

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Current Status and Results from CUPID-Mo in the search for Neutrinoless Double Beta Decay BRADFORD WELLIVER, Lawrence Berkeley National Laboratory, CUPID-MO COLLABORATION — CUPID-Mo is a demonstrator experiment for CUPID (CUORE Upgrade with Particle ID), the planned next-generation upgrade of the first ton scale cryogenic bolometric $0\nu\beta\beta$ decay experiment, CUORE (Cryogenic Underground Observatory for Rare Events). CUPID-Mo was operated at Laboratoire Souterrain de Modane in France as an array of 20 enriched $\text{Li}_2^{100}\text{MoO}_4$ (LMO) cylindrical crystals ($\sim 200\text{g}$ each) each featuring a Ge light detector (LD) all at ~ 20 mK. The LMOs and LDs were instrumented with NTD sensors allowing for the collection of both heat and scintillation light. This dual mode of energy collection allows for α events to be distinguished from β/γ events, significantly reducing the background from degraded α s in the heat channel. CUPID-Mo has a demonstrated bolometric energy resolution of ~ 7 keV (FWHM) at 2615 keV, complete $\alpha / \beta/\gamma$ discrimination and very low radioactive contamination. Here we report an overview of the current leading results in the search for $0\nu\beta\beta$ with CUPID-Mo using ~ 2 kg-years of exposure, an analysis using a ^{56}Co source to characterize the energy resolution scaling, and an overview of other ongoing CUPID-Mo analyses.

Bradford Welliver
Lawrence Berkeley National Laboratory

Date submitted: 08 Jan 2021

Electronic form version 1.4