



Contribution ID: 29

Type: **Oral Presentation**

Radon Emanation Techniques and Measurements for LZ

Thursday, June 16, 2022 11:35 AM (15 minutes)

Radon emanation is projected to account for $\approx 66\%$ of the electron recoil (ER) background in the WIMP region of interest for the LUX ZEPLIN (LZ) experiment. The relatively long half-life of ^{222}Rn leads to mixing within the target volume and an internal ER background with a beta-spectrum up to 1019 keV from its ^{214}Pb progeny. To mitigate the amount of radon inside the detector volume, materials with inherently low radioactivity content were selected for LZ through an extensive screening campaign. The SD Mines radon emanation system is one of four emanation facilities utilized to screen materials during construction of LZ. SD Mines also employs a portable radon collection system for equipment that is too large or delicate to move to the radon emanation facilities. This portable system was used at SURF to assay the inner cryostat volume (ICV) in-situ at various stages of detector construction. In this presentation radon emanation, screening techniques, and noteworthy assays of LZ will be discussed.

Primary author: CHOTT, Nicholas (SD Mines)

Presenter: CHOTT, Nicholas (SD Mines)

Session Classification: LRT 2022 - presentations

Track Classification: Low Background Assay and Screening Techniques