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Direct dark matter search with the CRESST-III experiment

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The CRESST experiment, located at Laboratori Nazionali del Gran Sasso in Italy, searches for dark matter particles via their elastic scattering off nuclei in a target material.
The CRESST target consists of scintillating $CaWO_4$ crystals, which are operated as cryogenic calorimeters at millikelvin temperatures. Each interaction in the $CaWO_4$ target crystal produces a phonon signal and a light signal that is measured by a second cryogenic calorimeter.
With the CRESST-II result in 2015, the experiment is leading the field of direct dark matter search for dark matter masses below 1.7GeV/c^2 , extending for the first time the reach of a direct search to the sub-GeV/c^2 mass region.
For CRESST-III, whose Phase 1 started data taking in August 2016, detectors have been optimized to reach the performance required to further probe the low-mass region with unprecedented sensitivity.
In this contribution the achievements of the CRESST-III detectors will be thoroughly discussed together with preliminary results and perspectives of Phase 1.

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