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Background mitigation techniques and projections for the CUORE experiment

Thursday, May 25, 2017 5:30 PM (20 minutes)

The Cryogenic Underground Observatory for Rare Events (CUORE) will search for the neutrinoless double-beta ($0\nu\beta\beta$) decay of ^{130}Te using a 19 tower array of 988 high-resolution TeO_2 bolometers.
The goal of CUORE is to reach a 2×10^{26} year 1-sigma sensitivity on the ^{130}Te $0\nu\beta\beta$ decay half-life, which CUORE can achieve if the background index is the order of 10^{-2} counts·keV^{-1}·kg^{-1}·y^{-1} or less.
We will discuss the status of the CUORE experiment, in particular, the background mitigation techniques employed by CUORE. We will also present the results from CUORE-0, a single-tower array of 52 bolometers that ran from 2013 to 2015 at LNGS and was used to validate these background mitigation techniques.

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