

william bowman

Postdoctoral Associate

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appointments & education

Postdoctoral Associate Laboratory for Electrochemical Interfaces, MIT, PI: Bilge Yildiz	2016 –
Visiting Ph.D. Student Electrochemical Materials Group, Jennifer LM Rupp, ETH Zürich	2015 – 16
Ph.D. Materials Science and Engineering, Arizona State University (<i>Correlating Nanoscale Grain Boundary Composition with Electrical Conductivity in Ceria</i> , Advisor: Peter A. Crozier)	2012 – 16
Graduate Research Fellow National Science Foundation	2012 – 16
Bachelor Materials Science and Engineering, Arizona State University	2008 – 12

journal articles

- 5) **Enhanced Ionic Conductivity in Electroceramics by Nanoscale Enrichment of Grain Boundaries with High Solute Concentration** W.J.B., M.N. Kelly, G.S. Rohrer, C.A. Hernandez, P.A. Crozier, *Nanoscale* (2017)
- 4) **Designing Strained Interface Heterostructures for Resistive Switching Devices** S. Schweiger, R. Pfenninger, W.J.B., U. Aschauer, J.L.M. Rupp, *Advanced Materials* 1605049 (2017)
- 3) **Coupling of strain, stress, and oxygen non-stoichiometry in thin film $\text{Pr}_{0.1}\text{Ce}_{0.9}\text{O}_{2-\delta}$** J. Sheth, D. Chen, J.J. Kim, W.J.B., P.A. Crozier, H.L. Tuller, S.T. Misture, S. Zdzieszynski, B.W. Sheldon, S.R. Bishop, *Nanoscale* 8 16499 (2016)
- 2) **Measuring band-gap states in individual nonstoichiometric oxide nanoparticles: The praseodymium-ceria case** W.J.B., K. March, C.A. Hernandez, P.A. Crozier, *Ultramicroscopy* 167 5-10 (2016)
- 1) **Electrical conductivity and grain boundary characterization of Gd-doped and Gd/Pr co-doped ceria electrolytes** W.J.B., J. Zhu, R. Sharma, P.A. Crozier, *Solid State Ionics* 272 9-17 (2015)

invited presentations & seminars

- 2) **Design and Application of Strained Interface Heterostructures in Resistive Switching Devices** W.J.B., S. Schweiger, R. Pfenninger, E. Izadi, A.D. Darbal, P.A. Crozier, J.L.M. Rupp, *21st Int'l Meeting on Solid State Ionics*, Padua, IT (2017)
- 1) **Correlative Electron Microscopy across Length Scales to Elucidate Grain Boundary Transport in Non-Stoichiometric Oxides** W.J.B., *Interdisciplinary Centre for Electron Microscopy*, EPFL, Lausanne, Switzerland (2016)

awards & recognition

Swiss Government Excellence Scholarship 9 month visit to ETH Zürich	2015 – 16
NSF Graduate Research Fellow Support for Ph.D. research activities	2012 – 16
NSF Graduate Research Opportunities Worldwide Award	2015

Funds for travel and research at ETH Zürich	
Best poster nominee	2015
Materials Research Society	
Travel grants for International Microscopy Congress, Prague, CZ	2014
Awarded by Microscopy Society of America and International Microscopy Congress	
Presidential Scholar Award	2014
Microscopy Society of America	
Outstanding Graduate Student Award for community outreach	2014
Arizona State University, School for the Engineering of Matter, Transport & Energy	
Doctoral Enrichment Fellowship	2012 – 13
Arizona State University, Graduate College	
NIST Summer Research Fellow	2011
3 months support for research activities	
mentorship, service & miscellanea	
Program Chairperson, Microscopy Society of America Student Council	2016 –
Pre-meeting Congress for Students, Postdocs & Early-career Professionals	
Seminar Chairperson	2014 – 16
2016 Gordon Research Seminar: Solid State Studies in Ceramics	
Undergraduate student mentor	2013 – 16
Arizona State University SHADES multicultural mentorship program	
Website development	2015
Designed, built and deployed web application for my mom (fransdollcareandrepair.com)	
Outreach Chairperson & founding member	2013 – 14
Arizona State University Electrochemical Society graduate student chapter	
NSF Research Collaborative Network participant	2013
Visited Ghana to develop international research collaborations	

interests & skills

interests & techniques	electroceramics, (scanning) transmission electron microscopy, oxide interfaces, grain boundaries, nanomaterials, electron energy-loss spectroscopy, energy-dispersive x-ray spectroscopy, x-ray diffraction, AC impedance spectroscopy, scanning electron microscopy/focused ion beam.
software & languages	DigitalMicrograph, ImageJ, Inkscape, MS Office, Solidworks, Git, Rails, Python, Matlab, Ruby, HTML, CSS, Javascript, English

references

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