

Abstract Submitted
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Improving Low-Energy GEANT4 Simulations of ${}^7\text{Be}$ EC Decay in STJ Detectors for the BeEST Experiment¹ CONNOR BRAY, Colorado School of Mines, BEEST COLLABORATION — The BeEST Experiment uses Superconducting Tunnel Junctions (STJs) to search for keV-scale sterile neutrinos in the Electron Capture (EC) decay of ${}^7\text{Be}$. The ultimate sensitivity of this approach is heavily dependent on a precision characterization of the detector response to a wide range of low-energy radiation emitted in the decay. Detailed ultra-low-energy, multi-process particle simulations in GEANT4 are employed to help describe these processes to high accuracy. In this talk, I will present preliminary results and advancements towards accurate meV-scale GEANT4 simulations.

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