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New Results in the search for $0\nu\beta\beta$ decay in ^{100}Mo from CUPID-Mo 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 $Li_2{}^{100}MoO_4$ (LMO) cylindrical crystals ($\sim$200g each), with each LMO featuring a Ge light detector (LD). The LMOs and LDs were operated at $\sim$20 mK and 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 αs in the heat channel. With a demonstrated bolometric energy resolution of $\sim$7 keV (FWHM) at 2615 keV, complete discrimination of α's from β/γ's and very low radioactive contamination, CUPID-Mo is in the background-free regime. Here we present the current leading results of CUPID-Mo with an exposure of over 2 kg-years for the $0\nu\beta\beta$ decay of ^{100}Mo. In this talk we present the analysis for this result, the current limit and the status of ongoing CUPID-Mo analyses.

Bradford Welliver
Lawrence Berkeley National Laboratory

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