HAO Colloquium Series

(Refreshments served)

Speaker: **Troy Carter—UCLA**

Time: **1:30 pm**

Date: **Wednesday, January 26, 2011**

Location: **CG-1, South Auditorium**

Title: **Laboratory studies of waves, instabilities, transport and reconnection using the Basic Plasma Science Facility at UCLA**

Abstract: I will give an overview of research carried out using the Basic Plasma Science Facility at UCLA. The core of the facility is the Large Plasma Device (LAPD) a 17m long, 0.6m diameter magnetized plasma column. The facility has been used for studies of a wide range of fundamental plasma processes, many of which are relevant to space and heliospheric plasmas. The properties of shear Alfven waves have been a central focus of research on the device, elucidating dispersion and damping for inertial and kinetic Alfven waves, propagation in nonuniform plasmas, effects of multiple ion species and wave-wave interactions relevant to MHD turbulence. Turbulence and turbulent cross-field transport of heat and particles have also been explored in detail, studying the role of drift-Alfven waves, the Kelvin-Helmholtz instability and wave-wave interactions between Alfven waves and gradient-driven instabilities. Studies of the interaction between magnetic flux ropes and magnetic reconnection in 3D geometry have been a recent focus, providing a laboratory demonstration of the usefulness of the quasi-separatrix layer (QSL) concept in reconnecting systems.