



# PHYSICS AND ASTRONOMY SEMINAR

## **Dr. Thomas de Boer**

Institute of Astronomy, University of Cambridge

### **“The Star Formation History of Classical Dwarf Spheroidal Galaxies”**

#### Abstract

In this talk, I will present the detailed Star Formation History of three nearby classical dwarf spheroidal galaxies, from wide-field photometry of resolved stars, going down to the oldest Main Sequence Turn-Off. The detailed Star Formation History quantifies the star formation rate at different ages and metallicities and at different positions in the galaxy. We show that all classical dwarf spheroidals display a population gradient as a function of radius, in metallicity as well as age. The obtained SFH is further used to determine accurate age estimates for individual RGB stars with spectroscopic abundances, obtaining the accurate age-metallicity relation of each galaxy, as well as the temporal evolution of alpha-element abundances. This allows us to determine, for the first time, an accurate age of the "knee" in the alpha-element distribution. Finally, we compare the timescale of chemical evolution in classical dwarf spheroidal galaxies, and determine whether the chemical abundance patterns seen in galaxies with recent episodes of star formation are a direct continuation of those with only old populations.

Wednesday, August 13, 2014  
11:00 a.m.  
Clearihue Building  
Room A202