

Optimizing the TES design for diamond cryogenic detectors

Wednesday, 16 October 2024 17:00 (1 minute)

The CRESST experiment is one of the most sensitive experiments for the direct detection of light dark matter via nuclear recoils in a crystalline target. The mass range of dark matter particle candidates CRESST can probe is heavily influenced by the target material, with lighter elements being particularly advantageous for detecting lower mass dark matter. In this regard, diamonds emerged as a promising target material for direct dark matter detection. In this study, we build upon the successful application of artificial diamond crystals as targets, exploring the impact of varying the dimensions of the Transition Edge Sensors (TES) on detector performance. We present results of three measurements, analyzing how different TES sizes affect the energy resolution. These findings contribute to the development of an optimized TES for diamond detectors, potentially extending the sensitivity of CRESST to lower mass dark matter particles.

Presenter: DOMINSKY, Felix

Session Classification: Poster Session