

Abstract Submitted
for the APR15 Meeting of
The American Physical Society

CMB Polarization Detector Operating Parameter Optimization¹

KIRSTEN RANDLE, University of Massachusetts Amherst Department of Physics, DAVID CHUSS, Villanova University Department of Astrophysics and Astronomy, KARWAN ROSTEM, Johns Hopkins University Department of Physics and Astronomy, ED WOLLACK, NASA Goddard Space Flight Center Astrophysics Science Division — Examining the polarization of the Cosmic Microwave Background (CMB) provides the only known way to probe the physics of inflation in the early universe. Gravitational waves produced during inflation are posited to produce a telltale pattern of polarization on the CMB and if measured would provide both tangible evidence for inflation along with a measurement of inflation's energy scale. Leading the effort to detect and measure this phenomenon, Goddard Space Flight Center has been developing high-efficiency detectors. In order to optimize signal-to-noise ratios, sources like the atmosphere and the instrumentation must be considered. In this work we examine operating parameters of these detectors such as optical power loading and photon noise.

¹SPS Summer Internship at NASA Goddard Spaceflight Center

Kirsten Randle
University of Massachusetts Amherst Department of Physics

Date submitted: 09 Jan 2015

Electronic form version 1.4