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Reconstruction of muon events with the CUORE experiment

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Located underground, at the Gran Sasso National Laboratory, the Cryogenic Underground Observatory for Rare Events (CUORE) is a neutrinoless double beta ($0\nu\beta\beta$) decay experiment employing bolometric detectors. CUORE consists of an array of 988 TeO_2 crystals acting as both the source and the detector for the search of $0\nu\beta\beta$ decay in 206 kg of ^{130}Te. Although the CUORE experiment is not optimized to be a particle tracker, the geometry and segmentation of CUORE allow the in-situ reconstruction of track-like events, such as cosmic-ray muons that do not get attenuated by the Gran Sasso mountains. The reconstruction of this kind of events in a 3D calorimeter lattice is a novel technique. In this poster, I present studies on the in-situ reconstruction of muon events and related induced backgrounds as well as the implications for CUPID, CUORE's successor.

Poster prize

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