



## Neutrinoless double beta decay with CUORE-0: physics results and detector performance

**Main author:**

CANONICA Lucia, INFN Gran Sasso National Laboratory

The CUORE-0 experiment searches for neutrinoless double beta decay in  $^{130}\text{Te}$ . It consists in an array of 52 tellurium dioxide crystals, operated as bolometers at a temperature of 10mK, with a total mass of about 39 kg of  $\text{TeO}_2$ . CUORE-0 has been built to test the performance of the upcoming CUORE experiment and represents the largest  $^{130}\text{Te}$  bolometric setup currently in operation. This experiment has been running in the Gran Sasso National Laboratory (Italy) since March 2013.

The talk will report the results of a search for neutrinoless double beta decay in 9.8 kg-years  $^{130}\text{Te}$  exposure, which represents the most stringent limit to date on this half-life. The performance of the detector in terms of background rate and energy resolution will be also presented.