**PHYSICS AND ASTRONOMY**
**SEMINAR**

# Dr. Alyson Brooks

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# "Solving CDM's Small Scale Crisis with Baryons"

Abstract

The cosmological model based on cold dark matter (CDM) and dark energy has been hugely successful in describing the observed evolution and large scale structure of our Universe. However, at small scales (in the smallest galaxies and at the centers of larger galaxies), a number of observations seem to conflict with the predictions CDM cosmology, leading to recent exploration of Warm Dark Matter (WDM) and Self-Interacting Dark Matter (SIDM) models. These small scales, though, are also regions dominated by baryons. The more complex physics of baryons make them more difficult to model. I will show results from high resolution cosmological galaxy simulations that include both baryons and dark matter to show that baryonic physics can significantly alter the dark matter structure and substructure of galaxies, revolutionizing our expectations for galaxy structure within CDM.

Monday, January 27, 2014
12:00 p.m.
Engineering/Computer Science Building
Room 130