

Abstract Submitted
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Scintillating Bolometer Monte Carlo for Rare Particle Event Searches NICHOLAS DEPORZIO, Northeastern University/MIT — This study uses the Geant4 physics simulation toolkit to characterize various scintillating bolometer constructions for potential experimental commissioning. Emphasis is placed on detector sensitivity to neutrinoless double-beta decay. Constructions minimally include a scintillating source material for the decay and an absorber material. Tellurium, Selenium, Germanium and other candidate isotopes are studied as source materials. Various background discrimination techniques are analyzed including reflective housings and anti-reflective coatings upon the source material. Different geometric optimizations are considered. Ability to discriminate incident alpha and beta radiation, as well as photon detection efficiency for each construction is presented.

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