ST. OLAF PHYSICS DEPARTMENT

Atom-thick physics: the progeny of graphene

The isolation of single-atom-thick sheets of graphene in 2004 launched a revolution in condensed matter physics, the effects of which are still being understood. Besides being a remarkable material in its own right, the study of graphene spawned entirely new fields of research including the watershed discovery of topological insulators and the central role of topology in materials physics. Methods used in graphene research are now used in exploring hundreds of other atomically-thin materials found to exist, with properties both familiar and novel. Techniques have been developed to create novel 3D systems composed of arbitrary stacks of 2D flakes, which led to the discoveries of the Hofstadter butterfly and novel forms of superconductivity, among others. We will present a tour of graphene and graphene-inspired physics, spiked with some of our own modest contributions in the areas of quantum Hall physics, sensing with surfaces, and strongly-correlated systems.

Wednesday, April 17
2:15 - 3:15 p.m.
RNS 210

Cookies and Apple Cider Served!

Erik Henriksen PhD

Erik Henriksen is Assistant Professor in the Dept. of Physics at Washington University, active in the WU Institute for Materials Science and Engineering, and a founding member of the Center for Quantum Sensors. He received his BA in Physics and Asian Studies at Swarthmore College in 1997, followed by a two-year stint as a research technician in the lab of Prof. Michael Roukes at Caltech. After another 1.5 years building a cleanroom facility at Columbia University and 6 months getting beat up at aikido Hombu Dojo in Tokyo, Japan, he returned to pursue a PhD under the direction of Prof. Horst Stormer at Columbia University and graduated in 2008. He then undertook postdoctoral research in the lab of Prof. Jim Eisenstein at Caltech until 2013. His research interests lie in exploring the electronic, optical and thermodynamic properties of atomically-thin materials and novel combinations thereof, although lately he has joined the ADMX collaboration at University of Washington and so moonlights as a particle experimentalist.