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Dr. Nelson is an Assistant Professor at UAHuntsville, starting in August 2012. Prior to his appointment at UAHuntsville he was an Assistant Research Professor at the University of Connecticut, performing research on mass and charge transport in electrochemical energy conversion and storage devices. He also contributed to the development of three-dimensional imaging methods for energy materials based on x-ray nanotomography.

During his Ph.D. studies Dr. Nelson served as a head teaching assistant for an undergraduate Experimental Methodology laboratory. In this position he managed several improvements to instructional experiments and laboratory infrastructure.

Dr. Nelson is active in the Advanced Energy Systems Division (AESD) of the American Society of Mechanical Engineers. He is the vice chair of the AESD Electrochemical Energy Conversion and Storage (EECS) Committee and a member of the AESD Executive Committee. Since 2009 he has chaired nine EECS conference sessions and is a co-organizer for two EECS topics, or symposia, at the 2013 International Mechanical Engineering Congress and Exposition.

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RELEVANT PUBLICATIONS:

1. G. J. Nelson, A. Nakajo, B. N. Cassenti, M. B. Degostin, K. R. Bagshaw, A. A. Peracchio, G. Xiao, S. Wang, F. Chen and W. K. S. Chiu, "A Rapid Analytical Assessment Tool for Three Dimensional Electrode Microstructural Networks with Geometric Sensitivity," *Journal of Power Sources,* 2014, 246: p 322-334.
2. G. J. Nelson, A. P. Cocco, W. M. Harris, A. Nakajo, J. J. Lombardo, T. D. Myles, A. M. Kiss and W. K. S. Chiu, "Three Dimensional Microstructural Imaging Methods for Energy Materials," *Physical Chemistry Chemical Physics,* 2013, 15(39): p. 16377-16407.
3. G.J. Nelson, B.N. Cassenti, A.A. Peracchio and W.K.S. Chiu, "An Analytical Method for Dye Sensitized Solar Cell Geometric Design," *Electrochimica Acta*, 2013, 90: p. 475-481.
4. G.J. Nelson, K.N. Grew, J.R. Izzo, Jr., J.J. Lombardo, W.M. Harris, A. Faes, A. Hessler-Wyser, J. Van herle, S. Wang, Y. S. Chu, A.V. Virkar and W.K.S. Chiu, "Three-Dimensional Microstructural Changes in the Ni-YSZ Solid Oxide Fuel Cell Anode During Operation," *Acta Materialia,* 2012, 60(8): p. 3491-3500.
5. G.J. Nelson, B.N. Cassenti, A.A. Peracchio and W.K.S. Chiu, "Microstructural Effects on Electronic Charge Transfer in Li-Ion Battery Cathodes," *Journal of the Electrochemical Society,* 2012, 159(5): p. A598-A603.
6. G.J. Nelson, B.N. Cassenti, A.A. Peracchio and W.K.S. Chiu, "Two-Dimensional Charge Transfer and Space Charge Effects in Extended Surface Solid Oxide Fuel Cell Electrodes," Journal of Power Sources, 2012, 205: p 48-56.
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8. G.J. Nelson, W.M. Harris, J.R. Izzo, Jr., K.N. Grew, W.K.S. Chiu, Y.S. Chu, J. Yi, J.C. Andrews, Y. Liu and P. Pianetta, "Three Dimensional Mapping of Nickel Oxidation States using Full Field X-ray Absorption Near Edge Structure Nanotomography," Applied Physics Letters, 2011, 98: p. 173109.
9. G.J. Nelson, W.M. Harris, J.J. Lombardo, J.R. Izzo, Jr., W.K.S. Chiu, P. Tanasini, M. Cantoni, J. Van herle, C. Comninellis, J.C. Andrews, Y. Liu, P. Pianetta and Y.S. Chu, "Comparison of SOFC Cathode Microstructure Quantified using X-ray Nanotomography and Focused Ion Beam - Scanning Electron Microscopy," Electrochemistry Communications, 2011, 13 (6): p. 586-589.
10. G.J. Nelson and C.L. Haynes, "Continuum-level Solid Oxide Electrode Constriction Resistance Effects," Journal of Power Sources, 2008, 185 (2): p. 1168-1178.