

# Cosmogenic background simulations for neutrinoless double beta decay with the DARWIN observatory at various underground sites

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Xenon dual-phase time projections chambers (TPCs) have proven to be a successful technology in studying physical phenomena that require low-background conditions. With 40t of liquid xenon (LXe) in the TPC baseline design, DARWIN will have a high sensitivity for the detection of particle dark matter, neutrinoless double beta decay, and axion-like particles (ALPs). Although cosmic muons are a source of background that cannot be entirely eliminated, they may be greatly diminished by placing the detector deep underground. We used Monte Carlo simulations to model the cosmogenic background expected for the DARWIN observatory at several underground laboratories to determine the production rate of Xe-137, the most crucial isotope in the search for the neutrinoless double beta decay of Xe-136.

## Poster prize

No

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