

Improving background levels of CaWO_4 detectors for the CRESST dark matter search

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The CRESST (Cryogenic Rare Event Search with Superconducting Thermometers) experiment, its third phase has successfully started in summer 2016, aims at the direct detection of dark matter particles. CRESST uses CaWO_4 crystals operated as cryogenic detectors at a temperature of $\sim 10\text{mK}$. During recent years, the intrinsic radiopurity of CaWO_4 crystals, the capability to reject recoil events from alpha-surface contamination and the energy threshold were improved significantly. In the talk I will discuss the various techniques to reduce external and crystal-intrinsic background levels, including purification methods of raw materials for CaWO_4 crystal growth. I will conclude that these improvements strongly increase the sensitivity of CRESST detectors, in particular, for light-mass dark matter particles.

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