Xi Chelsea Chen (U.S. citizen)

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EDUCATION

Ph.D. **University of Michigan, Ann Arbor**, Macromolecular Science and Engineering December 2011

Dissertation Title: Self-organized Tethered Structures in Polymers under Confinement
Research Advisor: Peter F. Green

B.S. **Shanghai Jiao Tong University**, Applied Chemistry July 2005

Dissertation Title: Giant Polymeric Vesicles with Ion Channels – the Transmembrane Transfer of Ions
Research Advisor: Deyue Yan, Yongfeng Zhou

EXPERIENCE

R&D staff, Polymer Scientist – Oak Ridge National Laboratory April 2017 – present

- **PI**, DOE-EERE-VTO project "Polymer Electrolytes for Stable Low Impedance Solid State Battery Interfaces", 10/2021 to 09/2026, 650K/year
- **Thrust 2 lead**, Fast and Cooperative Ion Transport in Polymer-Based Electrolytes (FaCT) EFRC, 08/2022 to 08/2026
- Co-PI, DOE-EERE-AMMTO, "Solventless Processing for Precise, Reliable, and Scalable Solid-State Battery Manufacturing", 10/2023 to 09/2026
- **PI**, LDRD project "Welding Interfaces for a New Plastics Economy", 10/2019 to 09/2021, 400K/year
- Co-PI, DOE-BES Field work proposal number ERKCZ06, "Ion Transport and Structural Evolution of Solid Electrolytes" 04/2017 to 09/2022
- Co-PI, DOE-EERE-VTO project "Composite Electrolyte to Stabilize Metallic Lithium Anodes", 04/2017 to 09/2021

Senior Chemist – Dow Electronic Materials, Marlborough, MA July 2016 – April 2017

- Development of Next Generation Dielectrics for Fan-Out Wafer Level Packaging
- Development of Thermally Conductive Composite Thin Film

Postdoctoral Fellow – University of California, Berkeley/Lawrence Berkeley National Laboratory, California, CA. Principle Investigator: Nitash P. Balsara May 2012 – July 2016

- Development of Novel Block Copolymer Membranes for Drug Capture
- Water Management and Proton Transport in Block Copolymer Electrolyte Membranes
- Structure – Li Ion Transport Relationships in Block Copolymer Electrolyte Membranes

Graduate Student – University of Michigan, Ann Arbor, MI September 2005 – April 2012
Advisor: Peter F. Green

- Nanoscale Morphology of Bulk Heterojunction Solar Cells
- Self-Assembly of Diblock Copolymer in Thin Film Homopolymers: Role of Entropy and Enthalpy
- Phase Behavior of Thin Film Homopolymer/Nanoparticle Mixtures
- Fluorescence Properties of Polymer Nanocomposites: Effect of Nanoparticle Size and Distribution

Undergraduate Researcher – Shanghai Jiao Tong University, Shanghai, China September 2004 – July 2005
Advisor: Deyue Yan, Yongfeng Zhou

- Synthesized a hyper-branched polymer and examined its self-assembled structures.

Internship –Forschungszentrum Rossendorf, Dresden, Germany — May 2004 – August 2004

- Synthesized, purified and characterized of precursors for drugs used for cancer detection.

Undergraduate Researcher – The Hong Kong University of Science and Technology, Hong Kong, China — September 2002 – January 2003

- Purified drugs for the treatment of malaria

PUBLICATIONS (first/corresponding author)

1. **Chen, X. C.***; Soulen, C.; Burdette-Trofimov, M. K.; Tang, X.; Liu, C.; Heroux, L.; Doucet, M.; Tyagi, M.; Veith, G. M. Origin of rate limitations in solid-state polymer batteries from constrained segmental dynamics within the cathode. *Cell Reports Physical Science* **2023**, *4*. DOI: 10.1016/j.xcrp.2023.101538
2. Zheng, J.; Arifuzzaman, M.; Tang, X.; **Chen, X.C.***; Saito, T.* Recent development of end-of-life strategies for plastic in industry and academia: bridging their gap for future deployment. *Materials Horizons* **2023**, doi:10.1039/D2MH01549H. **Journal Cover**
3. Sahore, R., Armstrong, B. L., Tang, X., Liu, C., Owensby, K., Kalnaus, S., **Chen, X. C.***, Role of Scaffold Architecture and Excess Surface Polymer Layers in a 3D-Interconnected Ceramic/Polymer Composite Electrolyte. *Adv. Energy Mater.* **2023**, 2203663. **Journal Cover**
4. Tsai, W.-Y.; **Chen, X. C.***; Kalnaus, S.; Sahore, R.; Du, Z.; Westover, A. S., Li Morphology Evolution during Initial Cycles in a Gel Composite Polymer Electrolyte. *ACS Applied Energy Materials* **2022**.
5. Tang, X.; Liu, C.; Keum, J.; Chen, J.; Dial, B. E.; Wang, Y.; Tsai, W.-Y.; Bras, W.; Saito, T.; Bowland, C. C.; **Chen, X. C.***, Upcycling of semicrystalline polymers by compatibilization: mechanism and location of compatibilizers. *RSC Advances* **2022,** *12*, 10886-10894.
6. Liu, C.; Tang, X.; Wang, Y.; Sacci, R. L.; Bras, W.; Keum, J. K.; **Chen, X. C.***, Ionic Conductivity Enhancement of Polymer Electrolytes by Directed Crystallization. *ACS Macro Letters* **2022,** *11*, 595-602. **Journal Cover.**
7. Liu, C.; Sacci, R. L.; Sahore, R.; Veith, G. M.; Dudney, N. J.; **Chen, X. C.***, Polyacrylonitrile-based Electrolytes: How Processing and Residual Solvent Affect Ion Transport and Stability *Journal of Power Sources* **2022**, 527, 231165.
8. **Chen, X. C.***; Sacci, R. L.; Osti, N. C.; Tyagi, M.; Wang, Y.; Keum, J. K.; Dudney, N. J., Study of the Segmental Dynamics and Ion Transport of Solid Polymer Electrolytes in the Semi-crystalline State. *Frontiers in Chemistry* **2021,** *8* (1211).
9. **Chen, X. C.***; Zhang, Y. M.; Merrill, L. C.; Soulen, C.; Lehmann, M. L.; Schaefer, J. L.; Du, Z. J.; Saito, T.; Dudney, N. J., Gel composite electrolyte - an effective way to utilize ceramic fillers in lithium batteries. *Journal of Materials Chemistry A* **2021,** *9*, 6555-6566.
10. Merrill, L. C.; **Chen, X. C***.; Zhang, Y.; Ford, H. O.; Lou, K.; Zhang, Y.; Yang, G.; Wang, Y.; Wang, Y.; Schaefer, J. L.; Dudney, N. J., Polymer–Ceramic Composite Electrolytes for Lithium Batteries: A Comparison between the Single-Ion-Conducting Polymer Matrix and Its Counterpart. *ACS Applied Energy Materials* **2020,** *3* (9), 8871-8881.
11. Peng, J.; Xiao, Y.; Clarkson, D. A.; Greenbaum, S. G.; Zawodzinski, T. A.*; **Chen, X. C.***, A Nuclear Magnetic Resonance Study of Cation and Anion Dynamics in Polymer–Ceramic Composite Solid Electrolytes. *ACS Applied Polymer Materials* **2020,** *2*, 1180-1189
12. Palmer, M. J.; Kalnaus, S.*; Dixit, M. B.; Westover, A. S.; Hatzell, K. B.; Dudney, N. J.; **Chen, X. C.***, A three-dimensional interconnected polymer/ceramic composite as a thin film solid electrolyte. *Energy Storage Materials* **2020,** *26*, 242-249.
13. **Chen, X. C.***; Sacci, R. L.; Osti, N. C.; Tyagi, M.; Wang, Y.; Palmer, M. J.; Dudney, N. J., Study of segmental dynamics and ion transport in polymer–ceramic composite electrolytes by quasi-elastic

neutron scattering. *Molecular Systems Design & Engineering* **2019,** *4*, 379-385.

14. **Chen, X. C.***; Liu, X. M.; Pandian, A. S.; Lou, K.; Delnick, F. M.; Dudney, N. J.*, Determining and Minimizing Resistance for Ion Transport at the Polymer/Ceramic Electrolyte Interface. *ACS Energy Letters* **2019,** *4*, 1080-1085.
15. Pandian, A. S.; **Chen, X. C.***; Chen, J.; Lokitz, B. S.; Ruther, R. E.; Yang, G.; Lou, K.; Nanda, J.; Delnick, F. M.; Dudney, N. J.*, Facile and scalable fabrication of polymer-ceramic composite electrolyte with high ceramic loadings. *Journal of Power Sources* **2018,** *390*, 153-164.
16. **Chen, X. C.**; Jiang, X.; Balsara, N. P., Swelling of individual nanodomains in hydrated block copolymer electrolyte membranes. *J Chem Phys* **2018,** *149*, 163325. (Invited paper in special topic: Chemical Physics of Charged Macromolecules)
17. **Chen, X. C.**, Oh, H.J., Yu, J.F., Yang, J.K., Petzetakis, N., Patel, A.S., Hetts, S.W., Balsara, N.P., "Block Copolymer Membranes for Efficient Capture of a Chemotherapy Drug", *ACS Macro Letters*, **2016**, vol.5, 936-941. (Editor's choice)
18. **Chen, X. C.**, Kortright, J., Balsara, N.P., "Water Uptake and Proton Conductivity in Porous Block Copolymer Electrolyte Membranes", **2015**, *Macromolecules*, vol. 48, 5648-5655
19. **Chen, X. C.**, Wong, D. T., Yakovlev, S., Beers, K.M., Downing, K.H., Balsara, N.P. "Effect of Morphology of Nanoscale Hydrated Channels on Proton Conductivity in Block Copolymer Electrolyte Membranes", *Nano Letters* **2014**, vol.14, 4058–4064.
20. **Chen, X. C.**, Yang, H., Green, P.F. "Micellar Formation and Organization in Thin Film Polymer Blends" *Macromolecules* **2012**, 45, 3993-4000.
21. **Chen, X. C.**, Yang, H., Green, P.F."Tethered-Polymer Structures in Thin Film Polymer Melts" *Macromolecules* **2011**, 44, 5758-5763.
22. **Chen, X. C.**, Green, P.F. "Structure of Thin Film Polymer/nanoparticle Systems:Polystyrene (PS) coated-Au nanoparticle/Tetramethyl bisphenol-A Polycarbonate Mixtures (TMPC)" *Soft Matter* **2011**, 7, 1192-1198.
23. **Chen, X. C.**, Green, P.F. "Control of Morphology and Its Effects on the Optical Properties of Polymer Nanocomposites." *Langmuir* **2009**, 26, 3659-3665.

PUBLICATIONS (significant supporting contribution)

24. Polizos, G.; Kalnaus, S.; **Chen, X. C.**; Dixit, M.; Balasubramanian, M.; Sharma, J.; Tao, R.; Li, J. Tw layer cathode architecture for high-energy density and high-power density solid state batterie *Materials Today Chemistry* **2023**, *33*, 101704. DOI: https://doi.org/10.1016/j.mtchem.2023.101704.
25. Bocharova, V.; **Chen, X. C**.; Jeong, S. P.; Zhou, Z.; Sacci, R. L.; Keum, J. K.; Gainaru, C.; Rahma M. A.; Sahori, R.; Sun, X.-G.; et al. Single Ion Conducting Hairy Nanoparticle Additive to Impro Cycling Stability of Solid Polymer Electrolytes. *ACS Applied Energy Materials* **2023**, *6*, 8042-805 DOI: 10.1021/acsaem.3c01106
26. Sahore, R.; Yang, G.; **Chen, X. C**.; Tsai, W.-Y.; Li, J.; Dudney, N. J.; Westover, A., A Bilay Electrolyte Design to Enable High-Areal-Capacity Composite Cathodes in Polymer Electrolytes Bas Solid-State Lithium Metal Batteries. *ACS Applied Energy Materials* **2022,** *5*, 1409-1413.
27. Du, Z.; **Chen, X. C.**; Sahore, R.; Wu, X.; Li, J.; Dudney, N. J., Effects of Plasticizer Content a Ceramic Addition on Electrochemical Properties of Cross-Linked Polymer Electrolyte. *Journal of T Electrochemical Society* **2021,** *168* (5), 050549.
28. Sahore, R.; Du, Z.; **Chen, X. C.**; Hawley, W. B.; Westover, A. S.; Dudney, N. J., Practic Considerations for Testing Polymer Electrolytes for High-Energy Solid-State Batteries. *ACS Ener Letters* **2021,** *6* (6), 2240-2247.
29. Hatzell, K. B.; **Chen, X. C.**; Cobb, C. L.; Dasgupta, N. P.; Dixit, M. B.; Marbella, L. E.; McDowell M. T.; Mukherjee, P. P.; Verma, A.; Viswanathan, V.; Westover, A. S.; Zeier, W. G., Challenges i Lithium Metal Anodes for Solid-State Batteries. *ACS Energy Letters* **2020,** *5*, 922-934.
30. Shin, C., **Chen, X. C.,** Prausnitz, J.M., Balsara, N.P., "Effect of block copolymer morphology controlled by casting-solvent quality on pervaporation of butanol/water mixtures", *Journal of*

Membrane Science, **2017**, 523, 588-595.

31. Thelen, J. L. **Chen, X. C.** Inceoglu, S. Balsara, N.P., "Influence of Miscibility on Poly(ethylene oxide) Crystallization from Disordered Melts of Block Copolymers with Lithium and Magnesium Counterions", *Macromolecules*, **2017**, 50, 4827-4839.
32. Villaluenga, I., Inceoglu, S., Jiang, X., **Chen, X. C.**, Chintapalli, M., Wang, D.R., Devaux, D., Balsara, N.P., "Nanostructured Single-Ion-Conducting Hybrid Electrolytes Based on Salty Nanoparticles and Block Copolymers", *Macromolecules*, **2017**, 50, 1998-2005.
33. Devaux, D., Chang, Y. H., Villaluenga, I., **Chen, X. C.**, Chintapalli, M., DeSimone, J.M., Balsara, N. P., "Conductivity of carbonate- and perfluoropolyether-based electrolytes in porous separators", *Journal of Power Sources*, **2016**, vol. 323, 158-165.
34. Panova, O, **Chen, X. C.**, Bustillo, K.C., Ophus, C., Bhatt, M.P., Balsara, N. P., Minor, A.M., "Orientation Mapping of Semicrystalline Polymers using Scanning Electron Nanobeam Diffraction", *Micron*, **2016**, vol. 88, 30-36.
35. Shin, C., Baer, Z.C., **Chen, X. C.**, Ozcam, A.E., Clark, D.S., Balsara, N.P., "Block copolymer pervaporation membrane for in situ product removal during acetone–butanol–ethanol fermentation", *Journal of Membrane Science*, **2015**, vol. 484, 57-63.
36. Villaluenga, I., **Chen, X. C.**, Devaux, D., Hallinan, D., Balsara, N.P. "Nanoparticle-Driven Assembly of Highly Conducting Hybrid Block Copolymer Electrolytes", *Macromolecules*, **2015**, 48, 358–364.
37. Chintapalli, M., **Chen, X. C.**, Thelen, J.L., Teran, A.A., Wang, X., Garetz, B.A., and Balsara, N.P., "Effect of Grain Size on the Ionic Conductivity of a Block Copolymer Electrolyte", *Macromolecules*, **2014**, *47* , 5424-5431**.**
38. Inceoglu, S.; Rojas, A.A.; Devaux, D.; **Chen, X. C.**; Stone, G.M.; Balsara, N.P. "Morphology–Conductivity Relationship of Single-Ion-Conducting Block Copolymer Electrolytes for Lithium Batteries", *ACS Macro Lett.* **2014**, 510-514.
39. Patel, A.S., Saeed, M., Yee, E.J., Yang, J.K., Lam, G., Losey, A.D., Lillaney, P., Thorne, B., Chin, A., Malik, S., Wilson, M., **Chen, X. C.**, Balsara, N.P., Hetts, S. "Development and Validation of Endovascular Chemotherapy Filter Device for Removing High-Dose Doxorubicin: Preclinical Study" *J. Med. Devices* **2014**, 8(4), 041008.
40. Huang, B., Amonoo, J., Li, A., **Chen, X. C.**, Green, P.F. "Role of Domain Size and Phase Purity on Charge Carrier Density, Mobility, and Recombination in Poly(3-hexylthiophene):Phenyl-C61-butyric Acid Methyl Ester Devices" *J. Phys. Chem. C*, **2014**, 118, 3968 - 3975.
41. Jackson, A.; Beers, K. M.; **Chen, X. C.;** Hexemer, A.; Pople, J.A.; Kerr, J.B.; Balsara, N.P. "Design of a humidity controlled sample stage for simultaneous conductivity and synchrotron X-ray scattering measurements", *Rev. Sci. Instrum.* **2013**, 84, 075114.
42. Zhao, J., **Chen, X. C.**, Green, P.F. "Nanoparticle Encapsulation in Thin Film Micellar Structures: A Physical Method for Functional Materials Design." *Soft Matter*, **2013**, 9, 6128-6134.
43. Yang, H., **Chen, X. C.**, Jun, G., Green, P.F. "Segmental Dynamics of Chains Tethered at Interfaces of Varying Curvatures." *Macromolecules*, **2013**, 46, 5036-5043.
44. Kim, B.G., Ma, X., **Chen, X. C.**, Ie, Y., Coir, E.W., Hashemi, H., Aso, Y., Green, P.F., Kieffer, J., Kim, J. "Energy Level Modulation of HOMO, LUMO, and Band-Gap in Conjugated Polymers for Organic Photovoltaic Applications", *Adv. Funct. Mater.* **2013**, 23, 439-445.
45. Amonoo, J., Glynos, E., **Chen, X. C.**, Green, P.F. "An Alternative Processing Strategy for Organic Photovoltaic Devices Using Supercritical Fluid", *J. Phys. Chem. C*, **2012**, 116, 20708-20716.

PUBLICATIONS (minor contribution)

46. Mills, A.; Yang, G.; Tsai, W.-Y.; Chen, X. C.; Sacci, R. L.; Armstrong, B. L.; Hallinan, D. T.; Nanda, Adverse Effects of Trace Non-polar Binder on Ion Transport in Free-standing Sulfide Solid Electroly Separators. *Journal of The Electrochemical Society* **2023**, *170* (8), 080513. DOI: 10.1149/194 7111/aced24.
47. Zhao, X.; Bhagia, S.; Gomez-Maldonado, D.; Tang, X.; Wasti, S.; Lu, S.; Zhang, S.; Parit, M.; Renchec M. L.; Korey, M.; et al. Bioinspired design toward nanocellulose-based materials. *Materials Today* **202** *66*, 409-430. DOI: https://doi.org/10.1016/j.mattod.2023.04.010.

48. Lehmann, M.; Leonard, D.; Zheng, J.; He, L.; Tang, X.; Chen, X.C.; Lim, K.H.; Maurya, S.; Kim, Y.S.; Saito, T. Quaternized Polynorbornene Random Copolymers for Fuel Cell Devices. *ACS Applied Energy Materials* 2023, *6*, 1822-1833, doi:10.1021/acsaem.2c03682.
49. Gao, S.; Li, Z.; Zhang, Z.; Li, B.; Chen, X.C.; Yang, G.; Saito, T.; Tian, M.; Yang, H.; Cao, P.-F. Constructing a multi-functional polymer network for ultra-stable and safe Li-metal batteries. *Energy Storage Materials* **2023**, *55*, 214-224.
50. Yang, G.; Cao, P.-F.; Self, E. C.; Lehmann, M.; Chen, X. C.; Zhao, S.; Ge, S.; Zhu, C.; Saito, T.; Delnick, F. M.; Nanda, J., Selective Plasticization of Poly (ethylene oxide) (PEO) Block in Nanostructured Polystyrene− PEO− Polystyrene Triblock Copolymer Electrolytes. *Journal of The Electrochemical Society* **2022,** *169*, 050506.
51. Rahman, M. A., Bowland, C., Ge, S., Acharya, S. R., Kim, S., Cooper, V., Chen, X. C., Irle, S., Sokolov, Savara, A. A., Saito, T., Design of Tough Adhesive from Commodity Thermoplastics through Dynamic Crosslinking, *Science Advances*, **2021**, 7 : eabk2451
52. Kalnaus, S.; Asp, L. E.; Li, J.; Veith, G. M.; Nanda, J.; Daniel, C.; Chen, X. C.; Westover, A.; Dudney, N. J., Multifunctional approaches for safe structural batteries. *Journal of Energy Storage* **2021,** *40*, 102747.
53. Sacci, R. L.; McAuliffe, R. D.; Malkowski, T. F.; Kidder, N.; Chen, X. C.; Huq, A.; Kirkham, M.; Armstrong, B. L.; Daemen, L. L.; Veith, G. M., La2Zr2O7 Nanoparticle-Mediated Synthesis of Porous Al-Doped Li7La3Zr2O12 Garnet. *Inorganic Chemistry* **2021,** *60* (13), 10012-10021.
54. Han, L., Lehmann, M. L., Zhu, J., Liu, T., Zhou, Z., Tang, X., Heish, C., Sokolov, A. P., Cao, P., Chen, X. C., Saito, T.*, Recent developments and challenges in hybrid solid electrolytes for lithium-ion batteries, *Frontiers Energy Research*, 2020, https://doi.org/10.3389/fenrg.2020.00202
55. Dixit, M. B.; Zaman, W.; Hortance, N.; Vujic, S.; Harkey, B.; Shen, F.; Tsai, W.-Y.; De Andrade, V.; Chen, X. C.; Balke, N.; Hatzell, K. B., Nanoscale Mapping of Extrinsic Interfaces in Hybrid Solid Electrolytes. *Joule* **2020,** *4*, 207-221
56. Chintapalli, M., Higa, K., Chen, X. C., Srinivasan, V., Balsara, N.P., "Simulation of local ion transport in lamellar block copolymer electrolytes based on electron micrographs", *Journal of Polymer Science Part B: Polymer Physics* **2017**, 55, 266-274.
57. Devaux, D., Villaluenga, I., Bhatt, M., Shah, D., Chen, X. C., Thelen, J.L., DeSimone, J.M., Balsara, N.P., "Crosslinked perfluoropolyether solid electrolytes for lithium ion transport", *Solid State Ionics*, **2017**, 310, 71-80.
58. Chintapalli, M, Le, T.N.P., Venkatesh, N.R., Mackay, N.G., Rojas, A.A., Thelen, J.L., Chen, X. C., Devaux, D., Balsara, N.P., "Structure and Ionic Conductivity of Polystyrene-block-poly(ethyleneoxide) Electrolytes in the High Salt Concentration Limit", *Macromolecules*, **2016**, vol. 49, 1770–1780.
59. Cotanda, P., Sudre, G., Modestino, A.M., Chen, X. C., Balsara, N.P. "High Anion Conductivity and Low Water Uptake of Phosphonium Containing Diblock Copolymer Membranes", *Macromolecules*, **2014**, *47*, 7540–7547.

PATENT

- R. Sahore, B. Armstrong, **X. C. Chen**, "Self-standing Interconnected Polymer/Ceramic Composite Solid Electrolyte", US Provisional Patent Application Serial No. 63/532,107, filed 08/11/2023.
- S. Kalnaus, **X. C. Chen,** M. J. Palmer, A S. Westover, N. J. Dudney "Method of Manufacturing a Thin Film Composite Solid Electrolyte", U.S. Patent Application 17/497,023, Filed October 8, 2021.
- **Chen, X. C.,** Zhang, Y., Saito, T., Dudney, N. J., Lehmann, M., "Gel Composite Electrolyte Membrane for Lithium Metal Batteries", U.S. Patent Application 17/675,070, Filed February 18, 2022; UTB Ref. 4191.1; WNJ Ref. 138974.200994-US
- **Chen, X. C.**, Yang, J. K., Chin, A., Patel, A. S., Hetts, S., Balsara, N. P. "Copolymer Membrane for High-Dose Chemotherapy Delivery Transarterial Chemoemblization", filed by the Regents of the University of California, October 12, 2015. Published on April 14, 2016. US Patent Application 20160101218.

MENTORING EXPERIENCE

- Kyra Owensby, graduate student, May 2022 to present, NSF Fellowship awardee
- Dr. Jiyoung Ock, postdoctoral fellow, April 2023 to present
- Dr. Changhao Liu, postdoctoral fellow, February 2020 to February 2022
- Dr. Xiaomin Tang, postdoctoral fellow, February 2020 to August 2022
- Dr. Ritu Sahore, postdoctoral fellow, February 2021 to December 2021
- Max Palmer, SULI intern, May 2019 to May 2020
- Charles Soulen, HERE intern, October 2019 to April 2020
- Dr. Xiaoming Liu, postdoctoral fellow, Sep 2018 to June 2019
- Dr. Amaresh Pandian, postdoctoral fellow, April 2017 to March 2019

INVITED TALKS

1. "Understanding interfaces in polymer based solid-state batteries", ACS Fall meeting 2023, 08/15/**2023**, San Francisco, CA
2. "Understanding interfaces in polymer composite solid-state batteries", The National Graduate Research Polymer Conference, University of Michigan, Ann Arbor, 06/**2023**, Ann Arbor, MI
3. "Ion transport and interface resistance in polymer-based composite electrolytes and composite cathode", ECS 243th meeting, 5/29/**2023**, Boston, MA
4. "Ion Transport and Segmental Dynamics of Polymer Electrolytes at Interfaces", ACS Fall Meeting 2022, 08/**2022**, Chicago, IL
5. "Polymer-ceramic composite electrolyte for high energy lithium batteries", APS March Meeting 2022, 03/**2022**, Chicago, IL/virtual
6. "Ion transport in polymer-ceramic composite electrolytes", Notre Dame University, 8/13/**2021**, virtual.
7. "Ion transport in soft-hard hybrid materials", Seton Hall University, October **2020**, Virtual.
8. "Challenges in Enabling Li Metal Anode—A Composite Electrolyte Approach", MRS Fall Meeting, Nov. 27 – Dec. 4th, **2020**, Virtual.

PRESENTATIONS

1. "Study of the structure and segmental dynamics of solid-polymer-based composite cathode", APS March Meeting 2023, 03/**2023**, Las Vegas, NV
2. "Li morphology evolution during initial cycling in a gel composite electrolyte", ACS Fall Meeting 2023, 08/**2023**, San Francisco, CA
3. "Ion Transport in Polyacrylonitrile (PAN) Based Electrolytes", APS March Meeting 2022, 03/**2022**, Chicago, IL/virtual.
4. "Effect of Interfaces on the Segmental Dynamics of Polymer Electrolyte in Lithium Ion Batteries", APS March Meeting 2021, 03/**2021**, virtual
5. "Thin Solid Composite Electrolyte with Three-Dimensional Interconnected Structure", *MRS Fall Meeting*, December 1-6, **2019,** Boston, Massachusetts.
6. "Gel Composite Electrolyte Membrane for Lithium Metal Batteries", *MRS Fall Meeting*, December 1-6, **2019,** Boston, Massachusetts.
7. "Role of ion transporting species in the synthesis of organic/inorganic hybrids", poster presentation at the *BES Synthesis and Processing Science Principal Investigators' Meeting*, Gaithersburg, MD , July 17 – 19, **2019**
8. "Challenge Facing Solid Electrolytes for Batteries", *14th China-US Electric Vehicle and Battery Technology Information Exchange*, March 30-31, **2019**, Shaoxing, China
9. "Study of Segmental Dynamics in Polymer-Ceramic Composite Electrolytes using Quasi-elastic Neutron Scattering", *APS March Meeting*, March 4–8, **2019**, Boston, Massachusetts.

10. “Structure and Ion Transport at Polymer-Ceramic Electrolyte Interface”, MRS Fall Meeting, November 25-30, **2018**, Boston, Massachusetts.
11. “Composite Electrolyte to Stabilize Metallic Lithium Anodes”, presented at the *VTO BMR Electrolyte Meeting*, October 11-12, **2018**, Berkeley, California.
12. “Composite Electrolyte to Stabilize Metallic Lithium Anodes”, poster presentation at the *DOE Vehicle Technologies Program, Annual Merit Review and Peer Evaluation Meeting*, June **2018**.
13. “Study of Ion Conductivity and Chain Dynamics in Polymer-Ceramic Composite Electrolytes”, *APS March Meeting*, March 5–9, **2018**, Los Angeles, California.
14. “Nanodomain Swelling of Water-Equilibrated Block Copolymer Electrolyte Membranes”, *Amerian Physical Society March Meeting,* March 13–17, **2017**; New Orleans, Louisiana.
15. “Morphology, Water Uptake and Proton Conductivity in Porous Block Copolymer Electrolyte Membranes”, *Annual Meeting of the American Institute of Chemical Engineers*, Salt Lake City, UT, Nov 10, **2015**.
16. “Morphology and Proton Transport in Porous Block Copolymer Electrolyte Membranes”, *Amerian Physical Society March Meeting,* San Antonio, TX, **2015**.
17. "Nanoporous block copolymer electrolyte membranes for proton transport", *248th ACS National Meeting and Exposition*, **2014**.
18. "Morphology and Proton Transport in Sulfonated Block Copolymer and Mesoporous Polymer Electrolyte Membranes" , *Amerian Physical Society March Meeting*, **2014**.
19. "Morphology and Proton Transport in Sulfonated Block Copolymer and Mesoporous Polymer Electrolyte Membranes", *Amerian Physical Society March Meeting,* **2013**.
20. "Micelle Formation of Diblock Copolymers in Thin Film Homopolymers and Homopolymer Blends", *Amerian Physical Society March Meeting,* **2010**.
21. "Exploring the Effects of New Processing Methods on the Nanoscale Morphology and Photocurrents in Organic Photovoltaics" poster presentation, *the International Workshop for SPM for Energy Applications at Oak Ridge National Lab*, **2010**.
22. "Control of the spatial distribution of nanoparticles in fluorescent polymer nanocomposites", *Amerian Physical Society March Meeting,* **2009**.
23. "Fluorescence quenching in MEH-PPV based nanocomposites", poster presentation, *Polymer Physics Gordon Research Conference,* **2008**

HONORS AND AWARDS

- American Chemical Society PMSE Division Young Investigator Award, 08/2022
- Student Scholarship Award, Int'l Workshop for SPM for Energy Applications 09/2010
- Gordon Research Conference Graduate Student Fellowship, 06/2008
- National Starch and Chemical Company Award 10/2006
- University of Michigan Regents Fellowship 01/2006
- Most Outstanding Graduate, Shanghai Jiao Tong University 04/2005

PROFESSIONAL ASSOCIATIONS

- American Physical Society (APS), member since 2008
- APS Division of Polymer Physics (DPOLY), member since 2009
- American Chemical Society (ACS), member since 2014
- ACS Division of Polymeric Materials Science and Engineering (PMSE), member since 2021
- The Electrochemical Society (ECS), member since 2022