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First results of CROSS underground measurements with massive bolometers

CROSS (Cryogenic Rare-event Observatory with Surface Sensitivity) project is focused on $0\nu2\beta$ decay searches with surface-sensitive bolometers, aiming to develop a mid-scale demonstrator with $Li_2^{100}MoO_4$ bolometers and Al coating, which allows rejecting near-surface events thanks to pulse shape modification, induced by the superconducting film. Several bolometers were installed in 2019 with the goal to verify the required performance for CROSS needs. Li_2MoO_4 crystals and Ge light detectors, instrumented with NTD sensors, were measured over 5 months with ∼90% duty cycle. A study of pulse shape discrimination with 0.2 μm Al coating on the lateral side of Li_2MoO_4 cylindrical crystal (mass ∼210 g) is performed.
Cubic Li_2MoO_4 crystals show excellent performance of the dual heat-light read-out, efficient particle identification, and hints on high crystal radiopurity.

Mini-abstract

Excellent performance, particle discrimination of massive bolometers in CROSS underground facility

Experiment/Collaboration

CROSS collaboration

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