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Search for Low-Mass Dark Matter with the CRESST Experiment

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The CRESST (Cryogenic Rare Event Search with Superconducting Thermometers) experiment aims at the direct detection of dark matter particles. The recent dark matter run was operated for 2 years with a total target mass of 5kg. With respect to previous measuring campaigns the intrinsic radiopurity of $CaWO_4$ crystals and the capability to reject recoil events from alpha surface contamination have been significantly improved. We analyzed the data acquired by two $CaWO_4$ detectors which combine an unprecedented background level with a trigger threshold as low as 300eV. In this talk, we present a new detector design and a low-threshold analysis which set stringent limits for the spin-independent dark matter particle-nucleon cross section. These results show the high potential of CRESST for the exploration of low-mass dark matter. The status of the currently ongoing preparations towards the next phase of the experiment (CRESST-III) and the strategy beyond will be discussed.

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