PROJECT TITLE: Cosmology with the Cosmic Microwave Background

Colin Bischoff  
College of Arts and Sciences  
421 Geology / Physics  
bischocn@ucmail.uc.edu  
513-556-0515

Project Description

The Cosmic Microwave Background (CMB) is the oldest light in the universe, providing a snapshot of conditions less than 400,000 years after the Big Bang. The Cincinnati CMB group is involved with the BICEP series of telescopes, which currently observe from the South Pole, and with the next-generation CMB-S4 project. The scientific focus of the BICEP telescopes, and one of the major goals of CMB-S4, is to measure the signature of primordial gravitational waves via the polarization pattern of the CMB.

The WISE student will pursue one of several possible data analysis projects. Topics include instrumental calibration for BICEP3 or BICEP Array, simulations of CMB-S4, or statistical analyses that use data from a variety of sources to constrain cosmology. This project will develop computing and data analysis skills. Prior programming experience is helpful, but not required.