

SPICE: a Solid State Dark Matter Direct Detection Experiment from the TESSERACT Collaboration

Thursday, 11 July 2024 15:00 (20 minutes)

The TESSERACT collaboration searches for “Light” (MeV-GeV) Dark Matter with a variety of target materials: solid state targets in the case of the SPICE experiment, and superfluid helium as a part of the HeRALD experiment. In my talk, I will give an overview of the SPICE experiment, which uses sapphire and other crystalline targets to probe multiple light dark matter models. I will show results from 373 meV σ energy resolution gram scale prototype SPICE detectors, and discuss recent advancements in developing low background TES-based detectors for use by our entire collaboration. The energy resolution and low energy backgrounds in these detectors are set by a new class of stress-induced backgrounds, which I will conclude by discussing.

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