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Dark matter searches with CRESST and COSINUS

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Cryogenic Rare Event Search with Superconducting Thermometers (CRESST) is a direct detection dark matter (DM) search experiment located at Laboratori Nazionali del Gran Sasso (LNGS) in Italy. The experiment employs cryogenic and scintillating crystals to search for nuclear recoils from DM particles, and has achieved thresholds below 100 eV for a wide range of target materials including CaWO4, LiAlO2, Al2O3, and Si. The sensitivity to measure small energy depositions makes CRESST one of the leading experiments in sub-GeV dark
matter search. A major challenge for all low-mass dark matter searches is the presence of an unknown event population at very low energies, called the low energy excesses (LEE). The scientific effort at CRESST in the latest run has been primarily towards an understanding of the origin of this excess. We report dark matter search results as well as updates on the understanding of LEE from CRESST-III.
While numerous experiments are constraining DM parameter space, DAMA/LIBRA has been detecting annual modulation signal compatible with DM in our galaxy for about 25 years. Cryogenic Observatory for SIg-
natures seen in Next-generation Underground Searches (COSINUS) is a direct-detection DM search experiment
that aims to provide a model-independent cross-check for the signal observed by DAMA/LIBRA. COSINUS uses NaI as the target material (same as DAMA) and the temperature sensor technology developed within the CRESST collaboration. While the use of the same target material provides a test devoid of any material-dependant effect, the sensor technology of CRESST gives an additional ability to event-by-event discriminate β/γ events from nuclear recoils. We present the status and plans of the COSINUS experiment.

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