

SAN DIEGO STATE UNIVERSITY DEPARTMENT OF PHYSICS AND DEPARTMENT OF
ASTRONOMY COLLOQUIUM

Speaker: Prof. Gregg Hallinan (California Institute of Technology)

Topic: All the Sky, All the Time: The Owens Valley LWA

Time: 3:00 PM, Friday, April 29, 2016 (refreshments served at 2:45 PM)

Place: Room 215, Physics-Astronomy Building (PA-215)

Abstract:

The Owens Valley Long Wavelength Array (OVRO-LWA) is a new array at Caltech's Owens Valley Radio Observatory built to target key science in the sub-100 MHz radio sky. When complete, it will consist of 352 antennas spaced over a 2.6 km diameter. To date, 288 antennas have been completed, spanning 1.6 km, and the array has entered early science operations. Full cross-correlation of each antenna enables instantaneous imaging of the entire viewable sky every few seconds with a spatial resolution of ~ 5 arcminutes, delivering a survey speed 50 times greater than any other array operational in this band. The primary science goals for the project are i) searching for low frequency radio transients, particularly radio bursts caused by coronal mass ejections on nearby stars and the associated auroral radio emission from extrasolar planets ii) probing the Cosmic Dawn era by measuring the HI signature at $z \sim 20$ iii) dynamic imaging spectroscopy of the Sun and iv) continuous monitoring of the ionosphere. I will discuss the science motivation and technical challenges for the Owens Valley LWA and present results from our first observations.