# CUPID: Search for neutrinoless double beta decay with scintillating $Li_2MoO_4$ crystals

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Neutrinoless double beta decay ($0\nu\beta\beta$) is a key process to probe the Majorana nature of neutrinos and lepton number violation, providing direct insight into physics beyond the Standard Model. Next-generation experiments require detectors with excellent energy resolution and extremely low background.

CUPID (CUORE Upgrade with Particle IDentification) is a cryogenic bolometric experiment aiming to explore the inverted neutrino mass ordering region. In addition to maintaining CUORE's outstanding energy resolution, CUPID aims to achieve a significantly lower background by utilizing scintillating $Li_2MoO_4$ (LMO) crystals enriched in $^{100}Mo$. LMO crystals provide a favorable combination of high radiopurity, good bolometric properties, sufficient scintillation yield at low temperature, and a high Q-value double beta decay isotope. In particular, the scintillation properties of LMO crystals enable efficient particle identification and powerful rejection of α-induced backgrounds, helping CUPID to achieve ultra-low background conditions in the region of interest.

This contribution reviews the current status of CUPID, recent progress in LMO detector development, and prospects for large-scale deployment.