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Latest results from the CUORE experiment

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Latest results from the CUORE experiment

CUORE collaboration

The Cryogenic Underground Observatory for Rare Events (CUORE) is the first bolometric experiment searching for 0νββ decay that has successfully reached the one-tonne mass scale. The detector, located at the LNGS in Italy, consists of an array of 988 TeO_2 crystals arranged in a compact cylindrical structure of 19 towers. CUORE has been collecting data continuously at ~10 mK since 2017, achieving a 90% uptime and amassing over 2.5 tonne-years of TeO_2 exposure. In March 2024 the collaboration released the most recent result of the search for 0νββ, corresponding to two tonne-year TeO_2 exposure. This is the largest amount of data ever acquired with a solid state cryogenic detector, which allows for further improvement in the CUORE sensitivity. In this talk, we will present the current status of the CUORE search for 0νββ with the updated statistics of two tonne yr exposure. This statistics also allows for one of the most detailed background reconstructions in the field and enables a precision measurement of the ^{130}Te 2νββ decay half-life.

Neutrino Properties

Results in neutrinoless double beta decay

Neutrino Telescopes & Multi-messenger

Neutrino Theory & Cosmology

Data Science and Detector R&D

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