

Abstract Submitted
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Verification of the Majorana-Gerda Simulation Package (MaGe)

A. G. SCHUBERT, MAJORANA COLLABORATION — Determining whether neutrinos are Majorana or Dirac particles is of vital importance to the physics community. The Majorana experiment seeks to address this question by searching for neutrinoless double-beta decay using germanium crystals enriched in ^{76}Ge . The Majorana and Gerda¹ collaborations have jointly developed MaGe, a Geant4² and ROOT³ based simulation framework, to aid in the design and analysis phases of both experiments. Several Monte Carlo studies of existing detectors were performed using the MaGe package. Comparisons between the experimental data and the simulation results are used to verify MaGe's performance. The simulations that will be discussed are a study of neutron production from a SLAC e^- beam experiment⁴, studies of a PNNL low- background HPGe material sampling detector with multiple sources, and a study of a LANL HPGe Clover detector with an AmBe source. This work is supported by the DOE Office of Nuclear Physics.

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³Brun, R. and F. Rademakers, ROOT - An Object Oriented Data Analysis Framework. Nucl. Instr. and Meth. **A 389** (1997), 81

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