

Abstract Submitted  
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**Reconstructing Exotic Track-like Particles with CUORE<sup>1</sup>** JULIAN YOCUM, Massachusetts Institute of Technology MIT — The Cryogenic Underground Observatory for Rare Events (CUORE) has played an important role in the search for evidence of neutrinoless double beta decay. However, the experiment also has the capabilities for serving as a detector for exotic track-like particles. Work is done to adapt the CUORE analysis infrastructure for such purposes towards conducting a magnetic monopole search. The segmented nature of CUORE makes the problem of reconstructed track paths non-trivial. This factor has been mitigated through the use of multi-objective optimization, an area of active research in computational techniques involving many cost functions. Such a technique allows the reconstruction of tracks within individual crystals providing crucial track length data which, when correlated with energy data captured by CUORE, allows the calculation of the stopping power of track-like particles. Results are presented which evaluate the precision of the reconstruction tools as they currently stand against Monte Carlo generated data. In addition, current reconstructions of muon events within CUORE are shown.

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