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Calibration of Li2100MoO4 bolometers with 56Co sources for searches of 0n2b decay of 100Mo

CUPID-Mo is a demonstrator, located in the Modane underground laboratory, for the future ton-scale double beta decay experiment CUPID. CUPID-Mo uses an array of 20 100Mo-enriched Li2100MoO4 low-temperature scintillating bolometers. The detectors exhibit extremely high energy resolution (FWHM~6 keV for 2615 keV gamma-quanta), but a precise calibration and an accurate determination of the resolution at the Q-value of 100Mo (3034 keV) is not possible with ordinary 232Th sources. Therefore, we are going to use a 56Co source, that has several gamma-quanta with energies in the region of interest, for the energy calibration of the detectors. The detector response has been simulated to optimize the position and activity of the source so that the total counting rate does not exceed 1/6 Hz. The results of the Monte Carlo simulations will be presented.

Mini-abstract

Monte Carlo simulations of the 56Co calibration source for the CUPID-Mo experiment

Experiment/Collaboration

CUPID-Mo collaboration

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