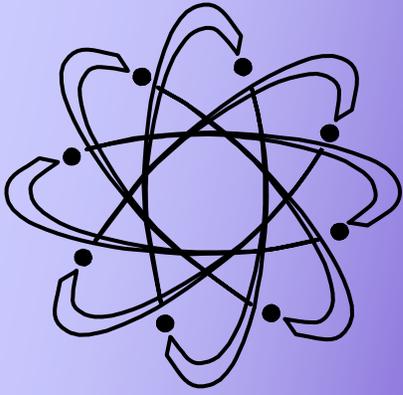


The Department of
Physics



Carnegie Mellon

McWilliams Center for Cosmology Colloquium

**Dr. Nikhil Padmanabhan
Lawrence Berkeley National
Laboratory**

**“A Cosmic Yardstick:
Measuring Dark Energy with
Baryon Oscillations”**

Friday, November 7, 2008

2:30pm

DHA 301D

Abstract:

Measuring the evolution of dark energy and the acceleration of the Universe is probably the foremost challenge of modern cosmology. The baryon oscillation method is a relatively new entrant of future dark energy programs, driven by the promise of small systematic errors. I will discuss the theoretical underpinnings of this method, including recent work on quantifying its systematic errors—emphasizing the relatively simple physics underlying it. I will then turn to observations—discussing current and future programs to measure baryon oscillations and dark energy, focusing on the Baryon Oscillation Spectroscopic Survey (BOSS), part of the third iteration of the Sloan Digital Sky Survey. Finally, I will put Baryon oscillation surveys into the context of future large surveys, and discuss some of the broader scientific interest behind them.