

Physics Colloquium

Michigan Technological University

Thursday, March 29, 2012
at 4:00 pm in Room 139 Fisher

Conduction Amongst Mesoscopic Particles Douglas Banyai

Advisor: Dr. John Jaszczak

Abstract: Simulating the conduction of charge through a disordered network of small particles requires characterizing the junctions between each particle. For large smooth particles we can approximate the geometry of the junction with one that allows an analytic solution for the tunneling current. For particles smaller than ~ 1 nm, we can use first principles approaches such as density functional theory (DFT). In this work we use the above mentioned methods to gain insight into the behavior of junctions too large for DFT and too small to approximate with bulk properties.