Abstract

The CROSS experiment, currently operating at the Canfranc Underground Laboratory (Spain), is dedicated to the search for neutrinoless double beta decay of ^{100}Mo. CROSS employs enriched Li_2MoO_4 and TeO_2 crystals operated as cryogenic bolometers, together with a secondary bolometric readout of scintillation and Cherenkov light, enabling the discrimination of α events from β/γ interactions.

In this poster, we present the event reconstruction pipeline based on the OCTOPUS software framework and report on the performance of both the Li_2MoO_4 bolometers and the corresponding light detectors. We describe the algorithms used to digitally trigger physical events from the continuously acquired data stream, reconstruct the relevant event parameters, correct for temperature-dependent gain fluctuations, calibrate the energy scale, identify non-physical pulses, and perform particle discrimination exploiting the different light yield of Li_2MoO_4 scintillation signals for α and β/γ particles.
Finally, we report on the detector performance in terms of energy and time resolution, effective light yield, and the efficiency of the various analysis stages.