

# CUPID

## Cuore Upgrade with Particle Identification

### The CUPID Interest Group

CUPID is a proposed future ton-scale bolometric neutrinoless double beta decay ( $0\nu\beta\beta$ ) experiment aiming to discover Lepton Number Violation if neutrinos turn out to be Majorana particles in or above the the so-called inverted hierarchy region of the neutrino mass. CUPID will be built on experience, expertise and lessons learned in CUORE, and will exploit the current CUORE infrastructure as much as possible. In order to achieve its ambitious science goals, CUPID aims to increase the source mass and dramatically reduce the backgrounds in the region of interest. This requires isotopic enrichment, upgraded purification and crystallization procedures, new detector technologies, a stricter material selection, and possibly new shielding concepts with respect to the state of the art deployed in CUORE. After reviewing the science goals of CUPID, this presentation will describe the rich and varied R&D activities, performed inside and outside the CUORE collaboration towards the next generation bolometric  $0\nu\beta\beta$  experiment. We will finally define the scope for the near-term R&D activities, and present a roadmap towards mounting this next-generation experiment.