

Radon Screening for the LZ Dark Matter Experiment

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DMSS Abstract

Modern dark matter direct detection experiments such as LUX-Zeplin require low backgrounds to reach sensitivities necessary to claim detection. When deep underground and isolated from cosmic rays, the dominant backgrounds come from radioactive impurities. While a getter can effectively remove electronegative impurities, noble gas impurities must be removed from the xenon volume using other methods or screened. The radioisotope ^{222}Rn is particularly difficult to eliminate because it emanates from trace amounts of ^{226}Ra contained in detector components. It is necessary to screen detector components for ^{222}Rn before assembly to reduce and quantify the radon burden. We make use of an electrostatic chamber with a PIN diode target to collect and count radon daughters of detector components. I will discuss some of the more relevant analysis techniques and results in this talk.

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