Carnegie Mellon University
Department of Physics

McWilliams Center for Cosmology

Colloquium

Dr. Brice Ménard
Canadian Institute for Theoretical Astrophysics

Tuesday, December 8, 2009
4:30 pm
7316 Wean Hall

"Cosmic Dust and Dark Energy"

Abstract:

Dust is a ubiquitous feature of the cosmos, playing a role on a wide range of scales: dust grains are the building blocks of planet formation, they affect the thermodynamics of giant gas clouds and shape the spectra of galaxies by attenuating radiation at short wavelengths and re-emitting the energy in the infrared.

In this talk, I will focus on the distribution of dust on cosmological scales. I will first present the recent detection of intergalactic dust obtained with the Sloan Digital Sky Survey. This detection is based on correlating the brightness of distant quasars with the density of millions of foreground galaxies. It allows us to quantify the amount of dust in galactic halos and the wavelength dependence of its extinction. I will then estimate the opacity of the universe induced by this cosmic dust and address its impact on the estimation of cosmological parameters, in particular, dark energy, using distant supernovae.