

Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Measurement of Light Emission in TeO₂ Crystals ROGER HUANG, GIOVANNI BENATO, JAVIER CARAVACA, YURY KOLOMENSKY, BEN LAND, GABRIEL OREBI GANN, BENJAMIN SCHMIDT, Univ of California - Berkeley — CUPID (CUORE Upgrade with Particle ID) is a next-generation bolometric experiment that will search for $0\nu\beta\beta$ decay with enhanced sensitivity through the ability to distinguish between $0\nu\beta\beta$ events and α backgrounds by detecting light emissions. To achieve this, it is important to characterize the amount of Cherenkov radiation that we can expect to detect, as well as any other luminescence that particles may cause in the detector material. The CHerenkov/Scintillation Separation setup (CHESS) can detect light with high time resolution and is sensitive to the directionality of light escaping the target material. We use this setup to measure and distinguish between Cherenkov and scintillation-like light emitted in TeO₂ crystals, one of the primary candidate materials for the detector mass of CUPID.

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Date submitted: 11 Jan 2018

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