PHYSICS AND ASTRONOMY

COLLOQUIUM

Dr. Surjeet Rajendran

University of California, Berkeley

"New Directions in Searching for the Dark Universe"

Abstract

Observational bounds currently permit the existence of a large number of dark matter candidates, ranging from ultra-light axions with masses ~ 10^(-22) eV to MACHOs with mass as large as 10^(24) gm. It is important to develop experimental methods to constrain this vast range of parameters. In this talk, I will describe new experimental methods to probe a wide variety of dark matter candidates, ranging from ultra-light axions with masses ~ 10^(-22) eV to light WIMPs with mass in the keV - GeV range. A variety of precision measurement technologies such as optical/atomic interferometry and SQUID magnetometry can be applied to search for these particles. I will also discuss methods to search for the direction of the nuclear recoil induced by conventional WIMP scattering in detectors with solid state densities. These directional detectors may enable probes of conventional WIMP dark matter beyond the solar neutrino floor.

Wednesday, November 30, 2016
3:00 p.m.
Elliott Building
Room 167