

**Carnegie Mellon University  
Department of Physics**

**McWilliams Center for Cosmology**

# **Colloquium**

**Dr. Michael Kuhlen**

**Institute for Advanced Study, Princeton**

**Tuesday, November 18, 2008**

**3:30 pm**

**DH A301D**

## **“Galactic Cold Dark Matter Substructure Prospects for Indirect Detection”**

### **Abstract:**

**It is a clear and unique prediction of the cold dark matter paradigm of cosmological structure formation that galaxies form hierarchically and are embedded in massive, extended dark halos teeming with self-bound substructure or “subhalos”. The amount and spatial distribution of subhalos around their host provide unique information and clues on the galaxy assembly process and the nature of the dark matter. I will present results from “Via Lactea II”, the most recent in a series of high resolution numerical simulations of Galactic CDM substructure. In particular, I will focus on the possibility of observing its annihilation signal, either in the form of gamma-rays detectable with the Fermi Gamma-ray space Telescope or as electron-positron pairs, which the PAMELA satellite may have already detected.**