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Recent progress on BSM and dark matter searches in CUORE

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The Cryogenic Underground Observatory for Rare Events (CUORE) is the first bolometric $0\nu\beta\beta$ experiment to reach the one-tonne mass scale. The detector, located underground at the Laboratori Nazionali del Gran Sasso in Italy, consists of 988 TeO_2 crystals arranged in a compact cylindrical structure of 19 towers, operating at a base temperature of about 10 mK. After beginning its first physics data run in 2017, CUORE has since collected the largest amount of data ever acquired with a solid state detector and provided the most sensitive measurement of $0\nu\beta\beta$ decay in ^{130}Te ever conducted.

The large exposure, sharp energy resolution, segmented structure and radio-pure environment make CUORE an ideal instrument for a wide array of searches for rare events and symmetry violations. New searches for low mass dark matter, solar axions, CPT and Lorenz violations, and refined measurements of the $2\nu\beta\beta$ spectrum in CUORE have the potential to provide new insight and constraints on extensions to the standard model complementary to other particle physics searches. In this talk, we discuss recent progress on BSM and dark matter searches in CUORE.

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