

# Neutron Background Simulations for LEGEND-1000 in a Geant4-based Framework

*Friday, July 31, 2020 1:30 PM (3 minutes)*

The LEGEND (Large Enriched Germanium Experiment for Neutrinoless  $\beta\beta$  Decay) Collaboration will begin the construction of its initial phase, LEGEND-200, using the recently-decommissioned GERDA infrastructure, with a final 1000-kg installation (LEGEND-1000) planned. A simulation study of the neutron background is underway, using a custom simulation module based on Geant4. So far, the primary focus of this module's use has been cosmogenically-induced neutrons, as well as neutrons generated in  $(\alpha,n)$  reactions. The goal of these studies is to quantify the effect of various shielding material and cryostat designs on the neutron backgrounds, and to understand the effects site selection will have. I will be discussing the progress and status of this work.

## Secondary track (number)

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