

Event: Colloquium

Location: Villanova University

Dates: February 26, 2016

Title: The Cosmic Microwave Background: Detection and Interpretation of the First Light

Presenter: Edward J. Wollack

Abstract:

A host of astrophysical observations suggest the early Universe was incredibly hot, dense, and homogeneous. A powerful and useful probe of this epoch is provided by the relic radiation, which we refer to today as the Cosmic Microwave Background (CMB). Precision maps of this light contain the earliest glimpse of the Universe after the “Big Bang” and signatures of the evolution of its contents. By exploiting these clues, constraints on the age, mass density, detailed composition, and geometry of the Universe can be made. A brief survey of the evolution of the radiometric and polarimetric imaging systems used in advancing our understanding of the early Universe will be reviewed. A survey of detector technologies, instrumentation techniques, and experimental challenges encountered in these efforts will be presented.