Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Design, fabrication, and testing of the CUORE detector calibration system ADAM DALLY, University of Wisconsin — CUORE, the Cryogenic Underground Observatory for Rare Events, is a neutrinoless double beta decay experiment with an active mass of 206 kg of ^{130}Te. The detector consists of 988 TeO_2 bolometers operating at 10 mK. The signature of $0\nu\beta\beta$ decay is an excess of events at the Q-value of 2528 keV. Understanding the energy response is critical for event identification, but this presents many challenges. The detector requires ultra-low background radiation, vacuum compatible materials, and cryogenic temperatures. Individual energy calibration of the bolometers is achieved by placing radioactive sources between detectors inside the cryostat. A source deployment and thermalization system that meets the background and thermal requirements of the CUORE experiment has been developed. This talk will discuss the design, fabrication, and testing of the CUORE detector calibration system.

Adam Dally
University of Wisconsin

Date submitted: 15 Jan 2013 Electronic form version 1.4