

Simulation and Evaluation of Surface Effects on LEGEND-200 Detectors

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The LEGEND-200 experiment, currently running at LNGS, seeks to measure neutrinoless double beta decay in Ge-76 using a source-detector experimental setup with a discovery potential up over 10^{28} years and covering the inverted hierarchy. The sensitivity reach of this experiment is based on an accurate understanding of the expected backgrounds and the expected detector response to a wide variety of event topologies, in particular alpha and beta events impacting the corresponding passivated/n+ sensitive surfaces of the various LEGEND-200 detectors. To this end, we have developed a combined electromagnetic and Geant4 simulation framework which can model the full detector response based on known detector efforts such as surface charge. In this poster we will present the setup of these simulations and their results as well as an estimate for the potential effect of the detector response to the overall LEGEND-200 background budget.

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Poster prize

No

Given name

Alexander

Surname

Leder

First affiliation

Los Alamos National Laboratory

Second affiliation

Institutional email

aleder@lanl.gov

Gender

Male

Collaboration (if any)

LEGEND

Primary author: LEDER, Alexander (Los Alamos National Laboratory)

Co-authors: Prof. GRUSZKO, Julieta (University of North Carolina - Chapel Hill); Mr BHIMANI, Kevin (University of North Carolina - Chapel Hill)

Presenter: LEDER, Alexander (Los Alamos National Laboratory)

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