

CUORE and beyond: bolometry techniques to explore inverted neutrino mass hierarchy

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The CUORE (Cryogenic Underground Observatory for Rare Events) experiment will search for neutrino-less double beta decay (NDBD) of Te-130. With 741 kg of TeO₂ crystals and an excellent energy resolution of 5 keV (0.2%) at the region of interest, CUORE will be one of the most competitive neutrino-less double beta decay experiments on the horizon. CUORE is expected to start physics run in 2014 and currently detector assembly and cryostat commissioning have been on-going at LNGS. In this talk, I will give a status update on CUORE experiment, new CUORE sensitivity limits based on the latest alpha background characterization. Also efforts to improve CUORE sensitivity and competitiveness of bolometric detectors towards a multi-ton-scale array to fully explore the inverted neutrino mass hierarchy with Te-130 and possibly other NDBD candidate nuclei is described.

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