

Evaluation of the CUPID First Tower Prototype performance

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The CUPID experiment has embarked on a groundbreaking journey in the search for neutrinoless double beta decay ($0\nu\beta\beta$), leveraging innovative detector technologies to push the boundaries of sensitivity.

Preliminary measurements were conducted using the CUPID BDPT (CUPID

Bolometric Detector Prototype Tower), the inaugural prototype tower designed to evaluate the novel detector architecture. The primary aim was to assess the thermal scheme of the tower under low-temperature conditions. The test was successful in terms of stable and uniform thermalisation of all detectors along the tower, affirming

the reliability of the tower's design. Additionally, the performance of the Li_2MoO_4 (LMO) detectors integrated into the prototype tower was examined. These detectors displayed optimal energy resolution (~ 5 keV), and background rejection capabilities ($\text{DP}\alpha$ vs $\beta/\gamma > 3$), when combined with the light detectors (LD) output.

The poster will provide a brief overview of the findings from the CUPID first tower prototype experiment, highlighting the successful validation of the tower's thermal scheme and the commendable performance of LMO detectors. These results are driving the current optimisation steps towards the completion of the final CUPID detector design.

Poster prize

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