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Status of the Cuore experiment at Gran Sasso

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Cuore (Cryogenic Underground Observatory for Rare Events) is a second generation neutrino-less double beta decay experiment whose sensitivity is expected to be in the range of 41-95 meV for the electron neutrino effective mass. In Cuore the decay of $9.6 \cdot 10^{26}$ Te-130 nuclei (206 kg) is observed by means of 988 TeO₂ crystals acting as bolometers at very low temperature (~ 10 mK).

The experiment is located at the Laboratori Nazionali del Gran Sasso in Italy and is now approaching the final stage of construction. Most of the crystals have been produced, and the final test of the Cuore assembly line (so called Cuore-0 test) is expected to be up and running by June 2012. If successful, the construction of the full

Cuore detector will begin in summer 2012 and is expected to finish by 2014.

The talk will summarize the physics reach of the experiment, the status of the construction, and the expected sensitivity.

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