West Virginia University
BENJAMIN M. STATLER COLLEGE OF ENGINEERING AND MINERAL RESOURCES

MATERIALS SCIENCE AND ENGINEERING (MS&E) SEMINAR SERIES

Friday September 18, 2020 at 3:00 pm via Zoom

https://wvu.qualtrics.com/jfe/form/SV_80QQi6E8CUXmzwF

Registration is required

"Element Specific Studies and A New Type of Magnetism"

Mikel Holcomb
Department of Physics and Astronomy
West Virginia University
Morgantown, WV 26506
Tel: (304) 293-5196, Email: mikel.holcomb@mail.wvu.edu

Abstract: In many areas of materials science and economics, competition is seen as an opportunity to obtain improved performance. Utilizing many techniques (bulk magnetometry, neutron reflectometry and resonant x-ray magnetic scattering), we have discovered and explored the existence of competing magnetic phases in many single layer thin films that results in giant negative magnetization. We have focused on the system of complex oxide $La_{0.7}Sr_{0.3}MnO_3$. While transmission electron microscopy images show pristine epitaxial growth, the data supports that there are regions of different magnetic order. This results in interesting magnetic measurements, that share similarities with ferrimagnets with competing magnetic lattices. This competition results in spontaneous giant negative magnetization that aligns counter to a small applied magnetic field and inverted hysteresis loops near room temperature. I will also discuss our specialty in element specific measurements and highlight some examples as a way to illustrate and emphasize our interest in forming collaborations.

Biography: *Mikel "Micky" Holcomb* is an Associate Professor of Physics & Astronomy at West Virginia University. She got her PhD at UC Berkeley (advisor: Ramesh), bachelors at Vanderbilt (advisor: Tolk) and did an internship at IBM Almaden. While she enjoys collaborating on a variety topics, her main projects involve complex oxide magnetic thin films and magnetoelectric heterostructures. Some other current research areas include experimentally-motivated machine learning efforts, ultrafast optical measurements, and synchrotron measurements. She enjoys collaborations, particularly with people interested in element specific x-ray absorption spectroscopy measurements, machine learning, or her high-quality complex oxide thin films.

MS&E Seminar Series is sponsored by the Department of Chemical Engineering, Lane Department of Computer Science and Electrical Engineering, and Department of Mechanical & Aerospace Engineering.