

Publications and Presentations by Dean R. Wheeler (reverse chronological order)

Peer-Reviewed Archival Publications

50. J. Yao, J. Cassler, D.R. Wheeler, and B.A. Mazzeo, "[Characterization of mechanical properties of thin-film Li-ion battery electrodes from laser excitation and measurements of zero group velocity resonances](#)," *J. Applied Phys.* **126**, 085112 (2019).
49. J.E. Vogel, M.M. Forouzan, E.E. Hardy, S.T. Crawford, D.R. Wheeler, and B.A. Mazzeo, "[Electrode microstructure controls localized electronic impedance in Li-ion batteries](#)," *Electrochimica Acta* **297**, 820-825 (2019).
48. F. Usseglio-Viretta, A. Colclasure, D. Finnegan, K. P. Yao Claver, D. Abraham, A. Mistry, P. Mukherjee, T. Heegan, P. Shearing, F. Pouraghajan, D.R. Wheeler, S. Cooper, K. Smith, "[Resolving the discrepancy in tortuosity factor estimation for Li-ion battery electrodes through micro-macro modeling and experiment](#)," *J. Electrochem. Soc.* **165**, A3403-A3426 (2018).
47. F. Pouraghajan, H. Knight, M. Wray, B.A. Mazzeo, R. Subbaraman, J. Christensen, D.R. Wheeler, "[Quantifying tortuosity of porous Li-ion battery electrodes: comparing polarization-interrupt and blocking-electrolyte methods](#)," *J. Electrochem. Soc.* **165**, A2644-A2653 (2018).
46. M.M. Forouzan, B.A. Mazzeo, and D.R. Wheeler, "[Modeling the effects of electrode microstructural heterogeneities on Li-ion battery performance and lifetime](#)," *J. Electrochem. Soc.* **165**, A2127-A2144 (2018).
45. K.L. Dallan, J. Yao, D.R. Wheeler, and B.A. Mazzeo, "[Characterization of mechanical properties of battery electrode films from acoustic resonance measurements](#)," *J. Appl. Phys.* **123**, 135102 (2018).
44. M.M. Forouzan, M. Wray, L. Robertson, and D.R. Wheeler, "[Tortuosity of composite porous electrodes with various conductive additives in an alkaline system](#)," *J. Electrochem. Soc.* **164**, A3117-A3130 (2017).
43. D.R. Nevers, F.R. Brushett, and D.R. Wheeler, "[Engineering radical polymer electrodes for electrochemical energy storage](#)," *J. Power Sources* **352**, 226-244 (2017).
42. M.M. Forouzan, C.-W. Chao, D. Bustamante, B.A. Mazzeo, and D.R. Wheeler, "[Experiment and simulation of the fabrication process of lithium-ion battery cathodes for determining microstructure and mechanical properties](#)," *J. Power Sources* **312**, 172-183 (2016).
41. J.W. Nichols and D.R. Wheeler, "[Fourier correlation method for simulating mutual diffusion coefficients in condensed systems at equilibrium](#)," *Indust. Eng. Chem. Res.* **54**, 12156-12164 (2015). [alternative link](#)
40. S. Vierrath, L. Zielke, R. Moroni, A. Mondon, D.R. Wheeler, R. Zengerle, and S. Thiele, "[Morphology of nanoporous carbon-binder domains in Li-ion batteries - A FIB-SEM study](#)," *Electrochem. Comm.* **60**, 176-179 (2015).
39. B.J. Lanterman, A.A. Riet, N.S. Gates, J.D. Flygare, A.D. Cutler, J.E. Vogel, D.R. Wheeler, and B.A. Mazzeo, "[Micro-four-line probe to measure electronic conductivity and contact resistance of thin-film battery electrodes](#)," *J. Electrochem. Soc.* **162**, A2145-A2151 (2015).
38. J.D. Flygare, A.A. Riet, B.A. Mazzeo, and D.R. Wheeler, "[Mathematical model of four-line probe to determine conductive properties of thin-film battery electrodes](#)," *J. Electrochem. Soc.* **162**, A2136-A2144 (2015).
37. C.W. Monroe, D.R. Wheeler, and J. Newman, "[Nonequilibrium linear response theory: Application to Onsager-Stefan-Maxwell diffusion](#)," *Indust. Eng. Chem. Res.* **54**, 4460-4467 (2015).
36. L. Zielke, T. Hutzenlaub, D.R. Wheeler, C.-W. Chao, I. Manke, A. Hilger, N. Paust, R. Zengerle, and S. Thiele, "[Three-phase multiscale modeling of a LiCoO₂ cathode: Combining the advantages of FIB-SEM imaging and X-ray tomography](#)," *Adv. Energy Mater.* **5**, 1401612 (2015).
35. S.W. Peterson and D.R. Wheeler, "[Direct measurement of effective electronic transport in porous Li-ion electrodes](#)," *J. Electrochem. Soc.* **161**, A2175-A2181 (2014).
34. D.R. Nevers, S.W. Peterson, L. Robertson, C. Chubbuck, J. Flygare, K. Cole, and D.R. Wheeler, "[The effect of carbon additives on the microstructure and conductivity of alkaline battery cathodes](#)," *J. Electrochem. Soc.* **161**, A1691-A1697 (2014).
33. P. Aggarwal, V. Asthana, J.S. Lawson, H.D. Tolley, D.R. Wheeler, B.A. Mazzeo, and M.L. Lee, "[Correlation of chromatographic performance with morphological features of organic polymer monoliths](#)," *J. Chromatography A* **1334**, 20-29 (2014).

32. L. Zielke, T. Hutzenlaub, D.R. Wheeler, I. Manke, T. Arlt, N. Paust, R. Zengerle, and S. Thiele, "[A combination of x-ray tomography and carbon binder modeling: Reconstructing the three phases of LiCoO₂ Li-ion battery cathodes](#)," *Adv. Energy Mater.* **4**, 1301617 (2014).
31. A. Asthana and D.R. Wheeler, "[A polarizable reactive force field for water to enable molecular dynamics simulations of proton transport](#)," *J. Chem. Phys.* **138**, 174502 (2013).
30. N.A. Zacharias, D.R. Nevers, C. Skelton, K. Knackstedt, D.E. Stephenson, and D.R. Wheeler, "[Direct measurements of effective ionic transport in porous Li-ion electrodes](#)," *J. Electrochem. Soc.* **160**, A306-A311 (2013).
29. T. Hutzenlaub, A. Asthana, J. Becker, D.R. Wheeler, R. Zengerle, and S. Thiele, "[FIB/SEM-based calculation of tortuosity in a porous LiCoO₂ cathode for a Li-ion battery](#)," *Electrochem. Comm.* **27**, 77-80 (2013).
28. D. Hansen, Y. Pan, J. Stockton, W. Pitt, and D. Wheeler, "[Cyclic voltammetry investigation of organic species considered for use as catalysts in direct-carbohydrate fuel cells](#)," *J. Electrochem. Soc.* **159**, H834-H841 (2012).
27. A. Read, D. Hansen, S. Aloï, W.G. Pitt, D.R. Wheeler, and G.D. Watt, "[Mono alkyl viologens are effective carbohydrate O₂-oxidation catalysts for electrical energy generation by fuel cells](#)," *Renewable Energy* **46**, 218-223 (2012).
26. S.G. Moore and D.R. Wheeler, "[Chemical potential perturbation: extension of the method to lattice sum treatment of intermolecular potentials](#)," *J. Chem. Phys.* **136**, 164503 (2012).
25. E.J. Bird, K.A. Nelson, J.N. Harb, and D.R. Wheeler, "[Investigation of additives for electroless plating of nanowires](#)," *Electrochim. Acta* **70**, 69-75 (2012).
24. K.A. Nelson, M.R. Linford, D.R. Wheeler, and J.N. Harb, "[Use of a plating additive to enable continuous metallization of nanoscale electrochemically patterned chemical templates](#)," *Electrochim. Acta* **69**, 320-327 (2012).
23. I.V. Thorat, T. Joshi, K. Zaghib, J.N. Harb, and D.R. Wheeler, "[Understanding rate-limiting mechanisms in LiFePO₄ cathodes for Li-ion batteries](#)," *J. Electrochem. Soc.* **158**, A1185-A1193 (2011).
22. D.E. Stephenson, B.C. Walker, C.B. Skelton, D.R. Wheeler, E.P. Gorzkowski, and D.J. Rowenhorst, "[Modeling 3D microstructure and ion transport in porous Li-ion battery electrodes](#)," *J. Electrochem. Soc.* **158**, A781-A789 (2011).
21. S.G. Moore and D.R. Wheeler, "[Chemical potential perturbation: A method to predict chemical potentials in periodic molecular simulations](#)," *J. Chem. Phys.* **134**, 114514 (2011). Download [here](#).
20. A. Holland and D. Wheeler, "[Intrinsic autotrophic biomass yield and productivity in algae: Modeling spectral and mixing-rate dependence](#)," *Biotechnology Journal* **2011**, 6 (2011).
19. G.D. Watt, D. Hansen, D. Dodson, M. Andrus, and D.R. Wheeler, "[Electrical energy from carbohydrate oxidation during viologen-catalyzed O₂-oxidation: Mechanistic insights](#)," *Renewable Energy* **36**, 1523-1528 (2011).
18. J.W. Nichols, S.G. Moore, and D.R. Wheeler, "[Improved implementation of Kirkwood-Buff solution theory in periodic molecular simulations](#)," *Phys. Rev. E* **80**, 051203 (2009).
17. D. Hansen, G. Watt, J. Nichols, M. Andrus, D. Wheeler, and S. Choi, "[Viologen catalysts for a direct carbohydrate fuel cell](#)," *J. Electrochem. Soc.* **156**, B1201-B1207 (2009).
16. I.V. Thorat, D.E. Stephenson, N.A. Zacharias, K. Zaghib, J.N. Harb, and D.R. Wheeler, "[Quantifying tortuosity in porous Li-ion battery materials](#)," *J. Power Sources* **188**, 592-600 (2009).
15. C.L. Guymon, J.N. Harb, R.L. Rowley, and D.R. Wheeler, "[MPSA effects on copper electrodeposition investigated by molecular dynamics simulations](#)," *J. Chem. Phys.* **128**, 044717 (2008).
14. D.E. Stephenson, E.M. Hartman, J.N. Harb, and D.R. Wheeler, "[Modeling of particle-particle interactions in porous cathodes for lithium-ion batteries](#)," *J. Electrochem. Soc.* **154**, A1146-A1155 (2007).
13. M. Linford, M. Lee, K. Nelson, L. Hutchins, H. Becerril, S. Cosby, J. Blood, D. Wheeler, R. Davis, A. Woolley, and J. Harb, "[Nanografting of silanes on silicon dioxide with applications to DNA localization and copper electroless deposition](#)," *Chem. Mater.* **19**, 5052-5054 (2007).
12. M. Tan, C. Guymon, D.R. Wheeler, and J.N. Harb, "[The role of SPS, MPSA, and chloride in additive systems for copper electrodeposition](#)," *J. Electrochem. Soc.* **154**, D78-D81 (2007).
11. I. Thorat, V. Mathur, J. Harb, and D. Wheeler, "[Performance of carbon-fiber-containing LiFePO₄ cathodes for high-power applications](#)," *J. Power Sources* **162**, 673-678 (2006).

10. D.R. Wheeler, "[A simple classroom demonstration of natural convection](#)," *Chem. Eng. Educ.* **39**, 138-141 (2005).
9. C.G. Guymon, R.L. Rowley, J.N. Harb, and D.R. Wheeler, "[Simulating an electrochemical interface using charge dynamics](#)," *Cond. Matt. Phys.* **8**, 335-356 (2005).
8. H.A. Becerril, R.M. Stoltenberg, D.R. Wheeler, R.C. Davis, J.N. Harb, and A.T. Woolley, "[DNA-templated three-branched nanostructures for nanoelectronic devices](#)," *J. Amer. Chem. Soc.* **127**, 2828-2829 (2005).
7. D.R. Wheeler and J. Newman, "[Molecular dynamics simulations of multicomponent diffusion: 2. Nonequilibrium method](#)," *J. Phys. Chem. B* **108**, 18362-18367 (2004).
6. D.R. Wheeler and J. Newman, "[Molecular dynamics simulations of multicomponent diffusion: 1. Equilibrium method](#)," *J. Phys. Chem. B* **108**, 18353-18361 (2004).
5. J. Newman, K. Thomas, D. Wheeler, and H. Hafezi, "[Modeling of lithium-ion batteries](#)," *J. Power Sources* **119**, 838-843 (2003).
4. D.R. Wheeler and J. Newman, "[A less expensive Ewald lattice sum](#)," *Chem. Phys. Lett.* **366**, 537-543 (2002).
3. D.R. Wheeler and R.L. Rowley, "[Shear viscosity of polar liquid mixtures via non-equilibrium molecular dynamics: Water, methanol, and acetone](#)," *Molec. Phys.* **94**, 555-564 (1998).
2. D. Wheeler, N. Fuller, and R. Rowley, "[Non-equilibrium molecular dynamics simulation of the shear viscosity of liquid methanol: Adaptation of the Ewald sum to Lees-Edwards boundary conditions](#)," *Molec. Phys.* **92**, 55-62 (1997).
1. D. Wheeler, J. Wang, and R. Adzic, "[The effects of anions on the underpotential deposition of Tl on Pt\(111\): A voltammetric study](#)," *J. Electroanal. Chem.* **387**, 115-119 (1995).

Conference Proceedings Publications

7. E. Hardy, D. Clement, J. Vogel, D. Wheeler, and B. Mazzeo, "Flexible probe for measuring local conductivity variations in Li-ion electrode films," *44th Annual Review of Progress in Quantitative Nondestructive Evaluation, AIP Conference Proceedings* **1949**, 040002 (2018).
6. K. L. Dallan, J. Yao, D. R. Wheeler, and B. A. Mazzeo, "Determination of mechanical properties of battery films from acoustic resonances," *44th Annual Review of Progress in Quantitative Nondestructive Evaluation, AIP Conference Proceedings* **1949**, 040009 (2018).
5. Y. Pan, J. Stockton, R. Urie, W. Pitt, and D.R. Wheeler, "[Immobilized viologen polymers for carbohydrate fuel cells](#)," *ECS Trans.* **50**, 819-828 (2013).
4. D. C. Hansen, J. Hadley, A. Read, E. Manwill, W. Pitt and D. R. Wheeler, "[A Comparison between dialkyl and monoalkyl viologens for use in direct-carbohydrate fuel cells](#)," *ECS Trans.* **41**, 1737 (2011).
3. A. M. Stux, E. P. Gorzkowski, D. J. Rowenhorst, D. E. Stephenson and D. R. Wheeler, "[Imaging and modeling for engineering the Li-ion battery electrode](#)," *ECS Trans.* **16**, 121 (2009).
2. D. Hansen, G. Watt, J. Nichols, M. Andrus, D. Wheeler, and S. Choi, "[Viologen catalyst for direct-carbohydrate fuel cell](#)," *ECS Trans.* **16**, 2057-2063 (2008).
1. K.A. Nelson, S. Cosby, J. Blood, M. Lee, D.R. Wheeler, R. Davis, A. Woolley, M. Linford, and J. Harb, "[Substrate preparation for nanowire fabrication by selective metalization of patterned silane monolayers](#)," *ECS Trans.* **1**, 17 (2006).

Editing

1. R. Savinell, J. Meyers, S. Narayan, and D. Wheeler, eds., "Large Scale Energy Storage for Smart Grid Applications," *ECS Trans.* **41**, Issue 23 (2012).

Patents

6. B.A. Mazzeo, J. Vogel, D. Wheeler, E. Hardy, D. Clement, "Flexible, compliant multiline microprobes for measurements of material electrical properties," U.S. Provisional Patent Application No. 62/453,846, filed February 2, 2017.

5. US Pat App 2014/0303,916 “Four-line electrical impedance probe”
4. US Pat App 2012/0121,961 “Battery with an internal compressible mechanism”
3. US Pat App 2012/0121,960 “Battery with a moveable membrane separating a cathode and anode cavity”
2. US Pat App 2012/0121,951 “Battery with an internal heating element”
1. US Pat 8,404,396 (issued Mar. 26, 2013) “Fuel cell and method for generating electrical power”

Presentations at Scientific Conferences

82. F. Pouraghajan, F. Sun, B.A. Mazzeo, and D.R. Wheeler, “The interplay of electrode heterogeneity, SEI growth, and Li plating in Li-ion batteries,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
81. E.E. Hunter, J.E. Vogel, D.R. Wheeler, and B.A. Mazzeo, “The impact of calendaring on the electronic conductivity heterogeneity of lithium-ion electrode films,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
80. K. Nielsen, B. Liu, B.A. Mazzeo, and D.R. Wheeler, “Heterogeneity of ionic conductivity in lithium-ion battery electrodes,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
79. B. Liu, K. Nielsen, B.A. Mazzeo, and D.R. Wheeler, “Instrument for measuring local ionic conductivity of porous electrodes,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
78. A.I. Thompson, F. Pouraghajan, B.A. Mazzeo, and D.R. Wheeler, “The effects of cycling on ionic and electronic conductivities of 18650 Li-ion cells,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
77. J.G. Sederholm, J.E. Vogel, B.A. Mazzeo, and D.R. Wheeler, “Factors affecting contact resistance between electrode and current collector,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
76. N. Clemens, D.R. Wheeler, and B.A. Mazzeo, “Alignment of conductive additive in Li-ion battery electrodes through use of electric fields,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
75. M. Nikpour, N. Barrett, C.A. Harrison, D.R. Wheeler, and B.A. Mazzeo, “Microscale simulations of drying and calendaring processes to manufacture porous electrodes,” 236th Meeting of the Electrochemical Society, Atlanta, GA, 2019.
74. B.A. Mazzeo and D.R. Wheeler, “Addressing heterogeneity in electrode fabrication processes,” U.S. Department of Energy 2018 Annual Merit Review Meeting, Washington, DC.
73. D.R. Wheeler, “(Invited) How to deal with electrode heterogeneity in cell-level battery modeling,” 233rd Meeting of The Electrochemical Society, Seattle, WA, 2018.
72. M.M. Forouzan, D.R. Wheeler, and B.A. Mazzeo, “Effects of local tortuosity and porosity heterogeneities on charge and discharge performance of Li-ion batteries,” 233rd Meeting of The Electrochemical Society, Seattle, WA, 2018.
71. J.E. Vogel, E.E. Hardy, S. Crawford, B.A. Mazzeo, and D.R. Wheeler, “Local variation in microstructure causes heterogeneity in the conductivity of commercial lithium-ion cathode films,” 233rd Meeting of The Electrochemical Society, Seattle, WA, 2018.
70. M. Nikpour, J. Cordon, D.R. Wheeler, and B.A. Mazzeo, “Slurry model for understanding fabrication of Li-ion battery electrodes,” 233rd Meeting of The Electrochemical Society, Seattle, WA, 2018.
69. F. Pouraghajan, A.I. Thompson, J.E. Vogel, B.A. Mazzeo, and D.R. Wheeler, “The effect of different mixing processes on the ionic and electronic conductivities of Li-ion battery electrodes,” 233rd Meeting of The Electrochemical Society, Seattle, WA, 2018.
68. D. Wheeler, “(Invited) Variations in microstructure and conductive properties of Porous Li-ion electrodes,” Gordon Research Conference on Batteries, Ventura, CA, 2018.
67. K.L. Dallan, J. Yao, D.R. Wheeler, and B.A. Mazzeo, “Determination of mechanical properties of battery films from acoustic resonances,” Review of Progress in Quantitative Nondestructive Evaluation, Provo, UT, 2017.
66. E. Hardy, D. Clement, J. Vogel, D.R. Wheeler, and B.A. Mazzeo, “Flexible probe for measuring local conductivity variations in Li-Ion electrode films,” Review of Progress in Quantitative Nondestructive Evaluation, Provo, UT, 2017.

65. D.R. Wheeler and B.A. Mazzeo, "Addressing heterogeneity in electrode fabrication processes," U.S. Department of Energy 2017 Annual Merit Review Meeting, Washington, DC.
64. F. Pouraghajan, H. Knight, B.A. Mazzeo, and D.R. Wheeler, "Quantifying tortuosity of porous Li-ion battery electrodes: Comparing polarization-interrupt and AC impedance (blocking-electrolyte) methods," 231st Meeting of the Electrochemical Society, New Orleans, LA, 2017.
63. K.L. Dallan, M. Wray, D.R. Wheeler, and B.A. Mazzeo, "Determination of mechanical properties of battery gilsms from acoustic measurements," 231st Meeting of the Electrochemical Society, New Orleans, LA, 2017.
62. H. Knight, F. Pouraghajan, M. Wray, D.R. Wheeler, and B.A. Mazzeo, "The effects of aging on the tortuosity of Li-ion battery electrodes," 231st Meeting of the Electrochemical Society, New Orleans, LA, 2017.
61. E.E. Hardy, J.E. Vogel, D.V. Clement, D.R. Wheeler, and B.A. Mazzeo, "Flexible probe for measuring local conductivity variations in Li-ion electrode films," 231st Meeting of the Electrochemical Society, New Orleans, LA, 2017.
60. J.E. Vogel, D.V. Clement, E.E. Hardy, B.A. Mazzeo, and D.R. Wheeler, "Local variation in microstructure causes heterogeneity in the conductivity of commercial lithium-ion cathode films," 231st Meeting of the Electrochemical Society, New Orleans, LA, 2017.
59. M.M. Forouzan, A. Gillespie, N. Lewis, B.A. Mazzeo, and D.R. Wheeler, "A predictive model of lithium-ion electrode fabrication, including mixing, coating, drying, and calendering," PRiME 2016, Honolulu, HI, 2016.
58. J.E. Vogel, W. Lange, D.V. Clement, B.A. Mazzeo, and D.R. Wheeler, "Correlation of local conductivity to microstructure for Li-ion battery electrodes by use of a contact probe and SEM/FIB," PRiME 2016, Honolulu, HI, 2016.
57. F. Pouraghajan, R.L. Fitzhugh, M. Wray, B.A. Mazzeo and D.R. Wheeler, "Measurement of ionic conductivity of intact battery electrodes using a four-line probe," 2015 Annual Meeting of AIChE, Salt Lake City, UT.
56. M.M. Forouzan, C.-W. Chien, D. Bustamante, W. Lange, B.A. Mazzeo, and D.R. Wheeler, "Predicting transport, mechanical, and microstructural properties of porous Li-ion battery electrodes by a particle-based simulation," 2015 Annual Meeting of AIChE, Salt Lake City, UT.
55. D.R. Wheeler, "Battery modeling using porous electrode theory," 2015 Annual Meeting of AIChE, Salt Lake City, UT.
54. A. Riet, J. Sedgewick, J. Vogel, D. Clement, A. Cutler, B.A. Mazzeo, D.R. Wheeler, "Non-destructive high-resolution conductivity mapping of thin-film battery electrodes," 228th Meeting of the Electrochemical Society, Phoenix, AZ, 2015.
53. M.M. Forouzan, C.-W. Chao, D. Bustamante, W. Lange, B.A. Mazzeo, and D.R. Wheeler, "Predictive particle-based simulation of the fabrication of Li-ion battery electrodes," 227th Meeting of the Electrochemical Society, Chicago, IL, 2015.
52. M.M. Forouzan, L. Robertson, M. Wray, and D.R. Wheeler, "Ion-transport characteristics of alkaline battery cathodes containing different graphitic additives," 227th Meeting of the Electrochemical Society, Chicago, IL, 2015.
51. L. Zielke, T. Hutzenlaub, D.R. Wheeler, C.-W. Chao, I. Manke, A. Hilger, N. Paust, R. Zengerle, and S. Thiele, "Modeling the missing carbon phase in X-ray tomographic reconstructions of a metal-based battery cathode," 12th Symposium on Fuel Cell and Battery Modeling and Experimental Validation (ModVal 12), Freiburg, Germany, 2015.
50. M.M. Forouzan, L. Robertson, D.R. Nevers, and D.R. Wheeler, "Investigation of electronic and ionic conductivity in alkaline battery cathodes," 2014 MRS Fall Meeting, Boston, MA.
49. C.-W. Chao, D. Bustamante, W. Lange, M.M. Forouzan, B.A. Mazzeo, and D.R. Wheeler, "Dynamic particle packing model for simulating electrode microstructure," 2014 MRS Fall Meeting, Boston, MA.
48. A.D. Cutler, D.V. Clement, N.S. Gates, J. Flygare, J. Vogel, J.S. Sedgwick, B.A. Mazzeo, and D.R. Wheeler, "Micro-four-line probe for determining spatial conductivity distributions in thin-film battery electrodes," 2014 MRS Fall Meeting, Boston, MA.
47. B. Lanterman, J. Flygare, A. Cutler, N. Gates, B.A. Mazzeo, and D.R. Wheeler, "Probing local conductivity variations in particle-based electrodes," Gordon Research Conference on Batteries, Ventura, CA, 2014.

46. Y. Wen, D.R. Nevers, L. Robertson, and D.R. Wheeler, "Stochastic grid model of carbon additives in alkaline battery cathode," Gordon Research Seminar on Batteries, Ventura, CA, 2014.
45. P. Aggarwal, H.D. Tolley, J.S. Lawson, D.R. Wheeler, B. Mazzeo, and M.L. Lee, "Characterization and optimization of organic monolith morphology for improved chromatographic performance" Pittcon (conference on laboratory science), Chicago, IL, 2014.
44. B.A. Mazzeo, B. Lanterman, J. Flygare, A. Cutler, and D.R. Wheeler, "Conductivity measurements of thin-film battery films," Society of Hispanic Professional Engineers Engineering Research Symposium, Indianapolis, IN, 2013.
43. B. Lanterman, J. Flygare, A. Cutler, B.A. Mazzeo, and D.R. Wheeler, "Development of a micro four-line probe for the measurement of thin-film battery electrode conductivity," 224th Meeting of the Electrochemical Society, San Francisco, CA, 2013.
42. D.R. Nevers, Y. Wen, L. Robertson, and D.R. Wheeler, "Effect of carbon additives on the microstructure and conductivity of primary alkaline battery cathodes," 224th Meeting of the Electrochemical Society, San Francisco, CA, 2013.
41. Y. Wen, C. Chubbuck, J. Flygare, D. Nevers, and D.R. Wheeler, "3D model and experiments for understanding carbon additive behavior in primary alkaline cells," 223rd Meeting of the Electrochemical Society, Toronto, Canada, 2013.
40. S. Moore and D. Wheeler, "Slab-based (SB) Ewald: An efficient lattice sum method for Lennard-Jones fluids with 1-D density variations," 2012 Annual Meeting of AIChE, Pittsburgh, PA.
39. S. Moore, T. Sirk, D. Wheeler, and E. Brown, "Obtaining the contribution of individual atoms to the energy and stress tensor from the Ewald and P3M lattice sum methods," 2012 Annual Meeting of AIChE, Pittsburgh, PA.
38. Y. Pan, J. Stockton, D. Hansen, W. Pitt, and D. Wheeler, "Immobilized viologen polymers for carbohydrate fuel cell," 222th Meeting of the Electrochemical Society, Honolulu, HI, 2012.
37. S. Harris, N. Zacharias, C. Skelton, K. Knackstedt, D. Stephenson, Y. Wen, and D. Wheeler, "Measurements of effective electronic and ionic conductivities in porous Li-ion electrodes," 222th Meeting of the Electrochemical Society, Honolulu, HI, 2012.
36. D. Hansen, G. Watt, D. Wheeler, W. Pitt, M. Andrus, A. Read, S. Aloï, and D. Dodson, "The mechanism of the catalytic oxidation of carbohydrates by viologens with application for an alkaline direct-carbohydrate fuel cell," 220th Meeting of the Electrochemical Society, Boston, MA, 2011.
35. D. Stephenson, D. Wheeler, E. Gorzkowski, and D. Rowenhorst, "3D model for predicting performance of porous Li-ion electrodes," 219th Meeting of the Electrochemical Society, Montreal, Canada, 2011.
34. B. Davis, H. Conley, D. Jones, C. Hustedt, L. Barrett, D. Wheeler, M. Linford, A. Wooley, J. Harb, and R. Davis, "Carbon nanotube placement by floating potential dielectrophoresis: Elucidating the shutoff mechanism," NanoUtah: Utah Statewide Nanotechnology Conference, Salt Lake City, UT, 2010.
33. A. Asthana and D. Wheeler, "Molecular dynamics simulations of proton transport," 2010 Annual Meeting of AIChE, Salt Lake City, UT.
32. S. Moore and D. Wheeler, "Obtaining homogeneous fluid properties from an inhomogeneous simulation," 2010 Annual Meeting of AIChE, Salt Lake City, UT.
31. E. Bird, K. Nelson, D. Wheeler, and J. Harb, "Effects of additives on nanoscale electroless plating of palladium on a nonconductive substrate," 218th Meeting of the Electrochemical Society, Las Vegas, NV, 2010.
30. D. Stephenson, D. Wheeler, E. Gorzkowski, and D. Rowenhorst, "3D Model and experiments for predicting ionic and electronic resistances in porous electrodes," 218th Meeting of the Electrochemical Society, Las Vegas, NV, 2010.
29. S. Moore and D. Wheeler, "Chemical potential perturbation: a new method to predict chemical potential differences in molecular simulations," 2009 Annual Meeting of AIChE, Nashville, TN.
28. J. Nichols and D. Wheeler, "The Fourier correlation method for predicting diffusivities in multicomponent mixtures simulated by molecular dynamics," 2009 Annual Meeting of AIChE, Nashville, TN.
27. J. Nichols, S. Moore, and D. Wheeler, "Improved implementation of Kirkwood-Buff solution theory in periodic molecular simulations," 2009 Annual Meeting of AIChE, Nashville, TN.
26. A. Asthana and D. Wheeler, "Polarizable water model for simulations of proton transport," 2009 Annual Meeting of AIChE, Nashville, TN.

25. D. Stephenson, B. Walker, D. Wheeler and D. Rowenhorst, "3D modeling of particle structure and ion transport in porous Li-ion electrodes," 216th Meeting of the Electrochemical Society, Vienna, Austria, 2009.
24. I. Thorat and D. Wheeler, "Modeling mass transport in LiFePO_4 and other phase-change materials," 216th Meeting of the Electrochemical Society, Vienna, Austria, 2009.
23. I. Thorat, T. Joshi, J. Harb, and D. Wheeler, "Understanding electronic resistances in cathodes for high-rate applications," 216th Meeting of the Electrochemical Society, Vienna, Austria, 2009.
22. A.M. Stux, D.J. Rowenhorst, E.P. Gorzkowski, D.E. Stephenson, and D.R. Wheeler, "Probing Li-ion battery electrode architectures with a focused ion beam and modeling," 2009 MRS Spring Meeting, San Francisco, CA.
21. K.A. Nelson, H.J. Conley, B. Davis, D.R. Wheeler, M.R. Linford, J.N. Harb, and R.C. Davis, "Nanografting of thin polymer layers on silicon oxide to produce chemically templated surfaces," 237th ACS National Meeting, Salt Lake City, UT, 2009 (INOR-419).
20. I. Thorat, D. Stephenson, J. Harb, and D. Wheeler, "Understanding transport limitations in porous composite cathodes for high-rate applications," 214th Meeting of the Electrochemical Society, Honolulu, HI, 2008.
19. D. Hansen, G. Watt, J. Nichols, M. Andrus, S. Choi, and D. Wheeler, "Viologen catalyst for direct-carbohydrate fuel cell," 214th Meeting of the Electrochemical Society, Honolulu, HI, 2008.
18. A. Stux, D. Rowenhorst, D. Stephenson, J. Harb, and D. Wheeler, "Imaging and modeling for engineering the Li-ion battery electrode," 214th Meeting of the Electrochemical Society, Honolulu, HI, 2008.
17. M. Linford, M. Lee, K. Nelson, A. Woolley, D. Wheeler, R. Davis, and J. Harb, "Nanografting of silanes on silicon dioxide with applications to DNA localization and copper electroless deposition," ACS 82nd Colloid & Surface Science Symposium, NC State University, June 2008.
16. D. Wheeler and A. Asthana, "A model for proton transfer in large-scale simulations," ACS 21st Rocky Mountain Regional Meeting, Park City, UT, June 2008.
15. I. Thorat, D. Stephenson, V. Mathur, B. Walker, E. Hartman, J. Harb, and D. Wheeler, "Effect of morphology and thickness on high-rate discharge performance of porous composite cathodes," 212th Meeting of the Electrochemical Society, Washington, DC, 2007.
14. D. Wheeler and C. Guymon, "Simulating the electrochemical double layer using charge dynamics," 2006 Annual Meeting of AIChE, San Francisco, CA.
13. D. Stephenson, I. Thorat, E. Hartman, J. Harb, and D. Wheeler, "Fundamental investigation of inter-particle contact in porous composite cathodes," 210th Meeting of the Electrochemical Society, Cancun, Mexico, 2006.
12. D. Stephenson, D. Wheeler, and J. Harb, "Fundamental investigation of mixed-oxide cathodes for rapid-charge lithium-ion batteries," 209th Meeting of the Electrochemical Society, Denver, CO, 2006.
11. K. Nelson, J. Blood, S. Cosby, M. Lee, J. Harb, D. Wheeler, M. Linford, A. Woolley and R. Davis, "Selective metallization of AFM-patterned functionalized silane monolayers," 208th Meeting of the Electrochemical Society, Los Angeles, CA, 2005.
10. C. Guymon, J. Harb and D. Wheeler, "MPSA behavior near a copper surface through molecular simulation and experiment," 208th Meeting of the Electrochemical Society, Los Angeles, CA, 2005.
9. V. Mathur, I. Thorat, D. Wheeler and J. Harb, "Carbon-fiber containing LiFePO_4 cathodes for high-power applications," 208th Meeting of the Electrochemical Society, Los Angeles, CA, 2005.
8. C.G. Guymon and D.R. Wheeler, "Simulated additive behavior in a copper-deposition bath using molecular dynamics," 206th Meeting of the Electrochemical Society, Honolulu, HI, 2004.
7. D. Wheeler, G. Gessel, A. Henrichsen, and M. Winters, "Molecular simulations of lithium and anion transport in liquid carbonate electrolytes," 206th Meeting of the Electrochemical Society, Honolulu, HI, 2004.
6. D. Wheeler, "Simulating the electrochemical interface using charge dynamics," Symposium on Basic and Applied Statistical Physics of Condensed Matter (in Honor of the 70th Birthday of Douglas Henderson), Provo, UT, 2004.
5. D. Wheeler, "A better Ewald lattice sum," 2002 Annual Meeting of AIChE, Indianapolis, IN.
4. D. Wheeler and J. Newman, "Molecular dynamics simulations of diffusion in lithium battery electrolytes," 2001 Annual Meeting of AIChE, Reno, NV.

3. D. Wheeler and J. Newman, "Molecular dynamics simulations of multicomponent diffusion in liquid electrolytes," 196th Meeting of the Electrochemical Society, Honolulu, HI, 1999.
2. D. Wheeler and R. Rowley, "Non-equilibrium molecular dynamics of liquid mixture shear viscosity," 1997 Annual Meeting of AIChE, Los Angeles, CA.
1. H. Huang, D. Wheeler, and G. Watt, "Ligand reactivity of Femoco isolated from the nitrogenase enzyme," Abstr. Amer. Chem. Soc. 208, 495-INOR (1994).

Invited Presentations

20. D. Wheeler, "More investigations of heterogeneity in Li-ion battery electrodes," Utah Energy Symposium, University of Utah, 2019.
19. D. Wheeler, "Battery and Storage Technology," Utah Municipal Power Association Member Conference, St. George, UT, 2019.
18. D. Wheeler, "Investigating heterogeneity in Li-ion battery electrodes," Utah Energy Symposium, University of Utah, 2018.
17. D. Wheeler, "A particle-based model to optimize electrode microstructure and manufacturing," Workshop on Advanced Battery Research, University of Illinois at Chicago, Department of Mechanical and Industrial Engineering and the Joint Center for Energy Storage Research, 2015.
16. D. Wheeler, "Investigation of microstructure and heterogeneities in porous electrodes of lithium-ion batteries," Army Research Laboratory, Delphi, MD, 2015.
15. D. Wheeler, "The Fourier correlation method: Improving Kirkwood-Buff and diffusivity simulations," Condensed Matter Physics Symposium (in Honor of the 80th Birthday of Douglas Henderson), Provo, UT, 2014.
14. D. Wheeler, "Understanding battery performance," University of Utah, Chemical Engineering Department, 2013.
13. D. Wheeler, "Engineering of batteries and fuel cells," Utah Valley University, Physics Department, 2013.
12. D. Wheeler, "Understanding battery performance," Brigham Young University, Chemistry and Biochemistry Department, 2013.
11. D. Wheeler, "Modeling and measurements to understand performance of lithium-ion batteries," Penn State, Chemical Engineering Department, 2012.
10. D. Wheeler, "Modeling performance of lithium-ion batteries," Duracell Corporate Research and Development, Bethel, CT, 2011.
9. D. Wheeler, "The engineering of batteries and fuel cells," United States Military Academy, Chemical Engineering Department, 2011.
8. D. Wheeler, "The engineering of water rockets," United States Military Academy, Chemical Engineering Department, 2011.
7. D. Wheeler, "Modeling performance of lithium-ion batteries," City College of New York, Chemical Engineering Department, 2011.
6. D. Wheeler and P. Balbuena, "Modeling of low-temperature fuel cells," NSF Workshop on Low-Temperature Fuel Cells, Arlington, VA, 2005.
5. D. Wheeler, "The engineering of water rockets," Brigham Young University, Chemical Engineering Department, 2003.
4. D. Wheeler, "The technology of lithium batteries and fuel cells," University of Nevada at Reno, Chemical Engineering Department, 2003.
3. D. Wheeler, "Molecular simulations of diffusion in electrolytes," University of Nevada at Reno, Chemical Engineering Department, 2003.
2. D. Wheeler, "Molecular simulations of diffusion in electrolytes," University of California, Berkeley, Chemical Engineering Department, 2002.
1. D. Wheeler, "Molecular dynamics simulations of aqueous electrolytes," Meeting of the San Francisco Section of The Electrochemical Society, 2000.