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Latest results from the CUORE experiment

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The Cryogenic Underground Observatory for Rare Events (CUORE) is the first bolometric experiment searching for $0\nu\beta\beta$ decay that has successfully reached the one-tonne mass scale. The detector, located at the Laboratori Nazionali del Gran Sasso (LNGS) in Italy, consists of an array of 988 TeO_2 crystals arranged in a compact cylindrical structure of 19 towers. CUORE began its first physics data run in 2017 at a base temperature of about 10 mK and has been collecting data continuously since 2019, reaching a TeO_2 exposure of 2 tonne-year in spring 2023. This is the largest amount of data ever acquired with a solid state cryogenic detector, which allows for further improvement in the CUORE sensitivity to $0\nu\beta\beta$ decay in ^{130}Te. In this talk, we will present the new CUORE data release, based on the full available statistics and on new, significant enhancements of the data processing chain and high-level analysis.

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