

University of Notre Dame  
College of Science  
Department of Physics

## **ASTROPHYSICS SEMINAR**

### **The Secret Lives of Galaxy Clusters**

**Professor Brian O'Shea**  
*Michigan State University*

**Tuesday, November 2, 2010 12:30 p.m. NSH 184**

Galaxy clusters have the potential to be highly accurate probes of cosmological parameters. To do this, however, one has to be able to know the evolution of the galaxy cluster mass function to a high degree of precision. This is complicated by the fact that cluster mass is rarely measured directly – rather, observables such as X-ray temperature or luminosity, or Sunyaev-Zel'dovich temperature perturbation, are measured and then converted into masses. I will discuss recent efforts to understand the effects that correctly modeling gas in cosmological simulations has on these mass estimates, which will be useful in upcoming blind galaxy clusters surveys in the radio and x-ray. I will also discuss the properties of non-thermal components of the intracluster medium, including cosmic rays and magnetic fields.