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Education

Augsburg College	Physics	B.S., 2005
University of Nebraska-Lincoln	Physics	M.S., 2008
University of Nebraska-Lincoln	Physics	Ph.D., 2011

Professional Experience

2012 – Present Postdoctoral Research Associate, Imaging Functionality Group,
Center for Nanophase Materials Sciences, ORNL

Honors and Awards

2005 – 2007	Chancellor's Fellowship
2003 – 2005	Leif Sverdrup Fellowship
2003 – 2005	Physics Department Honors
2001 – 2005	Regent's Scholarship

Research Synopsis

1. *Conduction in 2D aromatic layers*
Surface structures composed of single species and multiple species aromatic organic materials are grown and mapped at the nanometer scale to map the effects of local perturbations on electron hopping in organic semiconductors.
2. *Geometry and control of molecular interactions*
Through control over local chemistry and electric field we vary the submolecular geometry of adsorbates allowing manipulation of attractive and repulsive intermolecular forces.
3. *Electronic exchange at the metal/organic interface*
Electronic states, local charge, and surface dipoles are studied to control the semiconducting properties and electronic conductivity across the interface.
4. *Self-assembly of organic adlayers*
The epitaxial growth of organic structures on metal surfaces is analyzed at the atomic scale and compared across surfaces for purposes of modeling and controlling thin-film growth.