



Contribution ID: 20

Type: **not specified**

Low energy calibration and characterization of novel dark matter detectors with a scanning laser device

Monday, 18 July 2022 20:40 (20 minutes)

A major hurdle in searches for sub-GeV particle-like dark matter is demonstrating sufficiently low energy detection thresholds in order to detect recoils from light dark matter particles. Many detector concepts have been proposed to achieve this goal, which often include novel detector target media or sensor technology. A universal challenge in understanding the signals from these new detectors and enabling discovery potential is characterization of detector response near threshold, as the calibration methods available at low energies are very limited. We have developed a cryogenic device for robust calibration of any photon-sensitive detector over the energy range of 0.62-6.89eV. This device can be used to scan over a detector and deliver narrowly-collimated pulses of small numbers of photons in a way that limits parasitic backgrounds, allowing for exploration of a variety of science targets including phonon transport in materials and the effect of quasiparticle poisoning. Design overview and specifications and current status are presented.

In-person or Virtual?

Virtual

Primary author: STIFTER, Kelly (Fermilab)

Presenter: STIFTER, Kelly (Fermilab)

Session Classification: Poster Session