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Identification of Dark Matter with the CRESST-III Experiment

Thursday 5 July 2018 13:00 (30 minutes)

The identification of dark matter is one of the major open questions in physics, astrophysics, and cosmology. One approach consists of detecting the nuclear recoils produced by the collisions between the putative dark matter particles and a detector's target nuclei. The CRESST-III experiment (Cryogenic Rare Event Search with Superconducting Thermometers), located at the underground facility of the LNGS (Laboratori Nazionali del Gran Sasso in Italy), uses detectors designed to probe low-mass dark matter with a sensitivity never achieved before. CaWO_4 crystals are used as detector medium and operated as cryogenic detectors at temperatures around 10mK. Sensitivity for nuclear recoils below 100eV was achieved, allowing for the exploration of new parameter space in the exclusion limit landscape. The working principle of CRESST-III and the most recent results will be presented.

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