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Neutrinoless double beta decay results from CUORE-0 and status of the CUORE experiment

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CUORE (Cryogenic Underground Observatory for Rare Events) is a ton-scale experiment aimed at searching for neutrinoless double beta decay in ^{130}Te with tellurium oxide bolometers, with a projected sensitivity close to the inverted mass hierarchy region. The CUORE detector design and background budget have been validated by CUORE-0: an array of 52 TeO_2 bolometers built using the same protocols developed for CUORE and running at the Gran Sasso Laboratories since spring 2013. In this talk we will present the latest results on neutrinoless double beta decay from CUORE-0, and show that its performance in terms of background and energy resolution fully supports the expectations for the CUORE sensitivity. In addition, we will summarize the status of CUORE that is now in its final construction stage: all towers have been assembled and are ready for installation in the cryostat, which reached a record temperature of 6 mK on a 1 m^3 volume scale in fall 2014.

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