



Exploring low mass WIMPs with CRESST

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CRESST-II is a cryogenic direct dark matter search, based on the phonon-light technique with TES based read-out. The main background in phase 1 (2009 - 2012) originated from alpha-decays on the surface of or implanted in non-scintillating materials in the vicinity of the CaWO₄ target crystal. Therefore, we equipped one third of the detector modules in the currently ongoing phase 2 (2013 - now) with an active veto for this kind of background.

In this contribution we present a low-threshold analysis of 29 kg days of data taken in 2013 with one of those upgraded detector modules. With the fully-efficient veto and an increased overall performance of this module we could set a leading limit on the elastic WIMP-nucleon scattering cross-section for WIMPs lighter than 3GeV/c². To further improve at higher WIMP masses the complete and still blinded data set of phase 2 will be needed.

CRESST detectors are capable of precisely determining tiny energy depositions (O(1keV)) and, thus, are extremely well suited to explore the low WIMP mass regime. CRESST-III will use new detector modules optimized to measure even lower recoil energies to further enhance the sensitivity for low WIMP masses. We will report on the status of the currently ongoing preparations towards CRESST-III and discuss the potential of CRESST-III beyond phase 1.