

Characterizing SuperCDMS detectors in the CUTE facility at SNOLAB

Friday, 14 February 2025 21:00 (15 minutes)

What is the nature of dark matter? This fundamental question, which seeks to uncover its properties, composition, and origin, remains one of the greatest enigmas in modern physics. Despite direct detection experiments achieving unprecedented sensitivity —some even capable of detecting solar neutrinos —the mystery persists. Weakly Interacting Massive Particles (WIMPs) have long been a leading dark matter candidate, with the mass range below $10 \text{ GeV}/c^2$ still largely unexplored. The next-generation SuperCDMS experiment at the underground laboratory SNOLAB aims to address this frontier, employing advanced silicon and germanium cryogenic detectors to search for low-mass dark matter particles. This talk will provide an overview of the efforts performed to test SuperCDMS detectors in the Cryogenic Underground TEst facility (CUTE) at SNOLAB for the first time and will cover some preliminary results of the detector characterization and initial calibration studies.

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