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Results of CUORE-0 and Prospects of the CUORE Experiment (15' + 5')

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CUORE-0 is a cryogenic detector that uses an array of tellurium dioxide bolometers to search for neutrinoless double-beta decay of Te-130. The detector consists of 52 TeO2 crystal bolometers held in a ultra-pure copper frame and it was assembled using the new low-background techniques developed for CUORE. Using bolometers operated at ~ 10 mK provides excellent energy resolution (< 0.2% FWHM) at the neutrinoless double-beta decay Q-value. CUORE-0 is located at the Laboratori Nazionali del Gran Sasso in Italy and has been taking data since March 2013. We will present the experiment and its neutrinoless double-beta decay search results with a 9.8 kg·yr exposure of Te-130. We will also discuss the prospects of CUORE, which has a Te-130 mass 19 times greater than that of CUORE-0. CUORE is in the final stages of the construction and scheduled to begin data-taking in 2016.

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