

Mohammad K. Hassan

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Work Experience

Aug 2017 – Current: Research Assistant Professor, Center for Advanced Materials, Qatar University, Doha, Qatar

Oct 2014 – Aug 2017: Research Fellow, Center for Advanced Materials, Qatar University, Doha, Qatar

May 2014 – Sept. 2014: Research Lab Leader/Group Manager, School of Polymers & High Performance Materials, The University of Southern Mississippi, Hattiesburg, Mississippi, United States

Nov 2009 – April 2014: Senior Research Scientist, School of Polymers & High Performance Materials, The University of Southern Mississippi, Hattiesburg, Mississippi, United States

Jul 2004 - Jul 2009: Postdoctoral Research Fellow, School of Polymers & High Performance Materials, The University of Southern Mississippi, Hattiesburg, Mississippi, United States

Education

Ph. D.	University of Cincinnati	Chemistry/Polymer Science	September 2004
M. Sc.	Cairo University	Chemistry/Polymer Science	January 2001
B. Sc.	Cairo University	Chemistry	June 1994

Research Interests & experiences:

- * Polymer membranes for water treatment applications.
- * Polymer membranes for water desalination and CO₂ separation from N₂ and CH₄ gases.
- * Marine degradable plastics for packaging applications.
- * Polymer composites and resins for coating, civil engineering, and aerospace applications.
- * Polymer electrolyte membranes for high temperature fuel cell applications, including both hydrogen and methanol based fuel cells for automotive, stationary and portable systems.
- * Supercapacitor materials for energy storage media.

Research Grants:

1. “Block Copolymer Membranes with Highly Uniform Pores for Advanced Oil/Water Ultrafiltration: Design, Evaluation, and Industrially Scalable Roll to Roll Processing”, Funded by: Qatar National Research Fund, Amount: **\$599,958**, Period: 2020-2023.
2. “Development of self-healing RTV coating for high voltage applications in harsh environmental conditions”, Funded by: Qatar University International Research Collaboration Co-Fund (IRCC), Amount: **\$110,000**, Period: 2020-2022.
3. “High Performance Carbon Fibre-Reinforced Thermoplastic Composites for Securing Energy Resources”, Funded by: Qatar University International Research Collaboration Co-Fund (IRCC), Amount: **\$110,500**, Period: 2020-2022.
4. “Development of advanced biodegradable polymer nanocomposites with titania using plasma technology”, Funded by: Qatar University Collaborative Grants, Funding Amount: **QR 300,000**, Period: 2019-2021.
5. “Design, Synthesis and Evaluation of New UV-curable Polymeric Membranes for Energy-Efficient Gas Separations in Natural Gas Processing and Exploitation”, Funded by: Qatar National Research Fund, Funding Amount: **\$ 598,348**, Period: 2018-2021.
6. “Nanostructured Membranes for Oil-Water Separation”, Funded by: Qatar National Research Fund, Funding Amount: **\$ 596,340**, Period: 2018-2021.

7. "Development of New Generation Electroless Ni-Based Nano-Composite Coating for Oil and Gas Pipelines", Funded by: Qatar National Research Fund, Amount: **\$798,034**, Period: 2016-2019.
8. "Design, synthesis and evaluation of low cost and highly activity fuel-cell catalysts for direct methanol fuel cells", Funded by: Qatar National Research Fund, Amount: **\$655,754**, Period: 2016-2019.
9. "Fiber-reinforced polymer (FRP) Composites for Enhanced Performance and Durability of Concrete Beams under Harsh Environment Exposures", Funded by: Qatar University Collaborative Grants, Funding Amount: **QR 300,000**, Period: 2018-2020.
10. "New Generation of Electrocatalyst and Membranes for Direct Methanol Fuel Cell Applications", Funded by: Qatar University Internal Grants, Funding Amount: **QR 120,000**, Period: 2016-2017.
11. "Optimizing glassy polymer network morphology for enhanced nano-particle dispersion, stabilization and performance", Funded by: US Air Force Office of Scientific Research (AFOSR) and the Boeing Research and Technology, Amount: **\$300,000**, Period: 2013-2016.

Professional Services & Membership:

- Member of the Polymer Education Committee, International Union of Pure and Applied Chemistry (IUPAC), 2018- Current
- Academic Editor, PLOS One Journal, 2018- Current
- Reviewer Board Member, Membranes (MDPI), 2019- Current
- Member of the American Chemical Society, 2001- Current
- Member of the American Institute of Chemical Engineers, 2020- Current

Teaching Experience:

Qatar University, Doha, Qatar, 2016-Present

- Participated in teaching Research Methodology (MATS 514), 2018-2019
- Participated in teaching Polymers Science and Analysis (MATS 545) and Functional Properties of Materials (MATS 513), 2017-2018
- Participated in teaching Advanced Materials and Composites (MATS 540) and Polymers Science and Analysis (MATS 545), 2016-2017

University of Southern Mississippi, Hattiesburg, United States, 2011-2012

- Participated in teaching Polymer Physical Chemistry II: Characterization (PSC 711)

University of Cincinnati, Cincinnati, United States, Sep 2000 - Jun 2004, *Research/Teaching Assistant*

- Tutored general/freshmen chemistry classes for pre-medical and engineering majors' students.
- Teaching responsibilities included delivery of general/freshmen chemistry lab instruction, supervision of lab students and grading of students lab reports.
- Shared in preparation of chemistry experiments demonstrations used in freshman lectures.

Cairo University at Beni Suef, Beni Suef, Egypt, Sep 1994 - Aug 1999, *Research/Teaching Assistant*

- Teaching responsibilities included delivery of general/freshmen, advanced physical and analytical chemistry lab instruction, supervision of lab students and grading of students lab reports.
- Managed 15-20 general/freshmen chemistry lab teaching assistants.
- Scheduled lab usage and compiled grades for over 500 students.
- Authored experimental procedures and quizzes for undergraduate chemistry major students.
- Lead chemistry tutoring program that included over 200 students.

Honors and Skills

- University of Southern Mississippi, Postdoctoral Fellowship/Visiting Research Scientist, July 2004–Oct 2014
- Fuel Cell Short Course, Florida Solar Energy Center, Cocoa, Florida, February 1-5, 2009
- University of Cincinnati Research Council Summer Graduate Summer Fellowship, June 2003–Sep. 2003
- University of Cincinnati, Chemistry Department, Research/Teaching Assistantship, Sep. 2000–June 2004
- University of Cincinnati, Chemistry Department, Visiting Researcher, Sep. 1999–June 2000
- Cairo University, Chemistry Department, Research/Teaching Assistantship, July 1995–Sep. 1999
- Ranked first in a class of 12 students, Department of Chemistry, Cairo University, 1994.
- Member of the American Chemical Society
- Skilled in Kaleida Graph, Sigma Plot, Chem Draw, ISIS Draw, and Microsoft Office
- Fully bilingual in Arabic and English

Publications: (total citations of 1226 and *h*-index of 21 according to Google scholar)

Journals

1. Vertically oriented nanoporous block copolymer membranes for oil/water separation and filtration, Yan Luo, Xiaoteng Wang, Ren Zhang, Maninderjeet Singh, Ali Ammar, Diana Cousins, **Mohammad K Hassan**, Deepalekshmi Ponnamma, Samer Adham, Mariam Al Ali Al-Maadeed, Alamgir Karim, *Soft Matter*, **2020**, xxx, xxxx.
2. Performance of electrospun polystyrene membranes in synthetic produced industrial water using direct-contact membrane distillation, Haneen Abdelrazeq, Majeda Khraisheh, Fares Al Momani, James T McLeskey Jr, **Mohammad K Hassan**, Mohamed Gad-el-Hak, Hooman Vahedi Tafreshi, *Desalination*, **2020**, 493, 114663.
3. A precious-metal-free Fe-intercalated carbon nitride porous-network with enhanced activity for the oxygen reduction reaction and methanol-tolerant oxygen reduction reaction, Ammar Bin Yousaf, John R Monnier, John W Weidner, **Mohammad K Hassan**, Syed Javaid Zaidi, Peter Kasak, *Sustainable Energy & Fuels*, **2020**, 4, 5050-5060.
4. Corrosion and Heat Treatment Study of Electroless NiP-Ti Nanocomposite Coatings Deposited on HSLA Steel, Khuram Shahzad, Eman M Fayyad, Muddasir Nawaz, Osama Fayyaz, RA Shakoor, **Mohammad K Hassan**, Malik Adeel Umer, MN Baig, A Raza, Aboubakr M Abdullah, *Nanomaterials*, **2020**, 10, 1932.
5. Accelerated Weathering Effects on Poly (3-hydroxybutyrate-co-3-hydroxyvalerate)(PHBV) and PHBV/TiO₂ Nanocomposites, Ana Antunes, Anton Popelka, Omar Aljarod, **Mohammad K Hassan**, Peter Kasak, Adriaan S Luyt, *Polymers*, **2020**, 12, 1743.
6. Characterization of polysulfone/diisopropylamine 1-alkyl-3-methylimidazolium ionic liquid membranes: high pressure gas separation applications, Majeda Khraisheh, Khadija M Zadeh, Abedalkhader I Alkhouzaam, Dorra Turki, **Mohammad K Hassan**, Fares Al Momani, Syed MJ Zaidi, *Greenhouse Gases: Science and Technology*, **2020**, 10, 795-808.
7. Investigation of the Mechanical Behavior of Electroless Ni-P-Ti Composite Coatings, Zhi Li, Zoheir Farhat, George Jarjoura, Eman Fayyad, Aboubakr Abdullah, **Mohammad K. Hassan**, *Journal of Engineering Materials and Technology*, **2020**, 142, 031006.
8. Mesoporous silica filled smart super oleophilic fibers of triblock copolymer nanocomposites for oil absorption applications, Yara Elgawady, Deepalekshmi Ponnamma, Samer Adham, Mashael Al-

- Maas, Ali Ammar, Karim Alamgir, Mariam Al Ali Al-Maadeed, **Mohammad K Hassan**, *Emergent Materials*, **2020**, 3, 279-290.
9. Effect of Different Phosphate Glass Compositions on the Process-Induced Macromolecular Dynamics of Polyamide 66, Imane Belyamani, Mohammad K. Hassan, *Polymers*, **2020**, 12, 1179.
 10. Effects of Rutile-TiO₂ Nanoparticles on Accelerated Weathering Degradation of Poly (Lactic Acid), Ana Antunes, Anton Popelka, Omar Aljarod, **Mohammad K Hassan**, Adriaan S Luyt, *Polymers*, **2020**, 12, 1096.
 11. Fabrication of fouling resistant Ti₃C₂T_x (MXene)/cellulose acetate nanocomposite membrane for forward osmosis application. Radwan Alfahel, Reem S Azzam, MhdAmmar Hafiz, Alaa H Hawari, Ravi P Pandey, Khaled A Mahmoud, **Mohammad K Hassan**, Ahmed A Elzatahry, *Journal of Water Process Engineering*, **2020**, 38, 101551.
 12. Effect of sulfonated poly (ether ether ketone) on the sensitivity of polyvinylidene fluoride-based resistive humidity sensors. Shoaib Mallick, Zubair Ahmad, Abubaker Eribi, Hemalatha Parangusan, Jolly Bhadra, **Mohammad K Hassan**, Noora J Al-Thani, Farid Touati, Shaheen Al-Muhtaseb, *Materials Today Communications*, **2020**, 25, 101601.
 13. Designing Flexible and Porous Fibrous Membranes for Oil Water Separation—A Review of Recent Developments. Ali A. El-Samak, Deepalekshmi Ponnamma, **Mohammad K. Hassan**, Ali Ammar, Samer Adham, Mariam Al Ali Al-Maadeed, Alamgir Karim. *Polymer Reviews*, **2020**, DOI: 10.1080/15583724.2020.1714651
 14. White Graphene-Cobalt Oxide Hybrid Filler Reinforced Polystyrene Nanofibers for Selective Oil Absorption, Deepalekshmi Ponnamma, Sabari S Nair, Hemalatha Parangusan, **Mohammad K. Hassan**, Samer Adham, Alamgir Karim, Mariam Al Ali Al-Maadeed, *Polymers*, **2020**, 12, 4.
 15. Effects of superelastic nano-NiTi additions on electroless Ni–P coating properties under bending, Marissa MacLean, Zoheir Farhat, George Jarjoura, Eman Fayyad, Aboubakr Abdullah, **Mohammad K. Hassan**, *Surface & Coatings Technology*, **2019**, 362, 239–251.
 16. Electrospun Polylactic acid/Date Palm Polyphenol Extract Nanofibers for Tissue Engineering Applications, Khadija M. Zadeh, Adriaan S. Luyt, Lubna Zarif, Robin Augustine, Anwarul Hasan, Massimo Messori, **Mohammad K. Hassan**, Huseyin C. Yalcin, *Emergent Materials*, **2019**, 2 (2), 141–151.
 17. Synthesis and Characterization of Scratch Resistant Ni-P-Ti Based Composite Coating, Zhi Li, Zoheir Farhat, George Jarjoura, Eman Fayyad, Aboubakr Abdullah, **Mohammad K. Hassan**, *Tribology Transactions*, **2019**, 62 (5), 880–896.
 18. Synthesis and properties of polyelectrolyte multilayered microcapsules reinforced smart coatings, Adnan Khan, Fareeha Ubaid, Eman M. Fayyad, Zubair Ahmad, R. A. Shakoor, M. F. Montemor, Ramazan Kahraman, Said Mansour, **Mohammad K. Hassan**, Anwarul Hasan, Aboubakr M. Abdullah, *Journal of Materials Science*, **2019**, 54 (18), 12079–12094.
 19. Designing Carbon Nanotube-Based Oil Absorbing Membranes from Gamma Irradiated and Electrospun Polystyrene Nanocomposites, Hemalatha Parangusan, Deepalekshmi Ponnamma, **Mohammad K. Hassan**, Samer Adham, Mariam Al Ali Al-Maadeed, *Materials*, **2019**, 12, 709.
 20. Effect of electroless bath composition on the mechanical, chemical, and electrochemical properties of new NiP–C₃N₄ nanocomposite coatings, Eman M. Fayyad, Aboubakr M. Abdullah, Adel M. Mohamed, George Jarjoura, Zoheir Farhat, **Mohammad K. Hassan**, *Surface & Coatings Technology*, **2019**, 362, 239–251.
 21. Novel electroless deposited corrosion — resistant and anti-bacterial NiP–TiNi nanocomposite coatings, Eman M. Fayyad, **Mohammad K. Hassan**, Kashif Rasool, Khaled A. Mahmoud, Adel M. Mohamed, George Jarjoura, Zoheir Farhat, Aboubakr M. Abdullah, *Surface & Coatings Technology*, **2019**, 369, 323–333.
 22. Fabrication and investigation of the scratch and indentation behaviour of new generation Ni-P-nano-NiTi composite coating for oil and gas pipelines, Marissa MacLean, Zoheir Farhat, George

- Jarjoura, Eman Fayyad, Aboubakr Abdullah, **Mohammad K. Hassan**, *Wear*, **2019**, 426–427, 265–276.
23. Crystallization and dielectric behaviour of PLA and PHBV in PLA/PHBV blends and PLA/PHBV/TiO₂ nanocomposites, Soumia Gasmi, **Mohammad K. Hassan**, Adriaan S. Luyt, *eXPRESS Polymer Letters* **2019**, 13 (2), 199–212.
 24. PVA/Chitosan/Silver Nanoparticles Electrospun Nanocomposites: Molecular Relaxations Investigated by Modern Broadband Dielectric Spectroscopy, **Mohammad K. Hassan**, Ahmed Abukmail, Alaa J. Hassiba, Kenneth A. Mauritz, Ahmed A. Elzatahry, *Nanomaterials* **2018**, 8, 888.
 25. The missing piece of the puzzle regarding the relation between the degree of superhydrophobicity and the corrosion resistance of superhydrophobic coatings, A. Bahgat Radwan, Aboubakr M. Abdullah, **Mohammad K. Hassan**, *Electrochemistry Communications* **2018**, 91, 41–44.
 26. Recent advances in electroless-plated Ni-P and its composites for erosion and corrosion applications: a review, Eman M. Fayyad, Aboubakr M. Abdullah, **Mohammad K. Hassan**, Adel M. Mohamed, George Jarjoura, Zoheir Farhat, *Emergent Materials* **2018**, 1 (1-2), 3–24.
 27. Synthesis, Characterization and Application of Novel Ni-P-Carbon Nitride Nanocomposites, Eman Fayyad, Aboubakr Abdullah, **Mohammad K. Hassan**, Adel Mohamed, Chuhong Wang, George Jarjoura, Zoheir Farhat, *Coatings* **2018**, 8, 37–50.
 28. Indentation and bending behavior of electroless Ni-P-Ti composite coatings on pipeline steel, Chuhong Wang, Zoheir Farhat, George Jarjoura, **Mohammad K. Hassan**, Aboubakr M. Abdullah, *Surface and Coatings Technology* **2018**, 334, 243–252.
 29. Kinetic studies of POSS–DGEBA precursors derived from Monoamine Functional POSS using Dynamic Dielectric Sensing and Nuclear Magnetic Resonance, Amit K. Sharma, **Mohammad K. Hassan**, Jianwei Tu, Kenneth A. Mauritz, Jeffrey S. Wiggins, *Journal of Applied Polymer Science* **2018**, 135 (13), 45994–46009.
 30. Morphology, Nucleation, and Isothermal Crystallization Kinetics of Poly(ϵ -caprolactone) Mixed with a Polycarbonate/MWCNTs Masterbatch, Thandi P. Gumede, Adriaan S. Luyt, **Mohammad K. Hassan**, Ricardo A. Pérez-Camargo, Agnieszka Tercjak, Alejandro J. Müller, *Polymers* **2017**, 9, 709–735.
 31. Physico-mechanical, dielectric, and piezoelectric properties of PVDF electrospun mats containing silver nanoparticles, Ahmed A. Issa, Mariam A. Al-Maadeed, Adriaan S. Luyt, Deepalekshmi Ponnamma, **Mohammad K. Hassan**, *C Journal of Carbon Research* **2017**, 3, 30–45.
 32. 2D Ti₃C₂T_x (MXene)-reinforced polyvinyl alcohol (PVA) nanofibers with enhanced mechanical and electrical properties, Patrik Sobolčiak, Adnan Ali, **Mohammad K. Hassan**, Mohamed I. Helal, Aisha Tanvir, Anton Popelka, Mariam A. Al-Maadeed, Igor Krupa, Khaled A. Mahmoud, *PLoS ONE* **2017**, 12 (8), e0183705.
 33. Investigation of fracture behavior of annealed electroless Ni-P coating on pipeline steel using acoustic emission methodology, Chuhong Wang, Zoheir Farhat, George Jarjoura, **Mohamed K. Hassan**, Aboubakr M. Abdullah, Eman M. Fayyad, *Surface and Coatings Technology* **2017**, 326, 336–342.
 34. Indentation and erosion behavior of electroless Ni-P coating on pipeline steel, Chuhong Wang, Zoheir Farhat, George Jarjoura, **Mohamed K. Hassan**, Aboubakr M. Abdullah, *Wear* **2017**, 376–377, 1630–1639.
 35. Flexible Pressure Sensor Based on PVDF Nanocomposites Containing Reduced Graphene Oxide-Titania Hybrid Nanolayers, Aisha Al-Saygh, Deepalekshmi Ponnamma, Mariam AlAli AlMaadeed, Poornima Vijayan P, Alamgir Karim, and **Mohammad K. Hassan**, *Polymers* **2017**, 9, 33.
 36. Universal Power Law Behavior of the AC Conductivity vs. Frequency of Agglomerate Morphologies in Conductive Carbon Nanotube Reinforced Epoxy Networks. Brian M. Greenhoe,

- Mohammad K. Hassan**, Jeffrey S. Wiggins, and Kenneth A. Mauritz, *Journal of Polymer Science, Part B: Polymer Physics* **2016**, *54*, 1918–1923.
37. Molecular Scale Cure Rate Dependence of Thermoset Matrix Polymers. Christopher H. Childers, **Mohammad K. Hassan**, Kenneth A. Mauritz, and Jeffrey S. Wiggins, *Arabian Journal of Chemistry* **2016**, *9*, 206–218.
 38. Polymer chain dynamics in epoxy based composites as investigated by broadband dielectric spectroscopy. **Mohammad K. Hassan**, Samuel J. Tucker, Ahmed Abukmail, Jeffrey S. Wiggins, and Kenneth A. Mauritz, *Arabian Journal of Chemistry* **2016**, *9*, 305–315.
 39. Investigation of the physico-mechanical properties of electrospun PVDF/cellulose (nano)fibers. Ahmed A. Issa, Mariam Al-Maadeed, Adriaan S. Luyt, Miroslav Mrlik, and **Mohammad K. Hassan**, *Journal of Applied Polymer Science* **2016**, *133*, 43594.
 40. Secondary chain motion and mechanical properties of γ -irradiated-regenerated cellulose films. Aisha Tanvir, Mariam A. Al-Maadeed, and **Mohammad K. Hassan**, *Starch/Stärke* **2016**, *68*, 1–8.
 41. Preparation and Preliminary Dielectric Characterization of Structured C₆₀-Thiol-Ene Polymer Nanocomposites Assembled Using the Thiol-Ene Click Reaction. Hanaa M. Ahmed, Amber D. Windham, Maryam M. Al-Ejji, Noora H. Al-Qahtani, **Mohammad K. Hassan**, Kenneth A. Mauritz, Randy K. Buchanan and J. Paige Buchanan, *Materials* **2015**, *8*, 7795–7804.
 42. High temperature proton exchange membranes with enhanced proton conductivities at low humidity and high temperature based on polymer blends and block copolymers of poly(1,3-cyclohexadiene) and poly(ethylene glycol). Shawn Deng, **Mohammad K. Hassan**, Amol Nalawade, Kelly A. Perry, Karren L. More, Kenneth A. Mauritz, Marshall T. McDonnell, David J. Keffer, and Jimmy W. Mays, *Polymer* **2015**, *77*, 208–217.
 43. Hydrocarbon-based fuel cell membranes: Sulfonated crosslinked poly(1,3-cyclohexadiene) membranes for high temperature polymer electrolyte fuel cells. Shawn Deng, **Mohammad K. Hassan**, Kenneth A. Mauritz, and Jimmy W. Mays, *Polymer* **2015**, *73*, 17–27.
 44. Dielectric Properties of C₆₀ and Sc₃N@C₈₀ Fullerenol Containing Polyurethane Nanocomposites. Hanaa M. Ahmed, **Mohammad K. Hassan**, Kenneth A. Mauritz, Steven L. Bunkley, Randy K. Buchanan, and J. Paige Buchanan, *Journal of Applied Polymer Science* **2014**, *131*, 40577–40588.
 45. Di(cyanate Ester) Networks Based on Alternative Fluorinated Bisphenols with Extremely Low Water Uptake. Cynthia A. Corley, Andrew J. Guenther, Christopher M. Sahagun, Kevin R. Lamison, Josiah T. Reams, **Mohammad K. Hassan**, Sarah E. Morgan, Scott T. Iacono, and Joseph M. Mabry, *ACS Macro Letters* **2014**, *3* (1), 105–109.
 46. Broadband dielectric spectroscopic studies of molecular motions in a Nafion® membrane vs. annealing time and temperature. **Mohammad K. Hassan**, Ahmed Abukmail, and Kenneth A. Mauritz, *European Polymer Journal* **2012**, *48*, 789–802.
 47. Broadband Dielectric Spectroscopy Studies of Glassy State Relaxations in Annealed Poly (2,5-benzimidazole). Amol Nalawade, **Mohammad K. Hassan**, William L. Jarrett, Kenneth A. Mauritz, and Morton H. Litt, *Polymer International* **2012**; *61*(1), 55–64.
 48. Macromolecular Dynamics of Sulfonated Poly(styrene-b-ethylene-ran-butylene-b-styrene) Block Copolymers by Broadband Dielectric Spectroscopy. Hongying Chen, **Mohammad K. Hassan**, Sateesh K. Peddini, and Kenneth A. Mauritz, *European Polymer Journal* **2011**, *47*, 1936–1948.
 49. Sub-Tg Macromolecular Motions in Phosphoric Acid Doped Polybenzimidazole Membranes for High Temperature Fuel Cell Applications. Amol Nalawade, Ahmed Abukmail, **Mohammad K. Hassan**, and Kenneth A. Mauritz. *ECS Transactions* **2011**, *41* (1), 1449–1459.
 50. Analysis of Nafion® Fuel Cell Membrane Chemical Durability Using Broadband Dielectric Spectroscopy. **Mohammad K. Hassan**, Amol Nalawade, Ahmed Abukmail, Yatin Patil, and Kenneth A. Mauritz. *ECS Transactions* **2011**, *41* (1), 1359–1370.
 51. Seawater degradable thermoplastic polyurethanes. Scott J. Moravek, **Mohammad K. Hassan**, David J. Drake, Tim R. Cooper, Jeffrey S. Wiggins, Kenneth A. Mauritz, and Robson F. Storey, *Journal of Applied Polymer Science* **2010**, *115*(3), 1873–1880.

52. Broadband Dielectric Spectroscopic Studies of Annealed Nafion Membranes. **Mohammad K. Hassan** and Kenneth A. Mauritz, *Electrochemical Society Transactions* **2009**, 25, 371.
53. Nanophase Separated Perfluorinated Ionomers as Sol-Gel Polymerization Templates for Functional Inorganic Oxide Nanoparticles. Kenneth A. Mauritz and **Mohammad K. Hassan**, *Polymer Reviews* **2007**, 47, 543.
54. Broadband Dielectric Spectroscopic Characterization of Nafion Chemical Degradation. David W. Rhoades, **Mohammad K. Hassan**, Shawn J. Osborn, Robert B. Moore, and Kenneth A. Mauritz, *Journal of Power Sources* **2007**, 172, 72.
55. Some Novel Layered-silicate Nanocomposites Based on a Biodegradable Hydroxybutyrate Copolymer. Xiujuan Zhang, Gui Lin, Reda Abou-Hussein, **Mohammad K. Hassan**, Isao Noda, and James E. Mark, *European Polymer Journal* **2007**, 43, 3128.
56. Glass Transition Temperature of Perfluorosulfonic Acid Ionomers. Shawn J. Osborn, **Mohammad K. Hassan**, Gilles M. Divoux; David W. Rhoades, Kenneth A. Mauritz, and Robert B. Moore, *Macromolecules* **2007**, 40, 3886.
57. Broadband Dielectric Spectroscopic Characterization of the Hydrolytic Degradation of Carboxylic Acid-terminated Poly(D,L-lactide) Materials. **Mohammad K. Hassan**, Jeffery S. Wiggins, Robson F. Storey, and Kenneth A. Mauritz, *Polymer* **2007**, 48, 2022.
58. Hydrolytic Degradation of Poly(D,L-lactide) as a Function of End Group: Carboxylic Acid vs. Hydroxyl. Jeffrey S. Wiggins, **Mohammad K. Hassan**, Kenneth A. Mauritz, and Robson F. Storey, *Polymer* **2006**, 47, 1960.
59. Biodegradable copolymers of 3-hydroxybutyrate-co-3-hydroxyhexanoate (nodax™), including recent improvements in their mechanical properties. **Mohammad K. Hassan**, Reda Abou-Hussein, Xiujuan Zhang, James E. Mark, and Isao Noda, *Molecular Crystals and Liquid Crystals* **2006**, 447, 23/[341] - 44/[362].
60. Biodegradable Aliphatic Thermoplastic Polyurethane based on Poly(ϵ -caprolactone) and L-lysine Diisocyanate. **Mohammad K. Hassan**, Kenneth A. Mauritz, Robson F. Storey, and Jeffrey S. Wiggins, *Journal of Polymer Science, Part A: Polymer Chemistry* **2006**, 44, 2990.
61. An investigation of the properties of poly(dimethylsiloxane)-bioinspired silica hybrids Siddharth V. Patwardhan, Vijay P. Taori, **Mohamed Hassan**, Nikhil R. Agashe, Jeffrey E. Franklin, Gregory Beaucage, James E. Mark, and Stephen J. Clarson, *European Polymer Journal* **2006**, 42, 167–178.
62. Sol-Gel Condensations to Form Polytetrahydrofuran Networks and Their Elastomeric Behavior. **M. K. Hassan**, G. G. Abdel-Sadek, G. Beaucage, J. E. Mark, and M. A. Sharaf, *Journal of Macromolecular Science: Part A-Pure and Applied Chemistry* **2004**, 41(1), 1-13.
63. Improvement in the Mechanical Properties of Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) (Nodax™) by Pre-Orientation. **Mohamed K. Hassan**, Samir A. Abdel-Latif, Omar M. El-Roudi, Mohamed A. Sharaf, Isao Noda, and James E. Mark, *Journal of Applied Polymer Science* **2004**, 94, 2257.

Book Chapters

1. Membrane Surface Modification and Functionalization, Syed Javaid Zaidi, Kenneth A. Mauritz, and **Mohammad K. Hassan**, in “Springer Handbook of Functional Polymers”, Mohammad Jafar Mazumder, Heather Sheardown, Toshihiro Akaike, Amir Al-Ahmed, Editors; Springer: New York; **2017**; Chapter 53.
2. Proton Exchange Membranes for H₂ Fuel Cells Applications. Kenneth A. Mauritz, Amol Nalawade and **Mohammad K. Hassan**, in Sol-Gel Processing for Conventional and Alternative Energy, Aparicio, M.; Jitianu, A.; Klein, L. C.; Editors; Springer: New York; **2012**; Chapter 5: pp 73-98.
3. Broadband dielectric spectroscopic studies of nafion/silicate membranes. **Mohammad K. Hassan** and Kenneth A. Mauritz, in American Chemical Society Symposium Book Series, Volume 1040:

- Fuel Cell Chemistry and Operation, Herring, A. M.; Zawodzinski Jr., T. A.; Hamrock, S. J.; Editors; ACS Publications: Washington, DC; **2010**; Chapter 8: pp 113-124.
4. High-oxygen barrier materials based on hyperbranched aliphatic polyesters. Jason D. Pratt, Brian G. Olson, Justin P. Brandt, **Mohammad K. Hassan**, Jo Ann Ratto, Jeffrey S. Wiggins, James W. Rawlins, and Sergei Nazarenko, in American Chemical Society Symposium Book Series, Volume 1004: Polymer Degradation and Performance, Celina, M. C.; Wiggins, J. S.; Billingham, N. C.; Editors; ACS publications: Washington, DC; **2009**; Chapter 2: pp 17-30.
 5. Broadband Dielectric Spectroscopic Characterization of the Hydrolytic Degradation of Hydroxyl-terminated Poly(D,L-Lactide) Materials. **Mohammad K. Hassan**, Jeffrey S. Wiggins, Robson F. Storey, and Kenneth A. Mauritz, in American Chemical Society Symposium Book Series, Volume 977: Polymers for Biomedical Applications, Mahapatro, A.; Kulshrestha, A. S.; Editors; ACS publications: Washington, DC; **2008**; Chapter 9: pp 153-169.
 6. Nylon 11. George Apgar and **Mohammad K. Hassan**, in Polymer Data Handbook, Second Edition, James E. Mark, Editor, Oxford University Press: New York, **2009**.

Patents

1. Polyelectrolytes Comprising Sulfonated Polydienes and Poly(alkylene oxides) and Related Methods. Jimmy W. Mays, Suxiang Deng, Kenneth A. Mauritz, **Mohammad K. Hassan**, and Samuel P. Gido, U.S. Patents, US 2009/0306295 A1, **2009**.

Conferences Preprints (Non-refereed Publications)

1. Analysis of Cure Ramp Rate Dependence of Polymer Chain Relaxations and Interfacial Polarization in Epoxy-Based Composites as Investigated by Broadband Dielectric Spectroscopy”, Mohammad K. Hassan, Christopher Childers, Jessica Piness, Kenneth A. Mauritz, and Jeffrey S. Wiggins, Proceedings of the Society for the Advancement of Material and Process Engineering (SAMPE), **2014**.
2. Macromolecular and Proton Motions in Fuel Cell Membranes via Dielectric Spectroscopy. Mohammad K. Hassan, Amol Nalawade, and Kenneth A. Mauritz, Preprints of the American Chemical Society Symposia, Division of Fuel Chemistry **2011**, 56(2), 220-221.
3. Real Time Dielectric Spectroscopic Monitor of Curing of Epoxy Networks with Pendant Bulky Groups. Mohammad K. Hassan, Katherine L. Frank, Ahmed Abukmail, Jeffrey S. Wiggins, and Kenneth A. Mauritz, Polymer Preprints **2011**, 52(2), 53-54.
4. Real Time Dielectric Spectroscopic Monitor of Curing Epoxy-Based Composite Resins Produced by Vacuum-Assisted Resin Transfer Molding. Mohammad K. Hassan, Jianwei Tu, Ahmed Abukmail, Jeffrey S. Wiggins, and Kenneth A. Mauritz, Polymer Preprints **2011**, 52(2), 51-52.
5. Sub-Tg Relaxations in Epoxy-Based Composites as Investigated by Broadband Dielectric Spectroscopy. Mohammad K. Hassan, Samuel J. Tucker, Katherine L. Frank, Jeffrey S. Wiggins and Kenneth A. Mauritz, Polymer Preprints **2011**, 52(2), 83-84.
6. Analysis of Macromolecular and Proton Motions in Fuel Cell Membranes using Dielectric Spectroscopy. Mohammad K. Hassan, Amol Nalawade, and Kenneth A. Mauritz, Polymer Preprints **2011**, 52(1), xx.
7. Physical and Dielectric Properties of Fullerene-containing Polyurethane. Hanaa M. Ahmed, Steve Stevenson, Mohammad K. Hassan, Kenneth A. Mauritz, and J. Paige Phillips, Polymeric Materials: Science & Engineering **2011**, xx, xx.
8. Broadband Dielectric Spectroscopy Studies of Instrument - in situ Annealed Poly (2,5-benzimidazole) Membrane Materials. Amol Nalawade, Mohammad K. Hassan, Kenneth A. Mauritz, and Morton H. Litt, Preprints of the American Chemical Society Symposia, Division of Fuel Chemistry **2010**, 55(2), 243-244.

9. Low Cost High Temperature Fuel Cell Membranes Based on Poly(1,3-cyclohexadiene) Homopolymers, Polymer blends, and Block Copolymers. Suxiang Deng, Mohammad K. Hassan, Kenneth A. Mauritz, and Jimmy W. Mays, Preprints of the American Chemical Society Symposia, Division of Fuel Chemistry **2009**, 54(2), 433-434.
10. Dielectric spectroscopic studies of Nafion and Nafion/silicate membranes. Kenneth A. Mauritz, Mohammad K. Hassan, Yatin Patil, and David W. Rhoades, Preprints of the American Chemical Society Symposia, Division of Fuel Chemistry **2008**, 53(2), 648-649.
11. Broadband Dielectric Spectroscopic Studies of Nafion® Silicate Nanocomposite Membranes. Mohammad K. Hassan and Kenneth A. Mauritz, Polymeric Materials: Science & Engineering **2008**, 98, 891.
12. Nafion® Silicate Hybrid Membranes Via Dibutyltin Dilaurate-Catalyzed in Situ Sol-Gel Processes. Mohammad K. Hassan and Kenneth A. Mauritz, Polymeric Materials: Science & Engineering **2008**, 98, 740.
13. Molecular dynamics of sulfonated poly(styrene-*b*-ethylene/butylene-*b*-styrene) block copolymers. Hongying Chen, Mohammad K. Hassan, and Kenneth A. Mauritz, Polymeric Materials: Science & Engineering **2008**, 98, 881.
14. Chain Dynamics of Nafion® Films Neutralized with Tetrabutyl Ammonium Counterions as Investigated by Broadband Dielectric Spectroscopy. Mohammad K. Hassan, David W. Rhoades, Shawn J. Osborn, Robert B. Moore, and Kenneth A. Mauritz, Preprints of the American Chemical Society Symposia, Division of Fuel Chemistry **2008**, 53(1), 533-535.
15. Poly 1,3-Cyclohexadiene Based Proton Exchange Fuel Cell Membranes. Suxiang Deng, Mohammad K. Hassan, Jimmy W. Mays, and Kenneth A. Mauritz, Abstracts of the 59th Southeast Regional Meeting of the American Chemical Society, Greenville, SC, United States, October 24-27, **2007**.
16. Synthesis of Poly(D,L-lactide) Functionalized with Pendant Carboxylic Acid Groups. Tim R Cooper, Mohammad K. Hassan, Kenneth A. Mauritz, and Robson F. Storey, Polymer Preprints **2007**, 48, 635.
17. Marine-degradable thermoplastic polyurethanes. Scott J. Moravek, Tim R Cooper, Hassan, Mohammad K. Hassan, Jeffery S. Wiggins, Kenneth A. Mauritz, and Robson F. Storey, Polymer Preprints **2007**, 48, 597.
18. Degradable Thermoplastic Polyurethanes Based on 4,4'-Dicyclohexylmethane Diisocyanate. Scott J. Moravek, Tim R Cooper, Mohammad K. Hassan, Jeffery S. Wiggins, Kenneth A. Mauritz, and Robson F. Storey, Polymer Preprints **2007**, 48, 568.
19. Biodegradable, High Oxygen Barrier Films Based on Polyhydroxylated Dendritic Polymers Cross-linked with 1,6-Hexamethylene Diisocyanate. Jason Pratt, Brian G. Olson, Mohammad K. Hassan, William L. Jarrett, Jeffery S. Wiggins, James W. Rawlins, and Sergei Nazarenko, Polymer Preprints **2007**, 48, 556.
20. Preparation of Organoclay Nanocomposites from Biodegradable Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) (Nodax). Xiujuan Zhang, Reda Abou-Hussein, Mohammad K. Hassan, Isao Noda, and James E. Mark, Polymer Preprints **2007**, 48, 489.
21. Broadband Dielectric Spectroscopy Characterization of Chemical Degradation in Nafion®/Silicate Nanocomposite Membranes. Mohammad K. Hassan, Robert B. Moore and Kenneth A. Mauritz, AIChE Spring Meeting **2007**, Houston.
22. Broadband Dielectric Spectroscopy Studies of Nafion® Degradation. Mohammad K. Hassan, David W. Rhoades, Shawn J. Osborn, Robert B. Moore, and Kenneth A. Mauritz, Preprints of the American Chemical Society Symposia, Division of Fuel Chemistry **2006**, 51, 686.
23. Novel Method for Characterization of Poly(D,L-lactide) Degradation Based on Dielectric Spectroscopy. Mohammad K. Hassan, Jeffrey S. Wiggins, Robson F. Storey, and Kenneth A. Mauritz, Polymeric Materials: Science & Engineering **2006**, 95, 900.

24. L-Lysine Diisocyanate Based Biodegradable Thermoplastic Polyurethanes with Broad Range of Mechanical Properties. Mohammad K. Hassan, Jeffrey S. Wiggins, Kenneth A. Mauritz, and Robson F. Storey, *Polymeric Materials: Science & Engineering* **2006**, 95, 656.
25. Broadband Dielectric Spectroscopy of mPP/PC Blend Prepared Via In Situ Polymerization and Compatibilization. Samy A. Madbouly, Joshua U. Otaigbe, Mohammad K. Hassan, and Kenneth A. Mauritz, *Polymeric Materials: Science & Engineering* **2006**, 94, 831.
26. Improvement in the Mechanical Properties of Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) (Nodax™) by Pre-Orientation. Mohamed K. Hassan, Samir A. Abdel-Latif, Omar M. El-Roudi, Mohamed A. Sharaf, Isao Noda, and James E. Mark, *Polymeric Materials: Science & Engineering* **2004**, 90, 771.
27. Mechanical Properties of Crosslinked Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) (Nodax™) Films. Mohamed K. Hassan, Omar M. El-Roudi, Samir A. Abdel-Latif, Mohamed A. Sharaf, Isao Noda, and James E. Mark, *Polymeric Materials: Science & Engineering* **2004**, 90, 459.
28. Reinforcement of Poly(dimethylsiloxane) Elastomers using Bioinspired Silica. Vijay P. Taori, Mohamed K. Hassan, Siddharth V. Patwardhan, James E. Mark, and Stephen J. Clarson, *Polymer Preprints* **2004**, 45(1), 694.
29. Thermoplastic Elastomeric Polypropylene Reinforced with Clay, Other Layered Silicates, or Fumed Silica. Reda Abu-Hussein, Guru S. Rajan, Yen T. Vu, Mohamed K. Hassan, James E. Mark, Tety Kwee, Kenneth A. Mauritz, and Charles Myers, *Polymer Preprints* **2004**, 45(1), 870.
30. Elastic Properties of Poly(methyl methacrylate) Networks. Mohamed A. Sharaf and Mohamed K. Hassan, *Polymeric Materials: Science & Engineering* **2003**, 89, 584.
31. Molecular Orientation of Deformed Poly(methyl methacrylate) Networks. Comparisons with Theories; Mohamed A. Sharaf and Mohamed K. Hassan, *Polymeric Materials: Science & Engineering* **2003**, 89, 430.
32. Orientational Relaxation of Deformed Poly(methyl methacrylate) Networks. Mohamed A. Sharaf and Mohamed K. Hassan, *Polymeric Materials: Science & Engineering* **2003**, 89, 449.
33. Pulse Speed Propagation in Polybutadiene (PBD) Networks. M. K. Hassan and J. E. Mark, *Polymer Preprints* **2002**, 43(1), 268.

Presentations:

Abbreviations: American Chemical Society (ACS), American Institute of Chemical Engineers (AIChE), Society for the Advancement of Material and Process Engineering (SAMPE), Composites and Advanced Materials Expo (CAMX), American Composites Manufacturers Association (ACMA).

1. “Dielectric spectroscopic analysis of cure behavior and relaxation processes in polymer composites”, **Mohammad K. Hassan**, Christopher Childers, Kenneth A. Mauritz, and Jeffrey S. Wiggins, presented at the 249th ACS National Meeting: Polymer Composites and High Performance Materials Symposium, Denver, Colorado, United States, March 22 – 26, **2015**.
Invited Talk
2. “Student research training to the benefit of industry: Case studies”, **Adriaan Stephanus Luyt** and **Mohammad K. Hassan**, Materials Science and Engineering Symposium, Doha, Qatar, March 17, **2015**. **Invited Talk**
3. “Analysis of Cure Ramp Rate Dependence of Polymer Chain Relaxations and Interfacial Polarization in Epoxy-Based Composites as Investigated by Broadband Dielectric Spectroscopy”, **Mohammad K. Hassan**, Christopher Childers, Jessica Piness, Kenneth A. Mauritz, and Jeffrey S.

Wiggins, presented at the joint CAMX/ACMA/SAMPE meeting, Orlando, Florida, United States, October 13-16, 2014. **Talk**

4. "Macromolecular and Proton Motions in Fuel Cell Membranes via Dielectric Spectroscopy", **Mohammad K. Hassan**, Amol Nalawade, and Kenneth A. Mauritz, presented at the 242nd ACS National Meeting: Fuel Cells Chemistry and Operation, Proton Exchange Membranes Symposium, Denver, Colorado, United States, August 28 - September 1, 2011. **Talk**
5. "Real Time Dielectric Spectroscopic Monitor of Curing Epoxy-Based Composite Resins Produced by Vacuum-Assisted Resin Transfer Molding", **Mohammad K. Hassan**, Jianwei Tu, Ahmed Abukmail, Jeffrey S. Wiggins, and Kenneth A. Mauritz, presented at the 242nd ACS National Meeting: Advances in Polymer Composites Symposium, Denver, Colorado, United States, August 28 - September 1, 2011. **Talk**
6. "Sub-Tg Relaxations in Epoxy-Based Composites as Investigated by Broadband Dielectric Spectroscopy", **Mohammad K. Hassan**, Samuel J. Tucker, Katherine L. Frank, Jeffrey S. Wiggins and Kenneth A. Mauritz, , presented at the 242nd ACS National Meeting: Advances in Polymer Composites Symposium, Denver, Colorado, United States, August 28 - September 1, 2011. **Talk**
7. "Real Time Dielectric Spectroscopic Monitor of Curing Kinetics of Composite Resins", **Mohammad K. Hassan** and Kenneth A. Mauritz, presented at the Polymer Composite Matrix Science Workshop-held in conjunction with the Waterborne Symposium/co-sponsored by the University of Southern Mississippi and the Polymer Division of the ACS, New Orleans, Louisiana, United States, February 8-9, 2010. **Poster**
8. "Broadband Dielectric Spectroscopic Studies of Nafion[®]/Silicate Nanocomposite Membranes", **Mohammad K. Hassan** and Kenneth A. Mauritz, presented at the 235th ACS National Meeting: General Papers/New Concepts in Polymeric Materials Symposium, New Orleans, Louisiana, United States, April 6-10, 2008. **Talk**
9. "Nafion[®]/Silicate Hybrid Membranes Via Dibutyltin Dilaurate-Catalyzed in Situ Sol-Gel Processes", **Mohammad K. Hassan** and Kenneth A. Mauritz, presented at the 235th ACS National Meeting: Synthesis and Self-Assembly Approaches to Polymer-Inorganic Hybrid Nanoparticles Symposium, New Orleans, Louisiana, United States, April 6-10, 2008. **Talk**
10. "Chain Dynamics of Nafion[®] Films Neutralized with Tetrabutyl Ammonium Counterions as Investigated by Broadband Dielectric Spectroscopy", **Mohammad K. Hassan**, David W. Rhoades, Shawn J. Osborn, Robert B. Moore, and Kenneth A. Mauritz, presented at the 235th ACS National Meeting: Advances in Fuel Science and Technology Symposium, New Orleans, Louisiana, United States, April 6-10, 2008. **Talk**
11. "Broadband Dielectric Spectroscopy Characterization of Chemical Degradation in Nafion[®]/Silicate Nanocomposite Membranes", **Mohammad K. Hassan**, Robert B. Moore, and Kenneth A. Mauritz, presented at the 2007 AIChE Spring National Meeting: Microstructural Analysis of Proton Exchange Membrane Fuel Cells: Membrane and Catalyst Layer Degradation Mechanisms Symposium, Houston, Texas, United States, April 22-27, 2007. **Talk**
12. "Broadband Dielectric Studies of Nafion[®] Degradation", **Mohammad K. Hassan**, David W. Rhoades, Shawn J. Osborn, Robert B. Moore, and Kenneth A. Mauritz, presented at the 232nd ACS National Meeting: Proton Exchange Membranes for Fuel Cells Symposium in Honor of Prof. James McGrath, San Francisco, California, United States, September 10-14, 2006. **Talk**

13. "Novel Method for Characterization of Poly(D,L-lactide) Degradation Based on Dielectric Spectroscopy", **Mohammad K. Hassan**, Jeffrey S. Wiggins, Robson F. Storey, and Kenneth A. Mauritz, presented at the 232nd ACS National Meeting: Polymers for Biomedical Applications Symposium, San Francisco, California, United States, September 10-14, **2006. Talk**
14. "L-Lysine Diisocyanate Based Biodegradable Thermoplastic Polyurethanes with Broad Range of Mechanical Properties", **Mohammad K. Hassan**, Jeffrey S. Wiggins, Kenneth A. Mauritz, and Robson F. Storey, presented at the 232nd ACS National Meeting: Joint PMSE/POLY Poster Session, San Francisco, California, United States, September 10-14, **2006. Poster**
15. "Improvement in the Mechanical Properties of Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) (Nodax™) by Pre-Orientation", **Mohamed K. Hassan**, Samir A. Abdel-Latif, Omar M. El-Roudi, Mohamed A. Sharaf, Isao Noda, and James E. Mark, presented at the 227th ACS National Meeting: General Papers/New Concepts in Polymeric Materials Symposium, Anaheim, California, United States, March 28-April 1, **2004. Talk**
16. "Mechanical Properties of Crosslinked Poly(3-hydroxybutyrate-co-3-hydroxyhexanoate) (Nodax™) Films", **Mohamed K. Hassan**, Omar M. El-Roudi, Samir A. Abdel-Latif, Mohamed A. Sharaf, Isao Noda, and James E. Mark, presented at the 227th ACS National Meeting: Joint PMSE/POLY Poster Session, Anaheim, California, United States, March 28-April 1, **2004. Poster**
17. "Pulse Speed Propagation in Polybutadiene (PBD) Networks", **Mohamed K. Hassan** and James E. Mark, presented at the 223rd ACS National Meeting: Chemistry and Engineering of Polyolefins Symposium, Orlando, Florida, United States, April 7-11, **2002. Talk**