



Contribution ID: 8

Type: **Parallel Contributed Talk**

## Latest results from the CUORE experiment

*Tuesday, 23 February 2021 10:00 (20 minutes)*

The Cryogenic Underground Observatory for Rare Events (CUORE) is the first bolometric experiment searching for neutrinoless double-beta ( $0\nu\beta\beta$ ) decay that has been able to reach the one-ton scale. The detector, located at the Laboratori Nazionali del Gran Sasso in Italy, consists of an array of 988 TeO<sub>2</sub> crystals arranged in a compact cylindrical structure of 19 towers. Following the completion of the detector construction in August 2016, CUORE began its first physics data run in 2017 at a base temperature of about 10 mK. Following multiple optimization campaigns in 2018, CUORE is currently in stable operating mode. In 2019, CUORE released its 2nd result of the search for  $0\nu\beta\beta$  corresponding to a TeO<sub>2</sub> exposure of 372.5 kg-yr and a median exclusion sensitivity to a <sup>130</sup>Te  $0\nu\beta\beta$  decay half-life of  $1.7 \times 10^{25}$  yr. We find no evidence for  $0\nu\beta\beta$  decay and set a 90% C.L. Bayesian lower limit of  $3.2 \times 10^{25}$  yr on the <sup>130</sup>Te  $0\nu\beta\beta$  decay half-life. In this talk, we present the current status of CUORE's search for  $0\nu\beta\beta$ , as well as review the detector performance. We finally give an update of the CUORE background model and the measurement of the <sup>130</sup>Te two neutrino double-beta ( $2\nu\beta\beta$ ) decay half-life.

### Collaboration name

CUORE

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**Session Classification:** Double Beta decays and Neutrino Masses

**Track Classification:** Neutrino Masses and Mixings