Abstract Submitted
for the DNP16 Meeting of
The American Physical Society

Optimizing the CUORE data processing in search for $0\nu\beta\beta$ decay BENJAMIN SCHMIDT, Lawrence Berkeley National Laboratory, CUORE COLLABORATION — The search for neutrino-less double beta decay ($0\nu\beta\beta$) may allow us to understand the Dirac or Majorana nature of the neutrino, constrain its mass and provide insight into the origin of the matter-antimatter asymmetry in the Universe. The Cryogenic Underground Observatory for Rare Events (CUORE) is a $0\nu\beta\beta$ decay search experiment currently being installed deep underground at the Laboratori Nazionali del Gran Sasso (LNGS). It is going to house an array of 988 TeO_2 crystals with a total mass of 741 kg. It is designed to reach a sensitivity on the neutrino-less double beta decay half life of ^{130}Te of $T_{1/2} = 9.5 \times 10^{25}$ (90%C.L.) after 5 years of data taking. A data analysis pipeline has been prepared and successfully used for the recently concluded prototype experiment CUORE-0. In this talk we will focus on the challenge of further automatizing and extending the processing from a single tower of 52 bolometers to the analysis of the data from 988 individual detectors. We will give an update on this work and a first evaluation of several improvements.

Benjamin Schmidt
Lawrence Berkeley National Laboratory

Date submitted: 01 Jul 2016 Electronic form version 1.4