

Performance of the CUORE detector: the first bolometric experiment at the ton scale for rare decay searches

The Cryogenic Underground Observatory for Rare Events (CUORE) is the largest bolometric experiment searching for neutrino-less double beta decay. The detector consists of an array of 988 TeO₂ crystals arranged in a cylindrical compact structure of 19 towers. The construction of the experiment and, in particular, the installation of the towers in the cryostat was completed in August 2016 and data taking started in spring 2017. In this Poster we will present the performance of the detector during the first year of run, the front-end electronics, the data acquisition system and the data processing chain. Emphasis is given on energy resolution in the region of interest for the 0νββ decay of ¹³⁰Te, background rejection capability and live-time. We describe the improvements achieved in 2018 and the expected performance for the next physics runs.

Authorship annotation

Submitted by F. Terranova (CUORE Speakers Board) on behalf of the CUORE Collaboration

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