Abstract Submitted
for the APR14 Meeting of
The American Physical Society

The E and B EXperiment: EBEX KYLE HELSON, Brown University, THE EBEX COLLABORATION — We report on the status of the E and B Experiment (EBEX) a balloon-borne polarimeter designed to measure the polarization of the cosmic microwave background radiation. The instrument employs a 1.5 meter Gregorian Mizuguchi-Dragone telescope providing 8 arc-minute resolution at three bands centered on 150, 250, and 410 GHz. A continuously rotating achromatic half wave plate, mounted on a superconducting magnetic bearing, and a polarizing grid give EBEX polarimetric capabilities. Radiation is detected with a kilo-pixel array of transition edge sensor (TES) bolometers that are cooled to 0.25 K. The detectors are readout using SQUID current amplifiers and a digital frequency-domain multiplexing system in which 16 detectors are readout simultaneously with two wires. EBEX is the first instrument to implement TESs and such readout system on board a balloon-borne platform. EBEX was launched from the Antarctic in December 2012 on an 11-day long-duration balloon flight. This presentation will provide an overview of the instrument and discuss the flight and status of the data analysis.

Kyle Helson
Brown University

Date submitted: 10 Jan 2014 Electronic form version 1.4