Abstract Submitted
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Performance and optimization of transition-edge sensor based photon detectors for CUPID[1] VIVEK SINGH, University of California, Berkeley, UC BERKELEY AND ARGONNE NATIONAL LAB TEAM — CUPID (CUORE Upgrade with Particle ID) is a proposed tonne-scale $0\nu\beta\beta$ experiment that will use arrays of low-temperature calorimeters to probe the Majorana nature of neutrinos. Background rejection will be possible by reading out phonon and photon signals simultaneously from a scintillating crystal; Li_2MoO_4 crystals have been chosen as the baseline detectors for CUPID. We are developing sensitive low temperature calorimeters that can measure tiny amounts of scintillation light. The detectors use a novel Ir-Pt bilayer superconducting transition-edge-sensor (TES) that can be operated below down to 10 mK. We will present an overview of the fabrication and characterization of a TES based calorimeter which is optimized for CUPID. We will also present an analysis of the pulses using a thermal model.

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