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CUORE: a Neutrinoless Double Beta Decay experiment

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The Cryogenic Underground Observatory for Rare Events (CUORE) is an experiment to search for neutrinoless double beta decay (0νDBD) in Te-130 and other rare processes. The observation of 0νDBD would indicate that neutrinos are Majorana particles and would provide information about the absolute neutrino mass scale. CUORE is a bolometric detector composed of 988 TeO2 crystals, with the total mass of about 750 kg of natural Tellurium that will be operated in the hall A of the Gran Sasso underground Laboratory to shield cosmic rays. The status of the CUORE experiment will be discussed including recent R&D efforts, anticipated sensitivity, and background evaluations. The installation of CUORE-0 detector, the first tower of CUORE, is ongoing. Preliminary results will be discussed considering all the possible aspects that are crucial to reach the goal of the CUORE experiment.

for the collaboration

CUORE

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