

# Direct search for light dark matter with the CRESST-III experiment

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The CRESST-III (Cryogenic Rare Event Search with Superconducting Thermometers) experiment, located in the Gran Sasso underground laboratory (LNGS, Italy), aims at the direct detection of dark matter (DM) particles.

Scintillating  $\text{CaWO}_4$  crystals operated as cryogenic detectors at mK temperatures are used as target material for elastic DM-nucleus scattering. The simultaneous measurement of the phonon signal from the  $\text{CaWO}_4$  crystal and the emitted scintillation light in a separate cryogenic light detector provides particle discrimination on an event-by-event basis. This technology is particularly sensitive to small energy deposits induced by light dark matter particles, allowing the experiment to probe the low-mass region of the parameter space for spin-independent DM-nucleus scattering with high sensitivity.

In early 2018 CRESST-III completed an initial data taking campaign reaching nuclear recoil thresholds of well below 100 eV. This unprecedented low threshold provides a significant boost in sensitivity beyond CRESST-II which achieved a threshold of 0.3 keV allowing for the first time to probe dark matter masses as low as 500  $\text{MeV}/c^2$ . New results of CRESST-III will be presented accompanied by a brief status update on the ongoing CRESST-III measurement campaign started in May 2018.

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