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BRIAN M. MAY, Ph.D.
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Dr. Brian May is experienced in the areas of chemistry and materials science. His background encompasses a wide array of characterization techniques, such as microscopy, scattering, spectroscopy, and separations. Dr. May is also well versed in experimental design and execution, data interpretation, and communication of findings. He has published in peer-reviewed journals and given several technical presentations on his work.

Dr. May received his Ph.D. in analytical chemistry from the University of Illinois at Chicago. His dissertation focused on developing techniques to characterize the redox chemistries that occur at the cathode of lithium-ion batteries. Prior to that, he received his B.S. in chemistry from Loyola University-Chicago, where he conducted research in allosteric activation of ADP-glucose pyrophosphorylase, the enzyme that governs glycogen synthesis in bacteria and starch in plants.

Areas of Specialization

Analytical Chemistry

Data Visualization

Lab & Industrial Services

Safety

Education

Ph.D., Analytical Chemistry, University of Illinois at Chicago, 2018
B.S., Chemistry with an Emphasis in Biochemistry, Loyola University Chicago, 2013

January 2020

Professional Affiliations/Honors

National Association of Fire Investigators

Member, 2018 - present

Materials Research Society

Member, 2016 - present

Electrochemical Society

Member, 2015 - 2018

Journal of Solid State Ionics

Ad Hoc Reviewer, 2017

National School on Neutron and X-Ray Scattering

Attendee, 2016

Denver X-Ray Conference

Robert L. Snyder Student Travel Award, 2015

Positions Held

Engineering Systems Inc., Aurora, Illinois

Staff Consultant, 2018 – Present

University of Illinois at Chicago

Research Assistant, 2015 – 2018

University of Illinois at Chicago

Teaching Assistant, 2013 – 2014

Loyola University Chicago

Undergraduate Research Assistant, 2012 – 2013

Packer Engineering

Intern, 2009 – 2011

Continuing Education/Certifications

National Association of Fire Investigators Fire Investigation Training Program

March 2019

Publications/Presentations

Presentations

"Nanoscale Detection of Intermediate Solid Solutions in Equilibrated Li_xFePO_4 Microcrystals," **B.M. May**, presented at the Advanced Light Source User Meeting, Berkeley, CA, October 2018.

"Determination of Reaction Mechanism Within Single Particle Layered Oxide Materials for Li-Ion Batteries Using Operando Diffraction Mapping," **B.M. May** et al., presented at the Materials Research Society Fall Meeting, Boston, MA, November 2017.

"Visualization of Phase Transformations in Lithium Ion Cathode Materials: Pushing the Limits of Resolution," **B.M. May**, presented at the Advanced Photon Source User Seminar, Argonne, IL, July 2017.

"Operando Microdiffraction Mapping of Single Particle Cathode Materials," M. Wolf, **B.M. May**, et al., presented at the Denver X-ray Conference, Chicago, IL, August 2016.

"X-ray Nanodiffraction Study of the Delithiation Mechanism of $LiFePO_4$ Single Particles," **B.M. May** et al., presented at the Materials Research Society Spring Meeting, Phoenix, AZ, March 2016.

"Portfolio of X-ray Imaging Tools for Studies of Battery Materials: Development and Scientific Insight." **B.M. May** et al., presented at the Energy Frontier Research Centers Principal Investigators' Meeting, Washington, D.C., October 2015.

"Nanodiffraction Study of the Delithiation Mechanism of $LiFePO_4$ Single Particles," **B.M. May** et al., presented at the Denver X-ray Conference, Westminster, CO, August 2015.

"X-ray Nanodiffraction Study of the Delithiation Mechanism of $LiFePO_4$ Single Particles," **B.M. May** et al., presented at the Electrochemical Society Meeting, Chicago, IL, May 2015.

"Assessment of Nanodiffraction to Study Phase Transformations in Crystals of Battery Materials," **B.M. May** et al., presented at the Advanced Photon Source Users' Meeting, Argonne, IL, May 2015.

Publications

"Effect of Synthetic Parameters on Defects, Structure, and Electrochemical Properties of Layered Oxide $LiNi_{0.80}Co_{0.15}Al_{0.05}O_2$," **B.M. May**, et al., J. Electrochem. Soc. 165 (2018), A3537-A3543.

"Facet-Dependent Rock-Salt Reconstruction on the Surface of Layered Oxide Cathodes," H. Zhang, **B.M. May**, et al., Chem. Mater. 30 (2018), 692-699.

"Nanoscale Detection of Intermediate Solid Solutions in Equilibrated Li_xFePO_4 Microcrystals," **B.M. May** et al., Nano Lett. 17 (2017), 7364-7371.

"Visualization of Electrochemical Reactions in Battery Materials with X-ray Microscopy and Mapping," M. Wolf, **B.M. May**, J. Cabana., Chem. Mater. 29 (2017), 3347-3362.

"Conserved Residues of the Pro103-Arg115 Loop are Involved in Triggering the Allosteric Response of the Escherichia Coli ADP-Glucose Pyrophosphorylase," B.L. Hill, J. Wong, **B.M. May** et al., Protein Sci. 24 (2015) 714-728.