

Initial performance of the CUORE detector

CUORE (Cryogenic Underground Observatory for Rare Events) is an array of 988 TeO₂ bolometers arranged in 19 towers with a total active mass of 742 kg located at the Laboratori Nazionali del Gran Sasso (LNGS) in Italy. The primary purpose of CUORE is to search for the neutrinoless double beta decay of ¹³⁰Te, which if observed, would establish the Majorana nature of neutrinos as well as providing information on the absolute mass scale of the neutrino. The CUORE detector reached a base temperature below 10 mK in early 2017 and recently completed commissioning and began physics data-taking. We will discuss the status of the CUORE experiment, review the commissioning phase, and present the initial performance parameters of the CUORE detector. In particular, we will present results on energy resolution, noise mitigation and stability of response for the bolometers. The performance of front-end electronics and DAQ during the first full detector run will also be discussed.

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