, H.; Palmese, G.R.; Elabd, Y.A. Polyester-Polyelectrolyte Nanocomposite Membranes as Breathable and Responsive Barriers. Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Oral Presentation*
156. DeLuca, N.W.; Elabd, Y.A. Nafion<sup>®</sup>/Poly(vinyl alcohol) Blends: Effects of Crosslinking Conditions on Transport Properties. Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Oral Presentation*
157. Raghav, S.; Elabd, Y.A. Polymer-Filled Nanoporous Membranes. Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Oral Presentation*
158. Soroush, M.; Elabd, Y.A. Control Configuration Selection for Fuel Cell Stack Systems, Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Oral Presentation*

159. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Synthesis and Characterization of Thermosetting Copolymers as PEMs. Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Oral Presentation*
160. Hronec, C.; Walker, C.W.; Elabd, Y.A. Catalyst Layer Network Formation and Its Effect on Fuel Cell Performance. Fall National Meeting of the American Chemical Society, Washington, DC, August 2005. *Oral Presentation*
161. Chen, H.; Palmese, G.R.; Elabd, Y.A. Polyester-Poly(methacrylic acid) Nanocomposite Membranes as Breathable Barriers. Fall National Meeting of the American Chemical Society, Washington, DC, August 2005. *Oral Presentation*
162. Wu, L-Q.; Ghodssi, R.; Elabd, Y.A.; Payne, G.F. Biomimetic Pattern Transfer from a Hard Material to a Soft Biomaterial. Fall National Meeting of the American Chemical Society, Washington, DC, August 2005. *Oral Presentation*
163. Chen, H.; Rahmathullah, A.M.; Hallinan, D.T., Jr.; Napadensky, E.; Palmese, G.R.; Elabd, Y.A. Polymer-Polymer Nanocomposite Membranes as Breathable and Responsive Barriers. 2005 Scientific Conference on Chemical and Biological Defense Research, Timonium, MD, November 2005. *Poster Presentation*
164. Hallinan, D.T., Jr.; Elabd, Y.A. Transport of Water in Nafion<sup>®</sup> using Time-Resolved FTIR-ATR Spectroscopy. Annual Meeting of the American Institute of Chemical Engineers, Cincinnati, OH, November 2005. *Poster Presentation*
165. Rahmathullah, A.M.; Elabd, Y.A.; Palmese, G.R. Multifunctional Nanoporous Thermosetting Copolymer Matrices. American Society of Composites Annual Meeting, Philadelphia, PA, September 2005. *Poster Presentation*
166. Rahmathullah, A.M.; Palmese, G.R.; Elabd, Y.A. Proton Conductive Nanoporous Thermosetting Copolymers, Fall National Meeting of the American Chemical Society, Washington, DC, August 2005. *Poster Presentation*
167. Soroush, M.; Elabd, Y.A. Process Systems Engineering Challenges in Fuel Cell Technology for Automobiles. Annual Meeting of the American Institute of Chemical Engineers, Austin, TX, November 2004. *Oral Presentation*
168. Elabd, Y.A.; Walker, C.W. Proton Conducting Block Copolymers and their Application to the Direct Methanol Fuel Cell. 41<sup>st</sup> Power Sources Conference, Philadelphia, PA, June 2004. *Oral Presentation*
169. Elabd, Y.A.; Napadensky, E.; Walker, C.W. Proton Conducting Block Copolymers: Sulfonation, Characterization and Application to the Direct Methanol Fuel Cell. Spring National Meeting of the American Chemical Society, Anaheim, CA, March 2004. *Oral Presentation* **Invited Speaker**
170. Sloan, J.M.; Napadensky, E.; Crawford D.M.; Elabd, Y.A. Nanostructured Polymer Membranes for Chemical Protective Clothing. 24<sup>th</sup> Army Science Conference, Orlando, FL, December 2004. *Poster Presentation*
171. Raghav, S.; Elabd, Y.A. Conductive Properties of Pore-Filled Track-Etched Membranes. Annual Meeting of the American Institute of Chemical Engineers, Austin, TX, November 2004. *Poster Presentation* **Received 2<sup>nd</sup> Place Award in the Materials Science and Engineering Poster Competition**
172. DeLuca, N.W.; Elabd, Y.A. Proton Conducting Homopolymer and Random Copolymer Blends Containing Poly(vinyl alcohol). Annual Meeting of the American Institute of Chemical Engineers, Austin, TX, November 2004. *Poster Presentation*
173. Napadensky, E.; Sloan, J.M.; Elabd, Y.A. Breathability and Selectivity of Selected Materials for Protective Clothing. Fall National Meeting of the American Chemical Society, Philadelphia, PA, August 2004. *Poster Presentation*

174. Elabd, Y.A.; Napadensky, E.; Sloan, J.M.; Crawford, D.M.; Walker, C.W. Transport Properties of Triblock Copolymer Ionomer Membranes for Fuel Cells. 23<sup>rd</sup> Army Science Conference, Orlando, FL, December 2002. *Oral Presentation*
175. Sloan, J.M.; Elabd, Y.A.; Napadensky, E. Sulfonated Block Copolymer Ionomers for Use in Direct Methanol Fuel Cells. Annual Technical Conference (ANTEC) of the Society of Plastics Engineers, San Francisco, CA, May 2002. *Poster Presentation*
176. Sloan, J.M.; Crawford D.M.; Elabd, Y.A.; Napadensky, E.; Zukas, W.X.; Kendrick, C. Mechanical Properties and Water Vapor Transport Properties of Sulfonated Block Copolymers. Spring National Meeting of the American Chemical Society, Orlando, FL, April 2002. *Poster Presentation*
177. Sloan, J.M.; Elabd, Y.A.; Napadensky, E. Monitoring Permeation Through Polymer Membranes by Continuous Flow FTIR-ATR with a Side-by-Side Diffusion Cell. The Pittsburgh Conference of Analytical Chemistry and Applied Spectroscopy, New Orleans, LA, March 2002. *Poster Presentation*
178. Elabd, Y.A.; Sloan, J.M.; Napadensky, E.; Walker, C. Block Copolymer Ionomers as Solid Polymer Electrolyte Membranes for Application to the Direct Methanol Fuel Cell. Annual Meeting of the American Institute of Chemical Engineers, Reno, NV, November 2001. *Oral Presentation*
179. Elabd, Y.A.; Sloan, J.M.; Napadensky, E.; McKnight, S.M. Understanding Transport Mechanisms in Ionomer Membranes. Annual Meeting of the American Institute of Chemical Engineers, Reno, NV, November 2001. *Oral Presentation*
180. Elabd, Y.A.; Barbari, T.A. Understanding Multicomponent Transport in a Polymer Membrane for the Separation of Interacting Mixtures. Spring National Meeting of the American Chemical Society, San Diego, CA, April 2001. *Oral Presentation* **Invited Speaker**
181. Napadensky, E.; Sloan, J.M.; Elabd, Y.A. Solvent Diffusion in Polymers by FT-IR-ATR. Eastern Analytical Conference, Atlantic City, NJ, October 2001. *Poster Presentation*
182. Elabd, Y.A.; Sloan, J.M.; Napadensky, E.; Walker, C. Examination of Block Copolymer Ionomers as Solid Polymer Electrolyte Membranes. Annual Meeting of the North American Membrane Society, Lexington, KY, May 2001. *Poster Presentation*
183. Elabd, Y.A.; Barbari, T.A. Multicomponent Diffusion of Interacting Penetrants in a Polymer. Annual Meeting of the American Institute of Chemical Engineers, Los Angeles, CA, November 2000. *Oral Presentation*
184. Elabd, Y.A.; Barbari, T.A. Small Molecule Transport Mechanisms in Polymers: Insights from FTIR-ATR Spectroscopy. Third Joint China/USA Chemical Engineering Conference, Beijing, China, September 2000. *Oral Presentation*
185. Elabd, Y.A.; Sloan, J.M.; Beck Tan, N.; Barbari, T.A. Diffusion in a Phase-Segregated Polymer with Reversible Binding to Dispersed-Phase Surfaces. Annual Meeting of the American Institute of Chemical Engineers, Los Angeles, CA, November 2000. *Poster Presentation*
186. Elabd, Y.A.; Barbari, T.A. Multicomponent Diffusion of Interacting Penetrants in Polymer Membranes. Gordon Research Conference - Membranes: Materials and Processes, New London, CT, July 2000. *Poster Presentation*
187. Elabd, Y.A.; Barbari, T.A. Diffusion with Solvation in Homogeneous and Heterogeneous Polymeric Membranes. Annual Meeting of the North American Membrane Society, Boulder, CO, May 2000. *Poster Presentation*
188. Elabd, Y.A.; Barbari, T.A. Probing Complex Molecular Transport Mechanisms with FTIR-ATR Spectroscopy. Annual Meeting of the American Institute of Chemical Engineers, Dallas, TX, November 1999. *Oral Presentation*

189. Elabd, Y.A.; Barbari, T.A. Understanding the Role of Penetrant-Polymer Solvation on Small Molecule Diffusion. Annual Meeting of the American Institute of Chemical Engineers, Dallas, TX, November 1999. *Oral Presentation*
190. Elabd, Y.A.; Barbari, T.A. Diffusion of Acetic Acid in Polyisobutylene: Probing Small Molecule Structures. Annual Meeting of the American Institute of Chemical Engineers, Dallas, TX, November 1999. *Oral Presentation*
191. Elabd, Y.A.; Barbari, T.A. Effect of Penetrant-Polymer Hydrogen Bonding on the Transport Process. The Johns Hopkins University Annual Chemical Engineering Symposium, Baltimore, MD, December 1999. *Poster Presentation*
192. Elabd, Y.A.; Barbari, T.A. Probing Complex Molecular Transport Mechanisms Through Polymeric Membranes with FTIR-ATR Spectroscopy. The Johns Hopkins Annual Chemical Engineering Symposium, Baltimore, MD, December 1998. *Oral Presentation*
193. Elabd, Y.A.; Barbari, T.A.; Sloan, J.M. Diffusion as a Morphological Probe in Polyurethane Elastomers. Annual Meeting of the American Institute of Chemical Engineers, Miami Beach, FL, November 1998. *Oral Presentation*
194. Hong, S.U.; Elabd, Y.A.; Barbari, T.A. Multicomponent Diffusion of a Vapor Mixture in a Polymeric Film from Sorption Kinetics: Spectroscopic Measurements and the Conditions for a Pseudo-Binary Analysis. Annual Meeting of the American Institute of Chemical Engineers, Los Angeles, CA, November 1997. *Oral Presentation*
195. Elabd, Y.A.; Hong, S.U.; Barbari, T.A. Multicomponent Diffusion Measurements in Polymeric Membranes Using FTIR-ATR Spectroscopy. Annual Meeting of the North American Membrane Society, Baltimore, MD, June 1997. *Poster Presentation*
196. Payne, G.F.; Lenhart, J.L.; Elabd, Y.A. Tyrosinase-Reaction Coupled to Chitosan Adsorption for Separations and Polymer Modifications. Spring National Meeting of the American Chemical Society, New Orleans, LA, March 1996. *Oral Presentation*
197. Payne, G.F.; Elabd, Y.A.; Lenhart, J.L.; Rameriz, D.M. Enzymatic Modification of Chitosan by Tyrosinase. Spring National Meeting of the American Chemical Society, New Orleans, LA, March 1996. *Oral Presentation*
198. Bush, K.D.; Madurawe, R.D.; Elabd, Y.A.; Lumpkin, J.A. Qualitative Analysis of Structural Damage to LDH in Metal Affinity Systems. Spring National Meeting of the American Chemical Society, New Orleans, LA, March 1996. *Oral Presentation*

#### **POSTDOCTORAL SCHOLAR ADVISEES**

1. Rui Sun
2. Monica Hwang (SigmaGraft)
3. John Collins (IBM)
4. X. Wang (Plains Mainstream Canada)
5. Y. Ye (FDA)
6. Bin Dong (Soochow Univ.)
7. Hong Chen

#### **PHD STUDENT ADVISEES**

1. Arthur Kleiderer, Ph.D. expected 2024
2. Kevin Nixon, Ph.D. expected 2023
3. Dohyun Kim, Ph.D. expected 2023
4. Yifei Yang, Ph.D. expected 2022
5. Patrick Lathrop, Ph.D. 2021
6. Rui Sun, Ph.D. 2020 (Texas A&M Univ.)
7. Tzu-Ling Chen, Ph.D. 2020 (Rivian)
8. Monica Hwang, Ph.D. 2019 (SigmaGraft)
9. Melissa C. Santos, Ph.D. 2017 (Finnegan, Henderson, Farabow, Garrett & Dunner, LLP)

10. Kelly M. Meek, Ph.D. 2016 (Univ. Ottawa)
11. Jacob R. Nykaza, Ph.D. 2016 (Saft)
12. Francis W. Richey, Ph.D. 2014 (Eos Energy Enterprises, Inc.)
13. Eric M. Davis, Ph.D. 2013 (Clemson Univ.)
14. Dennis O. Dever, Ph.D. 2013 (Armstrong Engineering)
15. Holly L.S. Salerno, Ph.D. 2011 (DuPont)
16. Liang Gwee, Ph.D. 2010 (Eastman Chemical)
17. Daniel T. Hallinan, Jr., Ph.D. 2009 (Florida St. Univ.)
18. Aflal M. Rahmathullah, Ph.D. 2008 (Donaldson)
19. Nicholas W. DeLuca, Ph.D. 2008 (Lubrizol)

#### **MS STUDENT ADVISEES**

1. Mahesh Agrawal
2. Akshaya Kulkarni
3. Arthur Kleiderer
4. Rui Sun
5. Tzu-Ling Chen
6. Ana Pillado
7. Eric Mace
8. Shane Kenney
9. Daniel M. Shay
10. Benjamin D. Eirich
11. Joshua D. Snyder (Drexel Univ.)
12. Tamika Avery
13. Damilola O. Okojie
14. Christine Hronec
15. Sunil Raghav

#### **UNDERGRADUATE STUDENT ADVISEES**

1. N. Mara
2. S. Musso
3. S. Beaumariage
4. M. Doan (Solvay)
5. M. Courtney
6. J. Daddario
7. D. Walker
8. T. Kubbar
9. M. Karenson
10. Y. Shi
11. B. Alexander
12. N. Glandon
13. M. Moerbe
14. R. Nelson
15. R. Benjamin
16. S. Hausler
17. K. Mattson
18. R. Ventura
19. U. Amira
20. M. Torelli
21. K. Padagaonkar
22. T. Ahmed
23. I. Ahmed (Merck)
24. K. Wujcik (Blue Current)
25. C. Bower
26. C. Anyigbo



27. D. Mattson
28. K. Gold
29. C.-H. Lim (New Iridium Inc)
30. S. Kenney
31. D.M. Shay
32. B.D. Eirich
33. J.D. Snyder
34. D.A. Wunderlich
35. S.R. Young
36. H. Ghebremichael (Dow Chemical)
37. M. Miller
38. B.N. Sirin
39. J. Atchison
40. D.O. Okojie
41. C. Hronec

#### **NSF-REU STUDENT ADVISEES**

1. S. Gunnels
2. N. Wallace
3. K. Ware
4. D. Jeff-eke
5. A. Backmann

#### **HIGH SCHOOL STUDENT ADVISEES**

1. S. Jayaraman
2. J. Dudo

#### **PHD DISSERTATIONS**

1. Lathrop, P.M. Ph.D. Dissertation, Poly(Ionic Liquid) ABC Triblock Terpolymers: Targeted Synthesis and 3D Network Morphologies, August 2021.
2. Sun, R. M. Ph.D. Dissertation, Hydroxide Conducting and Proton Conducting Poly(ionic liquids), Texas A&M University, August 2020.
3. Chen, T.-L. Ph.D. Dissertation, Poly(ionic liquid) Block Copolymers as Solid Polymer Electrolytes for Lithium Ion Batteries, Texas A&M University, August 2020.
4. Hwang, M. Ph.D. Dissertation, Ultra-Low Platinum and Platinum-Free Fuel Cells, Texas A&M University, May 2019.
5. Santos, M.C. Ph.D. Dissertation, Liquid Water Transport in Polymer Films and Membranes, Texas A&M University, May 2017.
6. Meek, K.M. Ph.D. Dissertation, Alkaline Chemical Stability and Ion Transport in Polymerized Ionic Liquid Anion Exchange Membranes, Texas A&M University, May 2016.
7. Nykaza, J.R. Ph.D. Dissertation, Imidazolium-Based Block Copolymers as Solid-State Separators for Alkaline Fuel Cells and Lithium Ion Batteries, Drexel University, April 2016.
8. Richey, F.W. Ph.D. Dissertation, Ion Dynamics in Electrochemical Capacitors Using Infrared Spectroelectrochemistry, Drexel University, April 2014.
9. Davis, E.M. Ph.D. Dissertation, Water Sorption and Diffusion in Glassy Polymers, Drexel University, May 2013.
10. Dever, D.O. Ph.D. Dissertation, Nanofiber, Ideal Fiber, and Planar Cathode Catalyst Layer Models for the Proton Exchange Membrane Fuel Cell, Drexel University, May 2013.
11. Salerno, H.L.S. Ph.D. Dissertation, Anion Exchange Membranes Derived from the Nafion Precursor for the Alkaline Fuel Cell, Drexel University, December 2011.
12. Gwee, L. Ph.D. Dissertation, Ion Transport in Polymer/Ionic Liquid Films, June 2010.
13. Hallinan, Jr., D.T. Ph.D. Dissertation, Transport in Polymer Electrolyte Membranes Using Time-Resolved FTIR-ATR Spectroscopy, Drexel University, June 2009.
14. Rahmathullah, A.M. Ph.D. Dissertation, Multifunctional Polymers by Incorporating Ionic Groups at Molecular and Mesoscopic Length Scales, Drexel University, March 2008.

15. DeLuca, N.W. Ph.D. Dissertation, Polymer Electrolyte Blend Membranes for the Direct Methanol Fuel Cell, Drexel University, February 2008.

### **MS THESES**

1. Agrawal, M. M.S. Thesis, Synthesis of Triblock Terpolymer Poly(styrene-b-vinylbenzyl methylpyrrolidinium chloride-b-octylstyrene) using Reverse Addition Fragmentation Chain Transfer Polymerization, Texas A&M University, May 2020.
2. Kleiderer, A. M.S. Thesis, Electrospun/Electrosprayed Aligned Fuel Cell Electrodes, Texas A&M University, August 2017.
3. Sun, R. M.S. Thesis, Polymerized Ionic Liquid Derived Carbon, Texas A&M University, August 2016.
4. Chen, T.-L. M.S. Thesis, Hybrid Capacitor with Polyaniline/Carbon Electrodes, Texas A&M University, August 2016.
5. Mace, E. M.S. Thesis, Transport in Fuel Cell Ion Exchange Membranes: Molecular Mechanisms and Mathematical Modeling, Drexel University, December 2011.
6. Shay, D.M. M.S. Thesis, Ion-Exchanged Carbide Derived Carbon-Supported Platinum Catalysts for Fuel Cells, Drexel University, August 2008.
7. Eirich, B.D. M.S. Thesis, Ion-Exchanged Carbon Supported Platinum Catalysts for Fuel Cells, Drexel University, August 2007. **Received Drexel University Most Outstanding Masters Award**
8. Snyder, J.D. M.S. Thesis, Nafion Nanofibers and their Effect on Polymer Electrolyte Membrane Fuel Cell Performance, Drexel University, August 2006.
9. Hronec, C. M.S. Thesis, Catalyst Layer Network Formation in Polymer Electrolyte Membrane Fuel Cells, Drexel University, June 2005.
10. Raghav, S. M.S. Thesis, Polymer-Filled Nanoporous Membranes, Drexel University, June 2005.

### **GRADUATE/UNDERGRADUATE STUDENT RESEARCH AWARDS**

1. Rui Sun – 2020 AIChE Polymers (Area 8A) Graduate Award Symposium, 2020 ACS Excellence in Polymer Graduate Research Symposium, 2019 Phillips 66 Fellowship
2. Tzu-Ling Chen – 2019 Brunner Barns Fellowship
3. Patrick Lathrop – 2018 Phillips 66 Fellowship
4. Kelly Meek – 2017 DSM Science & Technology Award Finalist @2017 Fall ACS National Meeting; 2<sup>nd</sup> Place Award in Excellence in Graduate Polymer Research Session @2016 AIChE National Meeting; 2015 Phillips 66 Fellowship
5. Rishon Benjamin – 2013 Goldwater Scholarship; 2014 AIChE Poster Award (3<sup>rd</sup> Place) in the Materials Science and Engineering Section
6. Francis Richey – William A. Casey Fellowship; 2013 ECS Student Travel Award; Leroy Dresser Fellow; 2011 ECS Poster Award (1<sup>st</sup> Place)
7. Erich Mace – NSF-IGERT Fellow, 2010-2011
8. Eric M. Davis – George Hill Jr. Fellow; 2012 Meeting of the Noble Laureates Lindau Award; 2011 ACS Excellence in Polymer Graduate Research Symposium; FDA Biomedical Devices Fellow
9. Ishtiaque Ahmed - 2012 NSF Graduate Research Fellowship
10. Liang Gwee - 2010 ACS Excellence in Polymer Graduate Research Symposium
11. James Throckmorton - Koerner Family Fellow; 2008 AIChE Poster Award (2<sup>nd</sup> Place) in the Materials Science and Engineering Section
12. Daniel T. Hallinan Jr. - George Hill Jr. Fellow, DoEd-GAANN Fellow; Drexel University Graduate Student Research Excellence Award; NSF-IGERT Fellow; Schering-Plough Research Institute Travel Award; North American Membrane Society Poster Award; North American Membrane Society Annual Meeting Student Travel Award; University Teaching Assistance Excellence Award
13. Nicholas W. DeLuca - DoEd GAANN Fellow; Koerner Family Fellow; North American Membrane Society Elias Klein Founders' Travel Award
14. Aflal M. Rahmathullah - American Society for Composites PhD Research Award; University Graduate Student Research Excellence Award; Department Outstanding Graduate Student Research Award; SAMPE Student Symposium Award (3<sup>rd</sup> place); North American Membrane Society Elias Klein Founders' Travel Award; American Chemical Society Esstech Polymers and Materials Science Graduate Student Poster Award; American Society for Composites Poster Award (honorable mention)
15. Joshua D. Snyder - 2007 AIChE Poster Award (2<sup>nd</sup> Place) in the Materials Science and Engineering Section
16. Benjamin D. Eirich - 2007 Drexel University Most Outstanding Masters Award

17. Tamika Avery - NSF Bridges to Doctorate Fellow
18. Sunil Raghav - 2004 AIChE Poster Award (2<sup>nd</sup> Place) in the Materials Science and Engineering Section

## **TEACHING**

### **COURSES TAUGHT**

*@ Texas A&M University*

#### **Junior Courses**

- CHEN 323: Chemical Engineering Heat Transfer (F15, F16)  
CHEN 324: Chemical Engineering Mass Transfer Operations (S15, S16, F17, S18, F18, S19)  
ENGR 385: Co-op (Su16, F16, S17, Su17, F17, S18, Su18, F18)

#### **Senior Courses**

- CHEN 469: Chemical Engineering Car Design (S16, F16, S17, F17)  
CHEN 489: Zymology (F17)

#### **Graduate Courses**

- CHEN 629: Transport Phenomena (F14, S17)

#### **New Course Development**

- CHEN 489: Zymology (new undergraduate elective course)

*@ Drexel University*

#### **Freshmen Courses**

- ENGR 101: Engineering Design Lab I (F06, F08)  
ENGR 102: Engineering Design Lab II (W07, W09)  
ENGR 103: Engineering Design Lab III (S07)

#### **Sophomore Courses**

- CHE 206: Basic Thermodynamics (Su08, Su13)

#### **Junior Courses**

- CHE 301: Process Thermodynamics (S10, F12, F13, S14)  
CHE 303: Process Heat Transfer (F03, S04, F04, S05, F05, S06)

#### **Senior Courses**

- CHE 424: Kinetics and Reactor Design (F06, F07, F08)

#### **Graduate Courses**

- CHE 525: Transport Phenomena I (W05, W06, W07, W08, W09, W10, W11, W12, W13, W14)  
CHE 800: Polymer Physics III (S09)  
CHE 626: Transport Phenomena II (S11, S12)

#### **New Course Development**

- CHE 301 - Process Thermodynamics (major revision to core undergraduate course)  
CHE 800 - Polymer Physics Laboratory (new graduate course)  
CHE 206 - Basic Thermodynamics (major revision to core undergraduate course)  
CHE 303 - Process Heat Transfer (major revision to core undergraduate course)  
CHE 424 - Kinetics and Reactor Design (major revision to core undergraduate course)  
CHE 525 - Transport Phenomena I (major revisions to core graduate course)  
CHE 626 - Transport Phenomena II (new graduate course)

## **PROFESSIONAL SERVICE**

### **PROFESSIONAL AFFILIATIONS**

- American Institute of Chemical Engineers (AIChE), member since 1994  
American Chemical Society (ACS), member since 1997  
North American Membrane Society (NAMS), member since 2000  
American Physical Society (APS), member since 2011  
Electrochemical Society (ECS), member since 2013

### **EDITORIAL ADVISORY BOARD**

1. *Macromolecules*, 2015-2017

2. *ACS Macro Letters*, 2015-2017

### GUEST EDITOR

1. *Macromolecular Rapid Communications*, 2016, Special Issue on **Ionic Liquids in Polymer Design**, Issue Edited by Timothy E. Long, Yossef A. Elabd, Jiayin Yuan
2. *RCS Advances*, 2015, Special Issue on **Polymers for Electrochemical Energy Storage**, Issue Edited by Yossef A. Elabd and Jodie L. Lutkenhaus
3. *Journal of Polymer Science Part B: Polymer Physics*, Volume 44, Issue 16 (15 August 2006); Special Issue on **Polymers in Fuel Cells**. Issue Edited by Yossef A. Elabd.

### SOCIETY OFFICER

1. **Chair**, AIChE Division 8; Materials Science & Engineering Division (MESD), 2018
2. Past Chair, AIChE MESD, 2019
3. 1<sup>st</sup> Vice Chair, AIChE MESD, 2017
4. 2<sup>nd</sup> Vice Chair, AIChE MESD, 2016

### CONFERENCE/SESSION ORGANIZATION

1. Division Organizer - Organized AIChE MESD program for 2017 AIChE National Meeting in Minneapolis, MN.
2. Symposium Organizer and Chair – “Ionic Liquids in Polymer Design: From Energy to Health,” American Chemical Society National Meeting, Boston, MA, August 2015. **Awarded \$5,000 from the Army Research Office for travel assistance for invited speakers**
3. Session Organizer and Chair – “Focus Session: Polymers in Batteries and Electrochemical Capacitors,” American Physical Society, San Antonio, TX, March 2015.
4. Conference Organizer and Chair – “Polymers and Ionic Liquids: From Synthesis to Performance,” Washington, DC, October 2009. **Awarded \$10,000 from the Army Research Office for travel assistance for invited speakers**
5. Symposium Organizer and Chair – “Symposium on Materials for New Security and Defense Applications,” Materials Research Society Fall Meeting, Boston, MA, November 2007. **Awarded \$5,000 from the Army Research Office for travel assistance for invited speakers**
6. Session Organizer – “Polyelectrolytes and Ion-Containing Polymers,” American Physical Society, March 2004.

### CONFERENCE/SESSION CHAIR

ca. 2/yr; > 5 Societies/National Meetings

### JOURNAL REVIEWS

ca. 25/yr; > 50 Journals

### PROPOSAL REVIEWS

ca. 15/yr; > 10 Funding Agencies

### BOOK PROPOSAL REVIEWS

1. Oxford University Press: *Analysis of Transport Phenomena*, 2<sup>nd</sup> Edition
2. Wiley: *Vibrational Spectroscopy of Polymers and Rubbers*