



Contribution ID: 212

Type: Oral

Characteristic Sensitivity and Dark Count Rate of a Low Tc Ir-Pt Bilayer Infrared TES

Wednesday, 8 November 2023 16:45 (15 minutes)

In recent years, Transition Edge Sensors (TES) have been developed and used in a variety of experiments, such as low-energy Dark Matter (DM) searches, high sensitivity astroparticle measurements, and quantum information devices. For ultra-sensitive light DM direct detection and infrared photon sensing, TES with low superconducting transition temperatures (T_c) and low dark counts are required. TES superconducting film material can strongly impact calorimeter response, and Tungsten has traditionally been the film of choice for these applications. However, reproducibility with Tungsten films has always been less than ideal. In this talk, we present the measured sensitivity and dynamical characteristics of a low T_c Iridium-Platinum (Ir-Pt) bilayer infrared TES. Our results indicate that Ir-Pt TES are promising new low energy DM search devices with sub-eV energy resolution and reliable, precise T_c control. This sub-eV device could also be used in future optical haloscope dark photon searches and other low threshold dark count experiments.

Early Career

Yes

Primary author: REED, Maggie (University of California Berkeley)

Presenter: REED, Maggie (University of California Berkeley)

Session Classification: RDC7

Track Classification: RDC Parallel Sessions: RDC7: Low-Background Detectors