



Contribution ID: 572

Type: **Parallel talk**

remoTES: A novel cryogenic detector for rare-event searches

Tuesday 29 August 2023 14:45 (15 minutes)

In recent years, high sensitivity, low-threshold detectors employing transition edge sensor (TES) read out technology have garnered significant interest in the field of rare-event physics. Numerous experiments have incorporated these detectors for direct dark matter searches, Coherent elastic neutrino-nucleus scattering (CEvNS) studies and beyond. As these experiments scale up and operate larger arrays, a key challenge is to enhance the reproducibility among detectors while promoting modularity in terms of both the choice of absorber and sensor.

COSINUS (Cryogenic Observatory for Signals seen in Next-generation Underground Searches) has experimentally demonstrated that a novel cryogenic detector scheme, known as remoTES, can address these challenges. This innovative design can streamline the mass fabrication of reliable and reproducible detectors for the next generation of low-mass, rare-event physics searches. This contribution will present results from the latest prototypes, highlighting ongoing optimization efforts across various absorbers and configurations.

Submitted on behalf of a Collaboration?

Yes

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Session Classification: Dark matter and its detection

Track Classification: Dark matter and its detection