



## Physics & Astronomy Colloquium

Spring 2011

# "Sound Waves at the Edge of the Observable Universe"

*The Universe used to be filled with a hot plasma that then cooled to become a neutral gas of Hydrogen and Helium when the Universe was about 380,000 years old. Today we can see light that last interacted with matter at the time of that transition. This light is brightest at millimeter wavelengths and is called the cosmic microwave background (CMB). From analysis of maps of the CMB, we clearly see the signature of phase-coherent standing sound waves in the hot plasma. In this talk I will describe the beautifully simple physics that goes into the predictions of the observable consequences of these sound waves, and explain how we are using observations of the CMB to determine the key parameters of our standard cosmological model, and to test the model as well.*

## **Lloyd Knox**

**Department of Physics  
University of California, Davis**

**Thursday, March 10, 2011**

**\*4:20 -5:45 PM - MND 1015**

**\* Note - later time than previous semesters**

**Open & Free to all Students, Faculty & Public**