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Search for Low Mass Dark Matter with CRESST-III

Friday, 23 June 2017 12:30 (20 minutes)

CRESST (Cryogenic Rare Event Search with Superconducting Thermometers) is a direct dark matter (DM) search experiment located in the Gran Sasso underground laboratory (LNGS, Italy). The third stage of CRESST (CRESST-III) which successfully started in summer of 2016 and is currently taking data, aims at a significant improvement of the sensitivity in the low mass (< 10 GeV/c2) parameter space for spin-independent DM-nucleus scattering.

The experiment uses scintillating CaWO4 crystals operated as cryogenic detectors at a temperature of ~10mK as target material for DM-nucleus scattering. By the simultaneous measurement of the heat signal from the CaWO4 target crystal and the emitted scintillation light in a separate cryogenic light detector, radioactive backgrounds can be discriminated from a potential dark matter signal. Extensive R&D activities have been carried out to achieve a nuclear recoil energy threshold of < 100eV, a fully scintillating detector housing, and an improved radiopurity of the CaWO4 target crystals.

In this talk the current status and future perspectives of the CRESST-III experiment will be presented.

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