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Abstract = Authors:Claudia Nones on behalf of the CUORE collaboration

Title: From Cuoricino to CUORE, the bolometric way to the inverted hierarchy region of the neutrino mass

Abstract (less than 10 lines):

Cuoricino, a Double Beta Decay (DBD) experiment located at the Gran Sasso National Laboratory (Italy), has searched for the $0\nu\text{DBD}$ of ^{130}Te using the bolometric technique with a detector array of 62 TeO_2 crystal bolometers operating at a temperature of about 10 mK. No peak appears at the Q-value of the decay and with a Maximum Likelihood procedure an upper limit of 2.94×10^{-24} y (90%C.L.) is set for the $0\nu\text{DBD}$ of ^{130}Te .

Cuoricino can be considered a prototype for a next generation experiment named CUORE that will be a tightly packed array of 988 TeO_2 bolometers placed in a special dilution refrigerator. The expected performance and sensitivity indicate that CUORE can reach a sensitivity lower than 0.05 eV for the effective neutrino mass, having a great discovery potential in the inverted hierarchy region. Before the construction of the full CUORE detector, the first CUORE tower, named CUORE-0, is planned to be installed in the cryostat that housed Cuoricino with the goal of test the surface cleaning and the detector assembly procedures developed for CUORE and to also improve the limit on $0\nu\text{DBD}$ of ^{130}Te set by Cuoricino.