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EDUCATION

Ph.D., Mechanical Engineering , Carnegie Mellon University, Pittsburgh, PA Thesis: "Interfaces in Polymer Electrolyte Fuel Cells" Advisor: Prof. Shawn E. Litster	2013
M.S., Mechanical Engineering , Carnegie Mellon University, Pittsburgh, PA	2011
B.S., Mechanical Engineering , Polytechnic Institute of NYU, Brooklyn, NY Minor in Aerospace Engineering <i>summa cum laude</i> Highest GPA of the graduating class 2008 in Mechanical Engineering	2008

PROFESSIONAL POSITIONS

Associate Professor , University of California Irvine Department of Chemical and Biomolecular Engineering	July 2020 - Present
Assistant Professor , University of California, Irvine Department of Chemical and Biomolecular Engineering Samueli Development Chair	July 2018 – June 2020
Associate Director , National Fuel Cell Research Center (NFCRC)	July 2018 – Present
Secondary Appointment , Tufts University,	2018 – Present
Assistant Professor , Tufts University, Department of Mechanical Engineering	2015 – 2018
Visiting Professor , Grenoble Institute of Technology, Grenoble, France Host: Prof. Marian Chatenet (Junior Faculty Sabbatical)	Spring 2018
Visiting Professor , Los Alamos National Laboratory and University of New Mexico Host: Dr. Rod Borup and Prof. P. Atanassov (Junior Faculty Sabbatical)	Spring 2018
Postdoctorate Fellow , Lawrence Berkeley National Laboratory, Berkeley, CA Energy Technologies Area, Electrochemical Technologies Group Advisor: Dr. Adam Z. Weber	2014- 2015

RESEARCH INTERESTS

Electrochemical energy conversion and storage, hydrogen economy, decarbonization, advanced diagnostics, modeling, characterization for fuel cells, electrolyzers, batteries.

HONORS AND AWARDS

2021 2022	US Frontiers of Engineering, National Academies of Engineering Symposium participant US Frontiers of Engineering, National Academies of Engineering Symposium Organizer (H ₂ theme)
2021	ECS Energy Technology Division Supramaniam Srinivasan Young Investigator Award
2019	Henry Samueli School of Engineering Early Career Faculty Excellence in Research Award
2018 2017- 2019 2017	Electrochemical Society- Toyota Young Investigator Fellowship Scialog Fellow, Advanced Energy Storage, Research Corporation for Science Advancement NSF CAREER Award, CBET
2017	Fraunhofer Award for Young Researchers, Interpore Society (Lectureship and Fellowship)
2017	Office of Naval Research (ONR) Summer Faculty Research Fellow (10 weeks appointment)

2013	Best Student Poster Award, 1st place (1st author). PEM Fuel Cell Symposium at the Fall 2013 Meeting of the Electrochemical Society (ECS), San Francisco, CA
2012	Poster selected for "Best of the Posters" talk session (5 out of 67 posters chosen) at Gordon Fuel Cells Research Conference (1st author)
2012	Best T.A. Award for Outstanding Teaching in Mechanical Engineering as voted by students, Carnegie Mellon University, Spring semester
2011, 2010	NSF Graduate Research Fellowship Honorable Mention
2010	Best Poster Award, 1st place (1st author). Symposium of the International Association for Hydrogen Energy, Penn State University
2004-2008	National Deans List, Polytechnic Institute of NYU
2004-2008	Presidential Scholarship, Polytechnic Institute of NYU
2007	Cordella Williams Memorial Award female scholar-athlete of the year, NYU
2007	James Hughes Jr. Award for promising student in mechanical engineering, NYU
2007-present	Tau Beta Pi honors society

CONTRACTS, GRANTS AND SPONSORED RESEARCH

Total funding to date directly to my group: > \$4 M (not including cost-share)

REFEREED JOURNAL PUBLICATIONS

*Corresponding Author: Underlined is Zenyuk group graduate student; Underlined italic is undergraduate student.

Google Scholar Profile: <https://scholar.google.com/citations?user=7ymDTJ4AAAAJ&hl=en&oi=ao>

h-index: 27; i10-index: 45, Number of citations: 2293

J75. J.C. Bui, E.W. Lees, L.M. Pant, I.V. Zenyuk, A.T. Bell, A.Z. Weber, "Continuum modeling of porous electrodes for electrochemical synthesis", *Under Review*, Chem Reviews, 2021

J74. N. Macauley, M. Spinetta, S. Zhong, F. Yang, D. Lousenberg, A. Perego, Y. Qi, S. Pedram, J. Jankovic, I.V. Zenyuk, H. Xu, "High Oxygen Permeability Novel Fluorinated Ionomers for Proton Exchange Membrane Fuel Cells", *Under Review*, 2021

J73. P. Satjaritanun, V. Shimpalee*, I.V. Zenyuk*, "Gas Diffusion Layers: Experimental and Modeling Approach for Morphological and Transport Properties", *Accounts of Materials Research*, *Under Review*, 2021

J72. J. Liu, E. Medici, A. T. Haug, J.S. Allen*, I.V. Zenyuk*, "Coupling Continuum and Pore-Network Models to Study the Dispersed Nanostructured Thin Film Electrodes of Polymer Electrolyte Fuel Cells", *Under Review*, 2021

J71. P. Saha, I.V. Zenyuk*, "Electric double layer at polycrystalline platinum-electrolyte interface probed by electrokinetic streaming current method", *In Press*, The Journal of Physical Chemistry, 2021

J70. X. Pan, P. Satjaritanun, Z. Taie, L. Wiles, A. Keane, C. Capuano, I.V. Zenyuk*, N. Danilovic*, "Insights into interfacial and bulk transport phenomena affecting proton exchange membrane water electrolyzer performance at ultra-low iridium loadings", *Advanced Science*, *In Press*, *Advanced Science*, 2021

J69. A. Chowdhury, J. Liu, I.V. Zenyuk, A. Kusoglu, C.J. Radke, A.Z. Weber, "Impact of Ionomer Chemistry and Content on Polymer-Electrolyte Fuel-Cell Catalyst-Layer Mass-Transport Limitations", *In Press*, 2021

J68. M. Sepe, P. Satjaritanun, I.V. Zenyuk, N. Tippayawong, S. Shimpalee, "The impact of micro porous layer on liquid water evolution inside PEMFC using Lattice Boltzmann Method", *Journal of Electrochemical Society*, 168, 7, 074507, 2021

J67. J. Li, A. Zitolo, F. Garces Pineda, T. Asset, M. Kodali, P. Tang, J. Arbiol, J.R. Galan-Mascaros, P. Atanassov, I.V. Zenyuk, M.T. Sougrati, F. Jaouen, "Metal-oxide Clusters on Nitrogen-Doped Carbon are Highly Selective for CO₂ Electroreduction to CO", *ACS Catalysis* 11, 10028-10042, 2021

- J66. K. Khedekar, M. Rezaei Talarposhti, M.M. Besli, S. Kuppan, A. Perego, Y. Chen, M. Metzger, S. Stewart, P. Atanassov, N. Tamura, N. Craig, L. Cheng*, C.M. Johnston*, I.V. Zenyuk*, “Probing Heterogeneous Degradation of Catalyst in PEM Fuel Cells Under Realistic Automotive Conditions with Multi-modal Techniques”, *Advanced Energy Materials*, 2101794, 2021
- J65. Y. Qi, J. Liu, D. Sabarirajan, Y. Huang, A. Perego, A.T. Haug, I.V. Zenyuk*, “Interpreting Ionic Conductivity for Polymer Electrolyte Fuel Cell Catalyst Layers with Electrochemical Impedance Spectroscopy and Transmission Line Modeling”, *Journal of Electrochemical Society*, 168 (5), 054502, 2021
- J64. M. Moore, S. Shukla, S. Voss, K. Karan, A.Z. Weber, I.V. Zenyuk, M. Secanell, “A Numerical Study on the Impact of Cathode Catalyst Layer Loading on the Open Circuit Voltage in a Proton Exchange Membrane Fuel Cell”, *Journal of Electrochemical Society*, 168, 044519, 2021
- J63. C.P. Liu, P. Saha, Y. Huang, S. Shimpalee, P. Satjaritanun, I.V. Zenyuk*, “Measurement of Contact Angles at Carbon Fiber-Water-Air Triple-Phase Boundaries Inside Gas Diffusion Layers Using X-ray Computed Tomography”, *ACS Applied Materials and Interfaces*, 13, 17, 20002-20013, 2021
- J62. P. Saha and I.V. Zenyuk*, “Electrokinetic Streaming Current Method to Probe Polycrystalline Gold Electrolyte Interface Under Applied Potentials”, *Journal of Electrochemical Society*, 168, 046511, 2021
- J61. Y. Huang, Y. Chen, M. Xu, T. Asset, P. Tieu, A. Gili, D. Kulkarni, V. De Andrade, F. De Carlo, H. Barnard, A. Doran, D.Y. Parkinson, X. Pan, P. Atanassov*, I.V. Zenyuk*, “Catalysts by Pyrolysis: Direct Observation of Chemical and Morphological Transformations Leading to Transition Metal-Nitrogen-Carbon Materials”, *Materials Today*, 47, 53-68, 2021
- J60. P. Satjaritanun, F.C. Cetinbas, S.Hirano, I.V. Zenyuk, R.K. Ahluwalia, S. Shimpalee, “Hybrid Lattice Boltzmann Agglomeration Method for Modeling Transport Phenomena in Polymer Electrolyte Membrane Fuel Cells”, *Journal of Electrochemical Society*, 168, 044508, 2021
- J59. B. Garlyyev*, S. Watzel, J. Fichtner, J. Michalicka, A. Schokel, A. Senyshyn, A. Perego, D. Pan, H.A. El-Sayed, J.M. Macak, P. Atanassov, I.V. Zenyuk*, A.S. Bandarenka*, “Electrochemical Top-Down Synthesis of C-supported Pt Nanoparticles with Controllable Shape and Size: Mechanistic Insights and Application”, *Nano Research*, 1-8, 2020
- J58. J. Li, M.T. Sougrati, A. Zitolo, J.M. Ablett, I.C. Oguz, T. Mineva, I. Matanovic, P. Atanassov, Y. Huang, I.V. Zenyuk, A. Di Cicco, K. Kumar, L. Dubau, F. Maillard, F. Jaouen, “Identification of Durable and Non-Durable Fe_{Nx} sites in Fe-N-C Materials for Proton Exchange Membrane Fuel Cells”, *Nature Catalysis*, 4 (1), 19-19, 2020
- J57. P. Satjaritanun, M. O'Brien, D. Kulkarni, S. Shimpalee, C. Capuano, K.E. Ayers, N. Danilovic, D.Y. Parkinson, I.V. Zenyuk*, “Observation of Preferential Pathways for Oxygen Removal through Porous Transport Layers of Polymer Electrolyte Water Electrolyzers”, *iScience*, 2020, 23 (12), 101783
- J56. Z. Taie, X. Peng, D. Kulkarni, I.V. Zenyuk, A.Z. Weber, C. Hagen, N. Danilovic, “Pathway to Complete Energy Sector Decarbonization with Available Iridium Resources Using Ultra-Low Loaded Water Electrolyzers”, *ACS Applied Materials Interfaces*, 2020, 12, 47, 52701-52712
- J55. A. Avid and I.V. Zenyuk, “Confinement Effects for Nano-Electrocatalysts for Oxygen Reduction Reaction”, *Current Opinion in Electrochemistry*, 2020, 25, 100634
- J54. D. Kulkarni, S.J. Normile, Y. Huang, L.G. Connolly, I.V. Zenyuk, “Development of Low Temperature Fuel Cell Holders for Operando X-ray Micro and Nano Computed Tomography to Visualize Water Distribution”, *Journal of Physics Energy*, 2020, 2 (4), 044005
- J53. P. Satjaritanun and I.V. Zenyuk, “Water Management Strategies for PGM-free Catalyst Layers for Polymer Electrolyte Fuel Cells”, *Current Opinion in Electrochemistry*, 25, 100622, 2021

- J52. X. Peng, D. Kulkarni, Y. Huang, T.J. Omasta, B. Ng, L. Wang, J.M. LaManna, D.S. Hussey, J. Varcoe, I.V. Zenyuk, W.E. Mustain, “Using Operando Techniques to Understand and Design Alkaline Membrane Fuel Cells with Excellent Performance and Long Operational Stability”, *Nature Communications*, 11 (1), 1-10, 2020
- J51. M. Sepe, P. Satjaritanun, S. Hirano, I.V. Zenyuk, N. Teppayawong, S. Shimpalee, “Investigating Liquid Water Transport in Different Pore Structure of Gas Diffusion Layers for PEMFC Using Lattice Boltzmann Method”, *J. Electrochem. Soc.*, 167 (10), 2020
- J50. L. Cheng*, K. Khedekar, M. Rezaei Talarposhti, A. Perego, M. Metzger, K. Saravanan, S. Stewart, P. Atanassov, N. Tamura, N. Craig, I.V. Zenyuk*, C. Johnston*, “Mapping of Heterogeneous Catalyst Degradation in Polymer Electrolyte Fuel Cells”, *Advanced Energy Materials*, 10, (28) 2000623, 2020
- J49. D.C. Sabarirajan, J. Liu, Y. Qi, A. Perego, A.T. Haug, I.V. Zenyuk*, “Elucidating Proton Transport in Pseudo Catalyst Layers Using Hydrogen Pump DC and AC Techniques”, *J. Electrochem. Soc.*, 167, 8, 2020
- J48. M. Rezaei Talarposhti, T. Asset, S.T. Garcia, Y. Chen, S. Herrera, S. Dai, E.J. Peterson, K. Artyushkova, I.V. Zenyuk, P. Atanassov, “Kinetic Isotope Effect as a Tool to Investigate the Oxygen Reduction Reaction on Pt-based Electrocatalysts. Part II: Effect of the Platinum Dispersion”, *ChemPhysChem*, 21 (12), 1331-1339, 2020
- J47. T.Y. George, T. Asset, A. Avid, P. Atanassov, I.V. Zenyuk*, “Kinetic Isotope Effect as a Tool to Investigate the Oxygen Reduction Reaction on Pt-based Electrocatalysts. Part I: High-loading Pt/C and Pt Extended Surface.”, *ChemPhysChem*, 21, 469-475, 2020 (**Front Cover article** and **Feature Article** for the 06/2020 Special Issue)
- J46. E. Leonard, A.D. Shum, D.C. Sabarirajan, N. Danilovic, C. Capuano, K. Ayers, L.M. Pant, A.Z. Weber, X. Xiao, D.Y. Parkinson, I.V. Zenyuk*, “Interfacial Analysis of PEM Electrolyzer Using X-ray Computed Tomography and Radiography”, *Sustainable Energy and Fuels*, 4, 921-931, 2020
- J45. P. Satjaritanun, S. Hirano, I.V. Zenyuk, J.W. Weidner, N. Tippayawong, S. Shimpalee, “Numerical Study of Electrochemical Kinetics and Mass Transport inside Nano-Structural Catalyst Layer of PEMFC Using Lattice Boltzmann Agglomeration Method”, *J. Electrochem. Soc.*, 167, 1, 2019
- J44. J. Liu, P.A. Garcia-Salaberri*, I.V. Zenyuk*, “Bridging Scales to Model Reactive Diffusive Transport in Porous Media”, *J. Electrochem. Soc.*, 167 (1), 013524, 2019
- J43. J. Li, S. Bruller, D.C. Sabarirajan, N. Ranjbar-Sahraie, M-T. Sourgrati, S. Cavaliere, D. Jones, I.V. Zenyuk, A. Zitolo, F. Jaouen, “Designing the 3D Architecture fo PGM-free Cathodes for H2/air Proton Exchange Membrane Fuel Cells”, *ACS Applied Energy Materials*, 2,10, 7211-7222, 2019
- J42. P. Saha, C. Nam, M.A. Hickner, I.V. Zenyuk*, “Electrokinetic Streaming Current Methods to Probe the Electrode-Electrolyte Interface Under Applied Potentials”, *The Journal of Physical Chemistry C* 123 (32), 19493-19505, 2019
- J41. J. Liu, M.R. Talarposhti, T. Asset, D.C. Sabarirajan, D. Parkinson, P. Atanassov, I.V. Zenyuk*, “Understanding the Role of Interfaces for Water Management in PGM-free Electrodes in Polymer Electrolyte Fuel Cells”, *ACS Appl. Energy Mater.* 2019, 2, 5, 3542-3553
- J40. D. C. Sabarirajan, Th. Y. George, J. Vlahakis, R. D. White, I.V. Zenyuk*, “Free-standing Nanoelectrode Array as a Model Electrode for Ion Transport in Fuel Cells”, *J. Electrochem. Soc.* 166 (7), F3081-F3088, 2019
- J39. S.J. Normile and I.V. Zenyuk*, “Imaging Ionomer in Fuel Cell Electrodes with Two-Energies Transmission X-ray Microscopy Approach”, *Solid State Ionics*, 335, 38-46, 2019
- J38. J. Liu, P.A.Garcia-Salaberri*, I.V. Zenyuk*, “The Impact of Reaction on the Effective Properties of Multiscale Catalytic Porous Media: a Case of Polymer Electrolyte Fuel Cells”, *Transport in Porous Media*, 128, 363-384, 2019
- J37. Perego, G. Giuffredi, P. Mazzolini, M. Colombo, R. Brescia, D.C. Sabarirajan, I.V. Zenyuk, F. Bossola, V. dal

Santo, A. Casalegno, F. Di Fonzo, “Hierarchical titanium nitride nanostructures as catalyst support for the oxygen reduction reaction”, *ACS Applied Energy Materials* 2 (3), 1911-1922

J36. M. Ulsh, A. DeBari, J.M. Berliner, I.V. Zenyuk, P. Rupnowski, L. Matvichuk, A.Z. Weber, G. Bender, “The development of a through-plane reactive excitation technique for detection of pinholes in membrane-containing MEA sub-assemblies”, *IJHE*, vol. 44 issue 16, pp. 8533-8547, 2019

J35. M. Nourani, B.I. Zackin, D.C. Sabarirajan, R. Taspinar, K. Artushkova, F. Liu, I.V. Zenyuk*, E. Agar*, “The Influence of Corrosion on Carbon Paper Electrode Morphology and the Performance of a Vanadium Redox Flow Battery”, *Journal of Electrochemical Society*, 166 (2) A353-A363, 2019

J34. I.V. Zenyuk*, “Bridging X-ray Computed Tomography and Computational Modeling for Electrochemical Energy-Conversion and -Storage”, *Current Opinion in Electrochemistry*, Vol. 13, pp. 78-85, 2019

J33. P.A. Garcia-Salaberri, I.V. Zenyuk, G. Hwang, M. Vera, A.Z. Weber, J.T. Gostick, “Implications of Inherent Inhomogeneities in Thin Carbon Fiber-based Gas Diffusion Layers: A Comparative Modeling Study”, *Electrochimica Acta*, 295, pp. 861-874, 2019, DOI: 10.1016/j.electacta.2018.09.089

J32. F.C. Cetinbas, R.K. Ahluwalia, A.D. Shum, I.V. Zenyuk, “Direct Simulations of Pore-Scale Water Transport through Diffusion Media”, *Journal of Electrochemical Society*, 166 (7), F3001-F3008, 2019

J31. J. Liu, I.V. Zenyuk*, “Proton Transport in Ionomer-free Regions of Polymer Electrolyte Fuel Cells and Implications for Oxygen Reduction Reaction”, *Current Opinion in Electrochemistry*, Vol. 12, pp. 202-208, 2018

J30. R. Fournier, A.D. Shum, J. Liu, D.C. Sabarirajan, X. Xiao, I.V. Zenyuk*, “Combined Infrared Thermography and X-ray Computed Tomography for In Drying Studies”, *ACS Applied Energy Materials*, Vol. 1 (11), pp 6101-6114, 2018

J29. P. Satjaritanun, S. Hirano, A.D. Shum, I.V. Zenyuk, A.Z. Weber, J.W. Weidner, S. Shimpalee, “Fundamental understanding of water movement in gas diffusion layer under different arrangements using combination of direct modeling and experimental visualization”, *Journal of Electrochemical Society*, 165 (13), F1115-F1126, 2018

J28. D. Spornjak, R. Mukundan, R.L. Borup, L.G. Connolly, B. I. Zackin, V. De Andrade, M. Wojcik, D.Y. Parkinson, D.L. Jacobson, D.S. Hussey, K.L. More, Th. Chan, A.Z. Weber, I.V. Zenyuk*, “Enhanced Water Management of Polymer Electrolyte Fuel Cells with Novel Microporous Layers”, *ACS Applied Energy Materials*, Vol. 1 (11), pp 6006-6017, 2018

J27. A.J. Roy, M.R. Talarposhti, S.J. Normile, I.V. Zenyuk, V. De Andrade, K. Artyushkova, A. Serov, P. Atanassov, “Nickel-Copper Supported on Carbon Black Hydrogen Oxidation Catalyst Integrated in Anion-Exchange Membrane Fuel Cell”, *Sustainable Energy and Fuels*, 2, 10, pp. 2268-2275, 2018

J26. W. Song, Y.X. Shen, C. Lang, P. Saha, I.V. Zenyuk, R.J. Hickey, M. Kumar, “Unique selectivity trends of highly permeable PAP[5] water channel membranes”, *Faraday Discussions*, 209, 193, 2018

J25. A.J. Steinbach, J.S. Allen, R.L. Borup, D.S. Hussey, D.L. Jacobson, A. Komlev, A. Kwong, J. MacDonald, R. Mukundan, M.J. Pejsa, M. Roos, A.D. Santamaria, J.M. Sieracki, D. Spornjak, I.V. Zenyuk, A.Z. Weber, “Material design strategies for improved performance of polymer-electrolyte fuel cells with ultra-thin electrodes”, *Joule*, 2018, 2,(7), 1297-1312

J24. A. Serov, A. D. Shum, X. Xiao, K. Artyushkova, I. V. Zenyuk*, P. Atanassov* “Nano-structured platinum group metal-free catalysts and their integration in fuel cell electrode architectures”, *Appl. Cat. B: Environmental*, Vol 237, pp. 1139-1147, 2018

J23. P.A. Garcia-Salaberri, I.V. Zenyuk, A.D. Shum, G. Hwang, M. Vera, A.Z. Weber, J.T. Gostick, “Analysis of representative elementary volume and through-plane regional characteristics of carbon-fiber papers: diffusivity, permeability and electrical/thermal conductivity”, *IJHMT*, 127, 687-703, 2018

- J22. S.J. Normile, D.C. Sabarirajan, O. Calzada, V. De Andrade, X. Xiao, P. Mandal, D.Y. Parkinson, A. Serov, P. Atanassov, I.V. Zenyuk*, “Direct observation of liquid water formation at nano- and micro-scale in Platinum group metal-free electrodes by operando X-ray computed tomography”, *Materials Today Energy*, 9, pp 187-197, 2018
- J21. E. Leonard, A. D. Shum, X. Xiao, D. Yared, D.C. Sabarirajan, S.J. Normile, I.V. Zenyuk*, “Combining X-ray tomography and sub-second radiography for studying transport in polymer electrolyte membrane electrolyzer”, *Electroch. Acta*, 276, pp 424-433, 2018
- J20. R. Bock, A.D. Shum, X.Xiao, H.Karoliussen, F.Seland, I.V. Zenyuk, O.S. Burheim, “Thermal Conductivity and Compaction of GDL-MPL Interfacial Composite Material”, *J. Electrochem. Soc.*, 165 (7) F514-F525, 2018
- J19. R. Carter, B. Huhman, C.T. Love*, I.V. Zenyuk*, “3D X-ray computed tomography comparison of individual and parallel assembled commercial LFP batteries at end of life after high rate cycling”, *Journal of Power Sources*, 381, pp 45-55, 2018
- J18. R.W. Atkinson III, Y. Garsany, B.D. Gould, K.E. Swider-Lyons*, I.V.Zenyuk*, “The role of compressive stress on gas diffusion media morphology and fuel cell performance”, *ACS Applied Energy Materials*, 1 (1), pp 191-201, 2017
- J17. A. D. Shum, D. Y. Parkinson, X. Xiao, A.Z. Weber, O.S. Burheim, I.V. Zenyuk*, “Investigating Phase-Change-Induced-Flow in Gas Diffusion Layers in Fuel Cells with X-ray Computed Tomography”, *Electroch. Acta*, 256, 1 p279-290, 2017
- J16. S. Kabir, K. Lemire, K. Artyushkova, A. Roy, M. Odgaard, D. Schlueter, A. Oshchepkov, A. Bonnefont, E. Savinova, D.C. Sabarirajan, P. Mandal, E.J. Crumlin, I.V. Zenyuk, P. Atanassov and A. Serov, “Platinum Group Metal-free NiMo Hydrogen Oxidation Catalysts: Superior Performance and Durability in Alkaline Exchange Membrane Fuel Cells”, *J. Mater. Chem. A.*, 2017, 5, 24433
- J15. H.S. Shiao, I.V. Zenyuk, A.Z. Weber, “Elucidating Performance Limitations in Alkaline-Exchange-Membrane Fuel Cells”, *J. Electroch. Soc.*, *J. Electroch. Soc.*, 164 (11) E1-E9, (2017)
- J14. P. Satjaritanun, J. W. Weidner, S. Hirano, Z. Lu, Y. Khunatorn, S. Ogawa, S. E. Litster, A. D. Shum, I. V. Zenyuk, S. Shimpalee., “Micro-scale Analysis of Liquid Water Breakthrough inside Gas Diffusion Layer for PEMFC Using X-ray Computed Tomography and Lattice Boltzmann Method”, *J. Electroch. Soc.*, 164 (11) E3359-E3371, (2017)
- J13. I. V. Zenyuk*, A. Lamibrac, J. Eller, D. Y. Parkinson, F. N. Büchi, A. Z. Weber “Investigating Evaporation in Gas Diffusion Layers in Fuel Cells with X-ray Computed Tomography”, *J. Phys. Chem. C*, 120 (50), pp 28701-28711, (2016)
- J12. I. V. Zenyuk*, D. Y. Parkinson, L. G. Connolly, A. Z. Weber “Gas-Diffusion-Layer Structural Properties under Compression via X-Ray Tomography”, *J. Power Sources*, 328, 364-376, (2016)
- J11. I. V. Zenyuk, N. Englund, G. Bender, A. Z. Weber, M. Ulsh “Reactive Impinging-Flow Technique for PEFC Electrode-Defect Detection”, *J. Power Sources*, 332, 372-382, (2016)
- J10. P. Tseng, G. Perotto, B. Napier, P. Riahi, W. Li, E. Shirman, D. L. Kaplan, I. V. Zenyuk, F. G. Omenetto “Silk Fibroin-Carbon Nanotube Composite Electrodes for Flexible Biocatalytic Fuel Cells”, *Advanced Electronic Materials*, 2, 8, (2016)
- J09. I.V. Zenyuk, P.K. Das, A.Z. Weber “Understanding Impacts of Catalyst-Layer Thickness on Fuel-Cell Performance via Mathematical Modeling”, *J. Electroch. Soc.* 163 (7), F691-F703, (2016)
- J08. E. Medici, I.V. Zenyuk, D.Y. Parkinson, A. Z. Weber, J. Allen “Understanding Water Transport in Polymer-Electrolyte Fuel Cells Using Coupled Continuum and Pore-Network Models”, *Fuel Cells*, 2016,

DOI: 10.1002/fuce.201500213

J07. I.V. Zenyuk, E. Medici, J. Allen, A. Z. Weber, "Coupling Continuum and Pore Network Models in Polymer Electrolyte Fuel Cells", *Int. J. Hydrogen Energ.* 40, 46 (2015)

J06. I.V. Zenyuk, D.Y. Parkinson, G. Hwang, A.Z. Weber, "Probing Water Distribution in Compressed Fuel-Cell Gas-Diffusion Layers Using X-ray Computed Tomography" *Electrochem. Commun.* 53, 24-28 (2015)

J05. I.V. Zenyuk, R. Taspinar, A.R. Kalidindi, E.C. Kumbur, S. Litster, "Computational and Experimental Analysis of Water Transport at Component Interfaces in Polymer Electrolyte Fuel Cells" *J. Electroch. Soc.* 161 (11), F3091-F3103, (2014)

J04. I.V. Zenyuk, S. Litster, "Modeling ion conduction and electrochemical reactions in water films on thin-film metal electrodes with application to low temperature fuel cells." *Electrochim. Acta* 146, 194-206. (2014)

J03. A.Z. Weber, R.L. Borup, R.M. Darling, P.K. Das, T.J. Dursch, W. Gu, D. Harvey, A. Kusoglu, S. Litster, M.M. Mench, R. Mukundan, J.P. Owejan, J.G. Pharoah, M. Secanell, I.V. Zenyuk "A Critical Review of Modeling Transport Phenomena in Polymer Electrolyte Fuel Cells" *J. Electroch. Soc.* 161(12), F1254-F1299, (2014)

J02. I.V. Zenyuk, E.C. Kumbur, S. Litster, "Deterministic Contact Mechanics Model Applied to Electrode Interfaces in Polymer Electrolyte Fuel Cells and Interfacial Water Accumulation" *J. Power Sources*, 241 pp. 379-387 (2013)

J01. I.V. Zenyuk, S. Litster, "Spatially Resolved Modeling of Electric Double Layers and Surface Chemistry for the Hydrogen Oxidation Reaction in Water-Filled Platinum–Carbon Electrodes," *J. Phys. Chem. C*, 116, pp. 9862-9875 (2012).

REFEREED CONFERENCE PUBLICATIONS

C13. P.A. Garcia-Salaberri, I.V. Zenyuk, J.T. Gostick, A.Z. Weber, "Modeling Gas Diffusion Layers in Polymer Electrolyte Fuel Cells Using a Continuum-based Pore-network Formulation", *ECS Transactions*, 2020

C12. P. Satjaritanun, S. Shimpalee, J.W. Weidner, S. Hirano, I.V. Zenyuk, "Numerical Study of Mass Transport and Electrochemical Kinetics inside Porous Structure Layers of PEMFC Using Direct Simulation Approach", *ECS Transactions*, 92, 8, 39-46, 2019

C11. B. Gould, Y. Garsany, M. Sassin, R. Atkinson III, I.V. Zenyuk, K. Swider-Lyons, "The Influence of Gas Diffusion Media Morphology on Hydrogen Fuel Cell Performance", *Materials Science Forum*, Vol. 941, pp. 2226-2231, 2018

C10. P.A. Garcia-Salaberri, J.T. Gostick, I.V. Zenyuk, G. Hwang, M. Vera, A.Z. Weber, "On the Limitations of Volume-Averaged Descriptions of Gas Diffusion Layers in the Modeling of Polymer Electrolyte Fuel Cells", *ECS Transactions*, 80 (8), 133-143, (2017)

C09. P. Satjaritanun, S. Shimpalee, J. W. Weidner, S. Hirano, Z. Lu, A. D. Shum, I. V. Zenyuk, S. Ogawa, S. Litster, "Numerical Predicting of Liquid Water Transport inside Gas Diffusion Layer for PEMFC Using Lattice Boltzmann Method", *ECS Transactions*, 80 (8), 187-195, (2017)

C08. D. C. Sabarirajan, J. Vlahakis, R. D. White, I. V. Zenyuk*, "Electrochemical Characterization of Free-Standing Platinum Nanoelectrode Array Using Atomic Layer Deposition for Polymer Electrolyte Fuel Cells", *ECS Transactions*, 75 (14), 189-199, (2016)

C07. R. Bock, A. Shum, T. Khoza, F. Seland, N. Hussain, I. V. Zenyuk and O. S. Burheim, "Thermal Conductivity and Compression Measurements of a Composite GDL-MPL Material", *ECS Transactions*, 75 (14), 189-199, (2016)

C06. I. V. Zenyuk and A. Z. Weber, "Understanding Liquid-Water Management in PEFCs Using X-Ray Computed Tomography and Modeling", *ECS Transactions*, 2015, 69 (17), pp 1253-1265, (2015)

C05. H. S. Shiao, [I. V. Zenyuk](#) and A. Z. Weber, "Water Management in an Alkaline-Exchange-Membrane Fuel Cell", *ECS Transactions*, 69 (17), pp 985-994, (2015)

C04. [I. V. Zenyuk](#) and S. Litster, "Spatially-Resolved Modeling of Electric Double Layers for the Oxygen Reduction Reaction in Water-Filled Platinum Electrodes", *ECS Transactions*, 58(1) pp. 27-35, (2013)

C03. [I. V. Zenyuk](#), R. Taspinar, A.R. Kalidindi, E.C. Kumbur, S. Litster, "Coupling of deterministic contact mechanics model and two-phase model to study the effect of catalyst layer|microporous layer interface on polymer electrolyte fuel cell performance", *ECS Transactions*, 58(1) pp. 1125-1135, (2013)

C02. [I. V. Zenyuk](#), J.-Y. Lee, and S. Litster, "Modeling ion transport in fuel cell electrodes including water|electrolyte interfaces and electric double layers", *ECS Transactions*, 41(1) pp. 179-188, (2011)

C01. [I. V. Zenyuk](#) and S. Litster, "The effect of electric double layers on ionic conductivity in the agglomerates of PEM fuel cell anodes", ASME 8th International Conference on Fuel Cell Science, Engineering and Technology, Brooklyn, NY, June 14-16, (2010)

FEATURE ARTICLES AND EDITORIALS

CN02. [I.V. Zenyuk](#), "The Bridge from Bio-Inspired Molecular Catalysts to Fuel Cell Electrocatalysts", *Chem Catalysis*, 1,1, 12-13, 2021

CN01. A. Serov, [I.V. Zenyuk](#), C.G. Arges, M. Chatenet, "Hot topics in alkaline exchange membrane fuel cells", *Journal of Power Sources*, 2018, 375, 149- 157

PATENT APPLICATIONS

PA01. [A. Perego](#), [I.V. Zenyuk](#), Y. Won, "Laser Additive Manufacturing Method for Producing Porous Layers", U.S. Provisional Patent Application No.: 62/955,704, 12/31/2019, PCT International Application no. PCT/US2020/067531, filed in December 30th, 2020

PA02. [I.V. Zenyuk](#), [A. Perego](#), M. Li, [D.S. Kulkarni](#), "Chemical Calcium Hydroxide Manufacturing for Cement Production Using Electrochemical Separation Devices", U.S. Provisional Patent Application No.: 63/064,327, 8/21/2020, PCT International Application filed on August 8th, 2021

INVITED PRESENTATIONS AND PANEL DISCUSSIONS

84. Lawrence Livermore National Laboratory, Nondestructive Characterization Institute, August 10th, 2021

83. The Materials Research Society and ASM International OnDemand Webinar Sustainable Materials for Electric Vehicles, "Fuel Cell Electric Vehicles: Materials Needs for Deployment at Scale", August 8th, 2021

82. Technical Workshop Pegasus PGM-free Catalysts for Oxygen Reduction Reaction for Polymer Electrolyte Membrane Fuel Cells, June 14th, 2021 (Virtual)

81. Next Generation Electrochemistry Panel (NSF-sponsored), "Can electrochemistry replace thermochemistry in industry?", June 13th, 2021 (Virtual)

80. [2021 micro Flow and Interfacial Phenomena \(μFIP\) Conference](#), June 7th – June 9th, 2021 (Virtual)

79. [239th Electrochemical Society Meeting](#), Energy Technology Division Supramaniam Srinivasan Young Investigator Award Address, May 30th – June 4th, 2021 (Virtual)

78. [Clean Energy Research Centre, The University of British Columbia](#), April 25th, 2021

77. [SLAC National Accelerator Laboratory, Photon Science Seminar Series](#), April 14th, 2021

76. [NSF PI Meeting Future Manufacturing Program](#), March 26th, 2021

75. [Norwegian University of Science and Technology](#), Hydrogen Webinar Series, March 25th, 2021

74. [Boston University Panel](#): Energy of the Future. Women Leading the Charge in Energy Storage to Advance Renewable and EV Growth, March 26th, 2021 (Virtual)

73. [Italian Virtual Workshop of Fuel Cells \(IVWFC\) 2021](#), March 17th, 2021 (Virtual)

72. [Webinar hosted by Electrochemical Society](#), "Dynamic Light Scattering in Electrochemical Energy Conversion Systems", sponsored by Horiba, March 16th, 2021 (Virtual)

71. University of California Irvine, Homecoming Speaker, February 26th, 2021 (Virtual)
70. Georgia Tech, The George W. Woodruff School of Mechanical Engineering, December 3rd, 2020 (Virtual)
69. 9th De Nora Symposium, Hydrogen Panel (1 out of 3 panelists to discuss hydrogen economy), November 9-18th, 2020 (Virtual)
68. WE-Heraeus-Seminar, From Interfaces to Cages – Confining Effects on Molecular Processes, Bad Honnef, Germany, September 29th, 2020 (Virtual)
67. PRIME Electrochemical Society Meeting, Honolulu, HI, October 4-9th, 2020 (Virtual)
66. Workshop on Electroorganic Chemistry: From Synthesis to Chemical Manufacturing. Sponsored by the National Science Foundation, U.S. Department of Energy, and Deutsche Forschungsgemeinschaft, Alexandria, VA, February 14th, 2020 (1 out of 5 presentations)
65. National Renewable Energy Laboratory, Golden CO, January 28th, 2020
64. Advanced Light Source User Meeting, Berkeley, CA (**Keynote**), October 1st, 2019th
63. Symposium on Insights into Gas Diffusion Electrodes: From Fundamentals to Industrial Applications, Magdeburg, Germany, September 25th, 2019
62. EFCD 2019: Electrolysis and Fuel Cell Discussions, Le Grande Motte, France, September 17th, 2019 (**Plenary**)
61. ACS Fall 2019 National Meeting & Exposition, San Diego, CA, August 27th, 2019
60. Toyota Research Institute North America, Ann Arbor, MI, August 20th, 2019
59. General Motors, Global Propulsion Systems, Fuel Cells Division, Pontiac, MI, August 19th, 2019
58. SPIE Optics + Photonics, San Diego, CA, August 14th, 2019
57. Technical University of Munich, Catalysis Research Center (CRC), Munich, Germany, July 25th, 2019
56. University of Washington, Department of Chemical and Biomolecular Engineering, Seattle, WA, June 3rd, 2019
55. 235th Electrochemical Society Meeting, May 28th, Dallas, TX 2019
54. 235th Electrochemical Society Meeting, May 26th, Dallas, TX 2019
53. University of Alberta, Mechanical and Aerospace Engineering Department, Edmonton, Canada, May 22nd 2019
52. 2019 Energy Storage Technologies and Applications Conference, University of California Riverside, April 11-12th, 2019
51. 3rd International Fuel Cells Workshop, Fuel Choices and Smart Mobility Summit, Tel Aviv, Israel, October 29-20th, 2018
50. Toyota 2018 Fuel Cell Research Workshop. Powering Future FCEVs with New Innovations, October 9th, Los Angeles, CA
49. Electrochemical Society Meeting, Cancun, MX, October 1st, 2018 (PEFC&E 18 Symposia **Plenary**)
48. Gordon Research Conference, Fuel Cells, July 29 – August 3rd, 2018, Smithfield, RI
47. Telluride Science Research Center Workshop: Interfacial Chemistry and Charge Transfer for Energy Conversion and Storage, July 22-27th, Telluride, CO
46. Workshop on Ion Exchange Membranes for Energy Applications – EMEA 2018, Bad Zwischenahn, Germany, June 27-29th, 2018
45. Faculty of Electrochemistry, Department of Chemistry, Technical University of Berlin, Berlin, Germany, July, 2018
44. Giner Inc., Newton, MA, June 22nd, 2018
43. 232nd Electrochemical Society Meeting, Seattle, WA, May 15th, 2018
42. University of South California, Aerospace and Mechanical Engineering, Los Angeles, March 7th, 2018
41. University of California, Irvine, Department of Chemical Engineering and Materials Science Engineering, Irvine, CA, February 23rd, 2018
40. Gordon Research Conference: Electrochemistry, Ventura, CA, January 7-12, 2018
39. Sandia National Laboratory, Center for Integrated Nanotechnologies, Albuquerque, NM, December 13-14th, 2017
38. University of South Carolina, Department of Chemical Engineering, Columbia, SC, November 9th, 2017
37. International Fuel Cells Workshop, Israeli Fuel Cells Consortium, Bar-Ilan University, Ramat-Gan, Israel, October 30th, 2017
36. Technion, Wolfson Department of Chemical Engineering, Haifa, Israel, October 29th, 2017
35. CNRS, Charles Gerhardt Institute of Chemistry, Montpellier, France, October 25th, 2017
34. Louisiana State University, Cain Department of Chemical Engineering, Baton Rouge, LA, October 13th, 2017
33. 331st Electrochemical Society Meeting, National Harbor, MD, October 4th, 2017 (40 min talk)
32. University of Yamanashi, Fuel Cells Nanomaterials Center, Kofu, Japan, September 27th, 2017
31. Tsukuba Global Science Week 2017, Tsukuba, Japan, September 26th, 2017
30. Kwansei Gakuin University, Sanda, Hyogo, Japan, September 25th, 2017

29. University of Connecticut, Mechanical Engineering Department, Hampton, CT, August 22nd, 2017
28. American Chemical Society, Spectroscopic and Computational Insights into Solid/Liquid Interfaces for Energy Conversion, Washington DC, August 20th, 2017
27. U.S. Army Research Laboratory, Adelphi Laboratory Center, Adelphi, MD, July 23rd, 2017
26. Grenoble Institute of Technology, LEPMI-Phelma Campus, Electrochemical Technologies Group, Grenoble, France, July 7th, 2017
25. CEA, PEMFC Technologies Department, Grenoble, France, July 6th, 2017
24. WE-Heraeus-Seminar on “Next Generation PEM Fuel Cells: Strategic Partnerships for Tackling Multiscale Challenges”, Bad Honnef, Germany, July 2-5, 2017
23. Istituto Italiano di Tecnologia, Center for Nanoscience and Technology in Milan, Milan, Italy, June 28th, 2017
22. Politecnico Milano, Dipartimento di Energia, Innovative Materials and Characterization Techniques for Electrocatalysts in Electrochemical Energy Devices, Milan, Italy, June 27th, 2017
21. Universita di Roma, Tor Vergata, Dipartimento di Scienze e Technologie Chimiche, Rome, Italy, June 26th, 2017
20. Naval Research Laboratory, Chemistry Division, Washington DC, May 24th, 2017
19. Interpore 9th International Conference on Porous Media and Annual Meeting, Rotterdam, Netherlands, May 10, 2017
18. Argonne National Laboratory, DOE Transport and Durability Working Group Meeting, Lemont, IL, May 2nd, 2017
17. University of California, San Diego, Mechanical and Aerospace Engineering Department, San Diego, CA, April 17th
16. Washington University in St. Louis, Department of Energy, Environmental and Chemical Engineering, St. Louis, MO, March 3rd, 2017
15. TMS 2017, 146th Annual Meeting and Exhibition, San Diego, CA, February 28th, 2017
14. Los Alamos National Laboratory, Materials Physics and Applications, Los Alamos, NM, February 23rd, 2017
13. University of New Mexico, Chemical & Biological Engineering Department Colloquium, 2017, Albuquerque, NM, February 22nd
12. University of California, Los Angeles, Materials Science and Engineering Colloquium, Los Angeles, CA, January 19th, 2017
11. Beijing Forum 2016 on Electrochemical Frontier, Alkaline Membrane Fuel Cells: Catalysis & Materials, Wuhan, China, December 6-9th, 2016
10. Colorado School of Mines, Chemistry Department Colloquium, Golden, CO, September 16th, 2016
9. 3M Company, St. Paul, MN, August 18th, 2016
8. Lawrence Berkeley National Laboratory, US Dept. of Energy, Fuel Cell Performance and Durability (FC-PAD) Working Group Meeting, Berkeley, CA, May 11-12th, 2016
7. New York University, Tandon School of Engineering, Department of Mechanical & Aerospace Engineering, Brooklyn, NY, April 25th, 2016
6. Northeastern University, Engineering Seminar Series, Boston, MA, February 19th, 2016
5. 228th Electrochemical Society Meeting, Phoenix, AZ, October 11-15th, 2015 (40 min talk)
4. Tufts University, Chemical and Biological Engineering Department, Medford, MA, September 28th, 2015
3. Lawrence Berkeley National Laboratory, US Dept. of Energy, Fuel Cell Program, Transport Modeling Working Group – 8th Meeting, Berkeley, CA, May 18-19th, 2015
2. Lawrence Berkeley National Laboratory, Electrochemistry Group, Berkeley, CA, February 9th, 2015
1. Lawrence Berkeley National Laboratory, US Dept. of Energy, Fuel Cell Program, Transport Modeling Working Group – 7th Meeting, Berkeley, CA, May 22-23rd, 2014

CONFERENCE PRESENTATIONS (PRESENTED BY MY GROUP)

1. A. Avid and I.V. Zenyuk, “Ionic Liquid Modified Pt/C Electrocatalysts for the Oxygen Reduction Reaction in Polymer Electrolyte Fuel Cells”, PRIME Electrochemical Society Meeting, Honolulu, HI, October 4-9th, 2020 (Virtual)
2. Y. Qi, J. Liu, D. Sabarirajan, Y. Huang, A. Perego, A. Haug, I.V. Zenyuk, “Interpreting Ionic Conductivity for Polymer Electrolyte Fuel Cell Catalyst Layers with Electrochemical Impedance Spectroscopy and Transmission Line Modeling”, PRIME Electrochemical Society Meeting, Honolulu, HI, October 4-9th, 2020 (Virtual)
3. A. Perego, A. Avid, D. Mamania, Y. Qi, D. Schlueter, H. Yildirim, M. Odgaard, I.V. Zenyuk, “Evolution of Ionomer Coverage during Accelerated Stress Tests in Polymer Electrolyte Fuel Cells”, PRIME Electrochemical

- Society Meeting, Honolulu, HI, October 4-9th, 2020 (Virtual)
4. P. Saha and I.V. Zenyuk, “Combined Electrokinetic-Electrochemical Probe to Understand Electric Double Layer at Metal-Electrolyte Interface: Application to Polycrystalline Gold and Platinum”, PIME Electrochemical Society Meeting, Honolulu, HI, October 4-9th, 2020 (Virtual)
 5. K. Khedekar, M. Rezaei Talarposhti, L. Cheng, S. Kuppan, A. Perego, Y. Chen, M. Metzger, S. Stewart, P. Atanassov, N. Tamura, N. Craig, C. Johnston, I.V. Zenyuk, “Catalyst Degradation in Polymer Electrolyte Fuel Cells with Multi-Modal Techniques: Understanding Phenomena Under Varied Gas and Relative Humidity”, PIME Electrochemical Society Meeting, Honolulu, HI, October 4-9th, 2020 (Virtual)
 6. E. Leonard, A.D. Shum, D. Sabarirajan, C. Capuano, K. Ayers, N. Danilovic, L. Pant, A.Z. Weber, X. Xiao, D. Parkinson, I.V. Zenyuk, “Advances in Membrane Electrolyte Assemblies. PEM Electrolyzers with Operando Synchrotron X-ray Computed Tomography and Radiography”, ICEPAG, Irvine, CA, September 16th, 2020
 7. D. Kulkarni, S. Normile, E. Leonard, Y. Huang, M. Rezaei Talarposhti, P. Atanassov, X. Xiao, I.V. Zenyuk, “Combined Synchrotron Nano X-ray Computed Tomography and XANES to Understand PGM-Free Anodes of Alkaline Fuel Cells”, 236th ECS Meeting, Atlanta, GA, October 16th, 2019
 8. E. Leonard, A.D. Shum, D. Sabarirajan, C. Capuano, K. Ayers, N. Danilovic, L. Pant, A.Z. Weber, X. Xiao, D. Parkinson, I.V. Zenyuk, “Understanding Interfaces of PEM Electrolyzers with Operando Synchrotron X-ray Computed Tomography and Radiography”, 236th ECS Meeting, Atlanta, GA, October 15th, 2019
 9. Y. Huang, A.D. Shum, M. Rezaei Talarposhti, T. Asset, D. Parkinson, H. Barnard, P. Atanassov, I.V. Zenyuk, “Understanding the Pyrolysis of PGM-free Electrocatalysts with X-ray Computed Tomography”, 236th ECS Meeting, Atlanta, GA, October 15th, 2019
 10. P. Saha, A.K. Truong, C. Nam, M. Hickner, I.V. Zenyuk, “Combined Electrokinetic and Electrochemical Measurements to Study the Electric Double Layer at Electrode-Electrolyte Interface”, ECS Meeting, Dallas, TX, May 27th, 2019
 11. J. Liu, E. Medici, J. Allen, A. Haug, I.V. Zenyuk, “Coupling Continuum and Pore-Network Models to Study the Dispersed Nanostructured Thin Film Electrodes of Polymer Electrolyte Fuel Cells”, InterPore 11th Annual Meeting, Valencia, Spain, May 8th, 2019
 12. A.D. Shum, D.Y. Parkinson, I.V. Zenyuk, “Using Convolutional Neural Networks to Study Phase-Change-Induced Flow in Polymer-Electrolyte Fuel Cells”, ToScA North America 2019, March 8th, 2019
 13. J. Liu, P. Garcia Salaberri, I.V. Zenyuk, “A Novel Method to Bridge Micro and Nano Scales with Application to PGM-free Electrodes in Polymer Electrolyte Fuel Cells”, 20th International Conference on Fluid Flow Problems, Chicago, IL, April 2nd, 2019
 14. I.V. Zenyuk, D. Sabarirajan and P. Saha, “Understanding Ion Transport at Charged Interfaces with Application to Polymer Electrolyte Fuel Cells”, 69th Annual Meeting of the International Society of Electrochemistry, Bologna, IT, September 5th, 2018
 15. D. Sabarirajan and I.V. Zenyuk, “Atomic Layer Deposition Nanoelectrode Array as a Platform for Ion Transport Studies”, 233rd ECS Meeting, Seattle, WA, May 14th, 2018
 16. J. Liu and I.V. Zenyuk, “Bridging micro and nano scales in fuel cell electrodes using multi-modal imaging and scale-bridging method”, InterPore 10th Annual Meeting and Jubilee, New Orleans, LA, May 15th, 2018
 17. E. Leonard and I.V. Zenyuk, “Operando X-ray tomography and sub-second radiography for characterizing transport in polymer electrolyte membrane electrolyzer”, 15th Symposium on Modeling and Experimental Validation on Electrochemical Energy Devices, ModVal 2018, Aarau, Switzerland, April 12th, 2018
 18. P.A. Garcia-Salaberri, J.T. Gostick, I. V. Zenyuk, G. Hwang, M.Vera, A.Z. Weber, “On the Limitation of Volume Averaged Formulations of Gas Diffusion Layers in the Modeling of Polymer Electrolyte Fuel Cells”, 232nd ECS Meeting, National Harbor, MD, 2017
 19. P. Satjaritanun, S. Shimpalee, J.W. Weidner, S. Hirano, Z. Lu, S.Ogawa, S.Litster, A.D. Shum, I.V. Zenyuk, “Numerical Predicting of Liquid Water Transport inside Gas Diffusion Layer for PEMFC using Lattice Boltzmann Method”, 232nd ECS Meeting, National Harbor, MD, 2017
 20. P. Shimpalee, P.Satjaritanun, J.W.Weidner, S.Hirano, Z.Lu, A.D. Shum, I.V. Zenyuk, S.Ogawa, S. Litster, “Using Multi-scale Modeling to Understand Transport inside PEMFC under Different Flow-fields and Operating Conditions”, 232nd ECS Meeting, National Harbor, MD, 2017
 21. I.V. Zenyuk “Characterizing PEM water electrolysis with X-ray computed tomography”, 68th Annual Meeting of the International Society of Electrochemistry, Providence, RI, August 29th, 2017
 22. A.D. Shum, X. Xiao, D.Y. Parkinson, A.Z. Weber, O. Burheim, I.V. Zenyuk “In-situ examination of phase-change-induced flow in gas diffusion layers using micro X-ray computed tomography”, 68th Annual Meeting of the International Society of Electrochemistry, Providence, RI, August 29th, 2017
 23. D. C. Sabarirajan and I.V. Zenyuk “Analysis of proton transport in ionomer/carbon layers using hydrogen pump

- technique”, 68th Annual Meeting of the International Society of Electrochemistry, Providence, RI, August 29th, 2017
24. P. Mandal, I.V. Zenyuk, S. Litster, A.Z. Weber, H.S. Barnard, D.Y. Parkinson, A.A. MacDowell, “X-Ray Tomography for Investigating Performance and Water Transport in Polymer Electrolyte Fuel Cells”, ICTMS, Lund Sweden, June 2017
 25. A. Serov, S. Kabir, M. Odgaard, I.V. Zenyuk, P. Atanassov, “PGM-free Electrocatalysts for Hydrogen Oxidation Reaction in Alkaline Media”, 21st Solid State Ionics, Padova, Italy, 2017
 26. I.V. Zenyuk, “Characterization of Transport Properties in Porous Media with X-ray Computed Tomography”, 21st Solid States Ionics, Padova, Italy, 2017
 27. S. Normile, O. Calzada, P. Mandal, D.Y. Parkinson, X. Xiao, A. Z. Weber, I.V. Zenyuk, “Water Management in Low Temperature Fuel Cells through in-operando X-Ray Computed Tomography”, 231st ECS Meeting, New Orleans, May 29th, 2017
 28. I.V. Zenyuk “Understanding Water Management in Polymer Electrolyte and Anion Exchange Membrane Fuel Cells through in-operando X-ray Computed Tomography”, 2017, International Society of Electrochemistry, Buenos Aires, Argentina, March 20th, 2017
 29. D.C. Sabarirajan, J. Vlahakis, R.D. White, I.V. Zenyuk, “Electrochemical Characterization of Free-Standing Platinum Nanoelectrode Array Using Atomic Layer Deposition for Polymer Electrolyte Fuel Cells”, 2016 MRS Fall Meeting & Exhibit, Boston, MA, November 30th, 2016
 30. A. Shum, L.G. Connolly, K.B. Hatzell, X. Xiao, D.Y. Parkinson, O. Burheim, A.Z. Weber, I.V. Zenyuk, “In Situ Examination of Phase-Change-Induced Flow in Gas Diffusion Layers and Water Distribution in Microporous Layers Using X-Ray Computed Tomography”, 2016 MRS Fall Meeting & Exhibit, Boston, MA, November 30th, 2016
 31. D. C. Sabarirajan, J. Vlahakis, R. D. White, I. V. Zenyuk, “Electrochemical Characterization of Free-Standing Platinum Nanoelectrode Array Using Atomic Layer Deposition for Polymer Electrolyte Fuel Cells”, PRIME Pacific Rim Meeting and 230th ECS Fall Meeting, Honolulu, Hawaii, October 5th, 2016
 32. R. Bock, A. Shum, T. Khoza, S. Sealand, N. Hussain, I. V. Zenyuk, O. S. Burheim, “Experimental Study of Thermal Conductivity and Compression Measurements of the GDL-MPL Interfacial Composite Region”, PRIME Pacific Rim Meeting and 230th ECS Fall Meeting, Honolulu, Hawaii, October 6th, 2016
 33. A. Shum, K. B. Hatzell, L. G. Connolly, X. Xiao, D. Y. Parkinson, O. Burheim, A. Z. Weber, I. V. Zenyuk, “Understanding Phase-Change-Induced Flow in PEFCs Through In-situ X-ray Computed Tomography”, International Electrochemical Society, The Hague, Netherlands, August 25th, 2016
 34. A. Shum, K. B. Hatzell, L. G. Connolly, O. Burheim, D. Y. Parkinson, A. Z. Weber, I. V. Zenyuk, “Exploring Phase-Change-Induced Flow in Fuel Cells Through X-ray Computed Tomography”, ECS Spring Meeting, San Diego, CA, June 1st, 2016
 35. M. Ulsh, P. Rupnowski, B. L. Sopori, I. V. Zenyuk, A. Z. Weber, G. Bender, “In-Line Quality Control for Fuel Cell and Electrolysis Materials”, 2016 MRS Spring Meeting & Exhibit, Phoenix, AZ, March 29th, 2016
 36. I. V. Zenyuk, E. Medici, J. Allen and A. Z. Weber, “Coupling Continuum and Pore-Network Models in Polymer-Electrolyte Fuel Cells”, EPC15, Naples, December 17th, 2015
 37. I. V. Zenyuk and A. Z. Weber, “Understanding Liquid-Water Management in PEFCs Using X-Ray Computed Tomography and Modeling”, 228th ECS Meeting, Phoenix, October 15th, 2015
 38. H. S. Shiau, I. V. Zenyuk and A. Z. Weber, “Water Management in an Alkaline-Exchange-Membrane Fuel Cell”, 228th ECS Meeting, Phoenix, October 14th, 2015
 39. I.V. Zenyuk, D.Y. Parkinson, A.Z. Weber “Liquid-Water Distribution in Compressed Gas-Diffusion Layers Using X-ray Computed Tomography”, 227th ECS Meeting, Chicago, May 25th, 2015
 40. I.V. Zenyuk, E. Medici, J. Allen, A.Z. Weber “Coupling Continuum and Pore Network Models in Polymer Electrolyte Fuel Cells”, 7th International Conference on Porous Media & Annual Meeting, Padova, Italy, May 18-21, 2015
 41. I.V. Zenyuk, A. Santamaria, P.K. Das, A. Steinbach, R. Mukundan, R.L. Borup, A.Z. Weber “Water Management with Thin-Film Catalyst Layers”, CARISMA, South Africa, Dec. 1, 2014
 42. I. V. Zenyuk and S. Litster, "Spatially-Resolved Modeling of Electric Double Layers for the Oxygen Reduction Reaction in Water-Filled Platinum Electrodes", Electrochemical Society, San Francisco, CA, Oct. 27, 2013
 43. I.V. Zenyuk and S. Litster, “Spatially-Resolved Modeling of Oxygen Reduction Reaction Inside Polymer Electrolyte Fuel Cell Cathode’s Water-Filled Mesopore”, AIChE 2012 Annual Meeting, Pittsburgh, PA, Oct. 31, 2012
 44. I.V. Zenyuk and S. Litster, “Spatially-resolved modeling of electric double layers and surface chemistry for the oxygen reduction reaction in water-filled platinum-carbon electrodes”, 244th ACS National Meeting and

Exposition, Philadelphia, PA, Aug. 21, 2012

45. I.V. Zenyuk and S. Litster, “Spatially-Resolved Modeling of Species Transport and the Oxygen Reduction Reaction Inside a Water-Filled Mesopore in a PEFC Cathode”, Gordon Fuel Cell Conference, Providence, RI, Aug. 10, 2012
46. I.V. Zenyuk, J.-Y. Lee, and S. Litster, “Modeling ion transport in fuel cell electrodes including water|electrolyte interfaces and electric double layers,” Electrochemical Society, Boston, MA, Oct. 12, 2011
47. I.V. Zenyuk and S. Litster, “The effect of electric double layers on ionic conductivity in the agglomerates of PEM fuel cell anodes,” ASME 8th International Conference on Fuel Cell Science, Engineering and Technology, Brooklyn, NY, June 14-16,2010.

POSTER PRESENTATIONS

1. A.D. Shum, D.Y. Parkinson, I.V. Zenyuk, “Using machine learning to study phase-change-induced flow in polymer-electrolyte fuel cells”, VUVX 2019, San Francisco, CA, July 14th, 2019
2. D.C. Sabarirajan, I.V. Zenyuk, “Analysis of proton transport in ionomer/carbon layers using hydrogen pump technique”, Gordon Research Conference Fuel Cells, Smithtown, RI, August 6th, 2018
3. P. Saha, M. Hickner, I.V. Zenyuk, “Electrokinetic probe to understand ion transport in ionomer-free electrodes”, Gordon Research Conference Fuel Cells, Smithtown, RI, August 6th, 2018
4. J. Liu, P.A. Garcia Salaberri, I.V. Zenyuk, “The effect of reaction on the effective properties in the catalyst layer of polymer electrolyte fuel cells”, Gordon Research Conference Fuel Cells, Smithtown, RI, August 6th, 2018
5. E. Leonard, A. Shum, C. Capuano, N. Danilovic, K. Ayers, I.V. Zenyuk, “Comparison of catalyst utilization in two PEM electrolyzer electrode configurations using x-ray computed tomography”, Gordon Research Conference Fuel Cells, Smithtown, RI, August 6th, 2018
6. A. Shum, O. Burheim, D. Y. Parkinson, A. Z. Weber, I. V. Zenyuk, “Exploring Phase-Change-Induced Flow in Fuel Cells Through X-ray Computed Tomography”, Gordon Research Conference Fuel Cells, Smithtown, RI, August 6th, 2018
7. D.C. Sabarirajan, I.V. Zenyuk, “Fabrication of free standing platinum nanoelectrode array by atomic layer deposition”, Gordon Research Conference Fuel Cell, Easton, MA, August 8th, 2016
8. A. Shum, L.G. Connolly, K.B. Hatzell, X. Xiao, D.Y. Parkinson, O.Burheim, A.Z. Weber, I.V. Zenyuk, “In-Situ Study of Phase-Change-Induced Flow for Gas Diffusion Layers and Water Distribution in Microporous Layers”, Gordon Research Conference Fuel Cell, Easton, MA, August 8th, 2016
9. D.C. Sabarirajan, R.D. White, J. Vlahakis, I.V. Zenyuk, “Fabrication of free standing platinum nanoelectrode array by atomic layer deposition for polymer electrolyte membrane fuel cell electrodes”, 90th ACS Colloid & Surface Science Symposium, June 5th, 2016
10. A. Shum, K.B. Hatzell, L. Connolly, X. Xiao, D.Y. Parkinson, O.Burheim, A.Z. Weber, I.V. Zenyuk, “Examining phase-change-induced flow in PEFC GDLs using X-ray computed tomography”, 90th ACS Colloid & Surface Science Symposium, June 5th, 2016
11. I.V. Zenyuk, A. Lamibrac, J. Eller, F.N. Buchi, A.Z. Weber “Understanding Evaporation in Gas Diffusion Layers of Polymer-Electrolyte Fuel Cells with X-Ray Computed Tomography”, 89th Colloid Surface Science Symposium, Pittsburgh, PA, June 17th, 2015
12. I.V. Zenyuk, D.Y. Parkinson, G. Hwang, A.Z.Weber “Understanding Water Transport in Compressed Gas Diffusion Layers of Polymer-Electrolyte Fuel Cells Using X-ray Computed Tomography”, Industry Day and Open House at Lawrence Berkeley National Laboratory, Berkeley, CA, April 29th, 2015
13. I.V. Zenyuk, D.Y. Parkinson, G. Hwang, A.Z.Weber “Understanding Water Transport in Compressed Gas Diffusion Layers of Polymer-Electrolyte Fuel Cells Using X-ray Computed Tomography”, 2015 MRS Spring Meeting & Exhibit, San Francisco, CA, April 9th, 2015
14. I.V. Zenyuk, A.Z. Weber “Understanding and Optimizing Electrochemical Technologies”, SLAC Open House and CalCharge Event, SLAC National Accelerator Laboratory, Menlo Park, CA, November 18th, 2014
15. I.V. Zenyuk and A.Z. Weber “Modeling Study of Water Transport in PEFC with Thin-film Electrodes”, Gordon Fuel Cell Conference, Providence, RI, August 3-8, 2014

16. I. V. Zenyuk, R. Taspinar, A.R. Kalidindi, E.C. Kumbur, S. Litster, "Coupling of deterministic contact mechanics model and two-phase model to study the effect of catalyst layer|microporous layer interface on polymer electrolyte fuel cell performance", 224th ECS Meeting, San Francisco, CA, Oct. 27 - Nov. 1, 2013 (best poster award)
17. I.V. Zenyuk and S. Litster, "Spatially-Resolved Modeling of Species Transport and the Oxygen Reduction Reaction Inside a Water-Filled Mesopore in a PEFC Cathode", Gordon Fuel Cell Conference, Providence, RI, August 5-10, 2012 (top 5 posters)
18. I.V. Zenyuk and S. Litster, "Modeling Ion Transport in Fuel Cell Electrodes Including Water|Electrode Interfaces and Electric Double Layers", Innovation with Impact Research Exhibition, Carnegie Mellon University, Pittsburgh, PA, Apr. 5, 2012
19. I.V. Zenyuk and S. Litster, "The Effect of Electric Double Layers on Ionic Conductivity in the Agglomerates of PEM Fuel Cell Anodes", Penn State Intl. Assoc. for Hydrogen Energy (IAHE): Symposium on Hydrogen and Fuel Cells, University Park, PA, Apr. 16-17, 2010 (best poster award)
20. I.V. Zenyuk and S. Litster, "The Effect of Electric Double Layers on Ionic Conductivity in the Agglomerates of PEM Fuel Cell Anodes", Bennett Graduate Student Symposium of Carnegie Mellon University Mechanical Engineering, Pittsburgh, PA, Apr. 16, 2010

COMMISSIONS OF TRUST

Editorial Assignments

ACS Applied Energy Materials (AEM), **Associate Editor** September 2021 – ongoing

iScience External Editor, May 2021 – ongoing

ACS Applied Energy Materials (AEM) Editorial Advisory Board, 2021-ongoing

ChemElectroChem, Wiley-VCH Editorial Advisory Board, 2021-ongoing

ACS Catalysis Early Career Advisory Board, 2019

Guest Editor for Journal of Power Sources, Special Issue in Volume 375 titled "Special Section: Alkaline membrane fuel cells: state-of-the-art and remaining challenges". Co-editors: A. Serov, C. Arges and M. Chatenet

Conference Organizing

RamanFest 2020, **Lead Organized**, University of California, Irvine, CA, USA (Postponed due COVID)

Gordon Research Conference, Fuel Cells 2022, **Vict Chair**, Bryant University, Smithfield, RI

32nd Topical Meeting of the International Society of Electrochemistry, Stockholm, SW, July, 2022, **Organizer**

Gordon Research Conference, Fuel Cells 2024, **Chair**

Symposia Organization

Symposia Organizer. "Electrochemical processes in porous media" International Society for Porous Media (InterPore), 2021

Symposia Organizer. "Characterization of Porous Materials", 239th ECS Meeting with 18th International Meeting on Chemical Sensors (IMCS 2021), May 30 – June 3, 2021, Chicago, IL

Symposia Organizer. "Electrochemical Studies by Synchrotron Techniques", 239th ECS Meeting with 18th International Meeting on Chemical Sensors (IMCS 2021), May 30 – June 3, 2021, Chicago, IL

Symposia Organizer. "Electrochemical processes in porous media" International Society for Porous Media (InterPore) 2020, 12th Annual Meeting, August 31st – September 3rd, 2020

Symposia Organizer. "Advanced Techniques for In Situ Electrochemical Systems", PRIME 2020, October 4-9th, 2020, Honolulu, HI

Symposia Organizer. "Lithium Ion Batteries and Beyond" 237th ECS Meeting, May 10-14th, 2020, Montreal Canada (Cancelled)

Symposia Organizer. "Nanoporous Materials" 237th ECS Meeting, May 10-14th, 2020, Montreal Canada (Cancelled)

Symposia Organizer. "Chemomechanical and Interfacial Challenges in Energy Storage and Conversion —Batteries and Fuel Cells" 2019 Materials Research Society, Fall Meeting and Exhibit, Dec 1-6th, 2019.

Symposia Organizer 236th Electrochemical Society Meeting, October 13-17, 2019, Atlanta, GA. "Advanced Techniques for In Situ Electrochemical Systems"

Symposia Organizer "Computational Electrochemistry". 232nd Electrochemical Society Meeting, National Harbor, MD, October 2017.

Symposia Organizer “Transport in Morphologically Heterogeneous Porous Media: Advancing Characterization from In-Situ to In-Operando” 21st Solid State Ionics, Padova, Italy, June 18th -23rd, 2017.

Session Chairing and Judging

Session Chair, International Society for Porous Media (InterPore), 2021 (Virtual)
Session Chair, 239th ECS Meeting with 18th International Meeting on Chemical Sensors (IMCS 2021), June 2nd, 2021, Chicago, IL (Virtual)
Session Chair, 28th Annual Undergraduate Research Symposium, Morning and Afternoon Engineering Sessions, May 21st, 2021, Irvine, CA
Session Chair, PRIME 2020, October 4-9th, 2020, Honolulu, HI
Session Chair, InterPore 2020, 12th Annual Meeting, August 31st – September 3rd, 2020
Session Chair, 236th ECS Meeting, Atlanta, GA, October 16th, 2019
Student Poster Judge, 236th ECS Meeting, Atlanta, GA, October 16th, 2019
Student Poster Judge, EFCD 2019: Electrolysis and Fuel Cell Discussions, Le Grande Motte, France, September, 2019
Session Chair, Spring meeting of the ECS, Dallas, TX, May 2019
Sessions Chair, Spring meeting of the ECS, Seattle, WA, May 2018
Judge and sessions chair, Fall meeting of the ECS, National Harbor, MD, October 2017
Judge (student poster competition) and session chair, Spring meeting of the ECS, New Orleans, 2017
Judge, student poster competition, Fall meeting of the Electrochemical Society, Honolulu, October 2016
Session chair, Fall meeting of the Electrochemical Society, Honolulu, October 2016
Judge, student poster competition, Spring meeting of the Electrochemical Society, San Diego, May 2016
Session chair, Spring meeting of the Electrochemical Society, San Diego, May 2016
Session chair, Spring meeting of the Electrochemical Society, Chicago, May 2015
Judge, student poster competition, Spring meeting of the Electrochemical Society, Chicago, May 2015

Membership

The Electrochemical Society (ECS) – Member at Large,
SPIE, International Society of Electrochemistry (ISE), Materials Research Society (MRS), International Society for Porous Media (InterPore), American Chemical Society (ACS), TMS

Proposal Peer Review

Ad-hoc reviewer for Department of Energy Basic Energy Sciences core program, 2021
Department of Energy Basic Energy Sciences, SBIR Phase I proposals review, 2020
Standing panelist for NSLS-II Microscopy and Imaging Proposal Review Panel (PRP), 2020 – 2023
National Science Foundation, Graduate Research Fellowship Program (GRFP), proposal reviewer, 2018
National Science Foundation, 2015, 2018 - 2021
Stanford Synchrotron Radiation Laboratory, Proposal Review Panel (2016 – present)
Advanced Light Source ad-hoc reviewer for proposals

Journal Peer Review

Nature Materials, Nature Nanotechnology, Nature Communications, Advanced Materials, Advanced Energy Materials. ACS Energy Letters, ACS Catalysis, Journal of Power Sources (JPS), Journal of Applied Catalysis B, Journal of American Chemical Engineering (JACS), Journal of Electrochemical Society (JES), Electrochimica Acta, Applied Energy, Science Advances, Sustainable Energy and Fuels, Chemical Engineering Science, International Journal of Heat and Mass Transfer (IJHM), International Journal of Hydrogen Energy (IJHE), Energy Technology, ECS Transactions, ASME Power Energy 2016

TEACHING AND SUPERVISORY EXPERIENCE

Courses Taught

Qrtr/Year	Course #	Title	Enrollment	# Insts	% Taught
Winter 2020	CBE 195	Introduction to Electrochemical Engineering	32	UCI	100
Fall 2021	CBE 100	Introduction to Numerical Methods	83	UCI	100
Spring 2020	CBE 200	Transport Phenomena II	3	UCI	100

Fall 2019	CBE 100	Introduction to Numerical Methods	72	UCI	100
Spring 2019	CBEMS 249	Transport Phenomena II	11	UCI	100
Winter 2018	CBEMS 195	Electrochemical Engineering	18	UCI	100
Fall 2017	ME 0150	Applied Math for Engineers	18	Tufts	100
Spring 2017	ES 007	Thermodynamics	38	Tufts	100
Fall 2016	ME 0149	Electrochemical Energy Conversion/Storage	10	Tufts	100
Spring 2016	ES 007	Thermodynamics	39	Tufts	100
Fall 2015	ME 0150	Applied Math for Engineers	18	Tufts	100

Ph.D. advised

Graduated

1. Gabrielle String (co-advised with D. Matson and D. Lantagne), “Developing Countries: An Investigation Water Safety Plans and Ceramic Water Filters”, December 2015- August 2017
Current Employment: Postdoctoral Research Fellow, Tufts University, Medford, MA
2. Dinesh Sabarirajan, “Understanding ion transport in fuel cell catalyst layers”, 2015- 2018
Current Employment: Scientist at Ionic Materials, Woburn, MA
3. Andrew Shum, “Understanding morphology and transport in porous carbon electrodes”, 2015-2019
ALS Doctoral Fellow
4. Jiangjin Liu, “Hierarchical models for electrochemical systems”, January 2017- October 2019
Current Employment: Postdoctoral Research Fellow, Lawrence Berkeley National Laboratory (with Dr. Adam Weber), Berkeley, CA
5. Prantik Saha, “Electric Double Layers at Water-Metal Interfaces”, June 2017 – March 2021
Current Employment: Postdoctoral Research Fellow, National Renewable Energy Laboratory (with Dr. KC Neyerlin), Golden, CO

In Progress

6. Yongzhen Qi, “Measurements of Ionic Conductivity and Coverage for Fuel Cells”, June 2018- present
7. Arezo Avid, “Ionic Liquids for Polymer Electrolyte Fuel Cells”, January 2019 – present
8. Ying Huang, “Novel X-ray Computed Tomography Imaging Methods”, January 2019 – present
9. Kaustubh Khedekar, Summer 2019 – present
10. Devashish Kulkarni, Fall 2019 – present
11. Adrien Stejer, Fall 2020- present
12. Hung-Ming Chang, Spring 2021 – present
13. Masao Suzuki (Shibata), Fall 2021 - present

Rotating Ph.D. students:

1. Tingwei Deng, Fall 2018
2. Laurent Delafontaine, Fall 2018
3. Hunter Pauker, Fall 2019

M.S. advised thesis

1. Quanquan Zhang, “Understanding Transient Response of Li-ion Batteries”, 2020 - now
2. Walther Villatoro, “1-D Heat Conduction in Porous Layers for Electrochemical Energy”, 2019 – 2020
3. Maeve O’Brien, “Investigating Oxygen Content in Porous Transport Layers of PEM Electrolyzers with Operando X-Ray Computed Tomography and Machine Learning”, 2019 - 2020
4. Dingjie Pan, “Controlled synthesis of nanoparticles using the alternating current method”, 2018 - 2020
5. Stanley Normile, “Novel x-ray imaging techniques for *ex-situ* and *operando* study of polymer electrolyte fuel cells”, September 2016 – August 2018
6. Emily Leonard, “Design of Interfaces in Electrochemical Systems”, September 2017 – May 2019

M.S. advised project

1. Chenxing Lu, (Tufts) “Hydrophobic salt-modified Nafion for biofuel cell anode”, Fall 2016-2018
2. Yongzhen Qi, (Tufts) “Fabrication of catalysts for polymer electrolyte fuel cells”, Fall 2017-2018
3. Benjamin Zackin (Tufts), “Morphology and corrosion properties of GDLs”, Fall 2018-2019
4. Kaustubh Khedekar, Fall 2018 – Spring 2019
5. Devashish Kulkarni, Fall 2018 – Summer 2019

Undergraduate research

Tufts:

1. Jacob Berliner (CBE 2016, Fall 2015 - Summer 2016)
2. Liam Connolly (ME 2016, Fall 2015 - Summer 2016), now a NSFGF PhD at UT Austin
3. Osvaldo Calzada (ME 2018, Fall 2015- Spring 2018)
4. Sean Chapman (EP 2017, Spring 2016 – Spring 2017, Tufts ME Summer Scholar 2016)
5. Stanley Normile (ME 2016, Spring 2016- Summer 2016)
6. Zachary Chen (ME 2017, Spring 2016 - Summer 2017)
7. Annalisa DeBari (ME 2018, Fall 2016- Spring 2018, Tufts Summer Scholar 2017)
8. JingYi Liu (CBE 2018, Fall 2016 - Summer 2017)
9. Benjamin Zackin (ME 2018, Fall 2016 – Spring 2018)
10. Raven Fournier (ME 2018, Spring 2017 - Fall 2017)
11. Thomas George (CBE 2019, Summer 2017 - 2019), now a NSFGF PhD at Harvard
12. DeMehr Heywood (ME 2019, Summer 2017)
13. Wei-Han, Lim (CBE 2019, Summer 2017 - 2019)
14. Dominic Yared (JHU, ME 2019, Summer 2017)
15. Mar Freeman (ME 2019, Fall 2017)
16. Molly Lipman (ME 2020, Fall 2017 – Spring 2018)

UCI:

17. David Morales (CBE 2019, Fall 2018 – Spring 2019)
18. Amber Truong (CBE 2021, Fall 2018 – Fall 2019), UROP Summer 2019
19. Divija Nitin Mamanya (MSE 2022, Fall 2018 – now), UROP Fall 2019, UROP Spring 2021
20. Andrea Su (EECS 2022, Fall 2019 – now), SURP Summer 2020, UROP Spring 2021
21. Christopher Liu (CBE 2022, Fall 2019 – now), SURP Summer 2020, UROP Spring 2021
22. Kimberly Uhls (CBE 2020, Fall 2019 – Spring 2020), UROP Spring 2020
23. Jesus Lopez Ochoa (CBE 2022, Fall 2019 – now), UROP Spring 2021
24. Alex Huynh (CBE/MAE 2021, Winter 2020 – Summer 2021), SURP Summer 2020, UROP Spring 2021)
25. Dominic Morquecho (CBE 2022, Winter 2021 – now)
26. Jack Lang (CBE 2022, Spring 2021 – now)

THESIS COMMITTEE MEMBER

Ph.D. thesis committee member

Michael Workman (CBE, University New Mexico, 2017)
Ilin Sadeghi (CBE, Tufts 2018)
Yechuan Chen (CBE, University of New Mexico, 2018)
Huan Qin (CBE, Tufts, Summer 2019)
Mayank Sabharwal (ME, Univ. Alberta, Summer 2019)
Pongsarun Satjaritanun (CBE, University of South Carolina, 2020)
Bradley Napier (BME, Tufts 2020)
Meng Li (BME, Tufts 2020)
Morteza Rezaei Talashportti (CBE, UCI 2020)
Mounika Kodali (CBE, UCI 2020)
Andrea Bisello (ME, Politecnico Di Milano, 2020)
Zahra Heydarzadeh (MAE, UCI 2020)
Bradley Napier (BME, Tufts 2021)
Sarah van Rooij (MAE, EPFL 2021)
Jonggyu Lee (MAE, UCI 2021)

M.S. thesis committee member

Fatin Marzooq (CBE, Tufts 2016)
Jannatun Nawer (ME, Tufts 2018)
Hongkui Zheng (MSE, UCI 2019)
Shan Tian (MAE, UCI 2019)
Yiheng Pang (MAE, 2020)

Yujia Lu (CBE, UCI 2020)
Ewa Richard Chukwu (CBE, UCI 2020)
Youngjoon Suh (MAE, UCI 2020)

UNIVERSITY SERVICE ACTIVITIES

2015- 2018 Graduate Admission Committee member (two faculty decide ME admission)
2015- 2018 Mechanical Engineering Twitter Account Manager
2016- 2018 Athletics Committee Standing Bylaw Committee of the Faculty of Arts, Sciences and Engineering
2017- 2018 School of Engineering Strategic Research Planning Committee
2017- 2018 Mechanical Engineering Graduate Program Advertising Committee
2018-present Associate Director of the National Fuel Cell Research Center (NFCRC), the center that reports to the VCR
2018-present Graduate admissions committee
2018 CBE PhD Prelim Exam organizer
2018-present CBE website and social media committee
2018-2019 CBE co-representative to ChaMP program
05/2019 CBE energy thrust-coordinator for Industrial Advisory Board
2018-2019 Member of Search Committee for Director of Horiba Institute for Mobility and Connectivity (HIMaC) in Advanced Power and Energy Program (APEP). Served as a diversity lead.
2018-present In charge of set-up user facility at Horiba Institute Mobility and Connectivity Analytical Lab
2019-2020 Henry Samueli School of Engineering Website Development Group
2020-present Chair of the communications committee (CBE department)
Fall 2019 Graduate Adviser for Chemical and Biomolecular Engineering Department
09/2019 Served as Acting Chair for Achievement Rewards for College Scientists (ARCS) Foundation students nomination
09/2020-present UCI Solutions that Scale (StS) Executive Board. UCI StS seminar series organizer.
09/2020-present Member of the Task Force to review SSoE centers
10/2021-present Faculty advisor for Student Chapter at UCI of Electrochemical Society
12/2020-present UROP Faculty Advisory Board, representative from the school of engineering

OUTREACH ACTIVITIES

11/18/2015 Women in Engineering Graduate School Panel (organized by Tufts Society of Women Engineers)
1/12/2017 Women in Engineering STEM Leaders Bootcamp panelist (sponsored by NSF)
03/29/2017 Tufts Energy Group, Energy Talks.
11/18/2017 MIT's Path of Professorship Workshop, Panelist on "How to be a Quick Start Professor"
04/27/2019 Research Topic Night Panel (panel for undergraduate students to learn about research)
11/23/2020 AiChE UCI Chemical and Biomolecular Engineering Faculty Panel
1/13/2020 Speaker at UCI Material Science Club (student-run)