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Radon Emanation Screening for LZ

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Content

The LUX-ZEPLIN experiment will be a two-phase xenon dark matter detector. The decays of radon daughters, which can migrate into the fiducial volume, are expected to produce a significant background. In order to help ensure a sufficiently low concentration of radon within the xenon volume, the project has embarked on a program to screen all materials that will be in contact with the xenon. We will describe the operation of the four screening devices employed by the project, which are located at UCL, SDSM&T, UA, and UMd and are each sensitive to the emanation of 2 mBq or less of 222Rn. The large, 300L vessel at SDSM&T provides an important ability to screen large samples. Finally, we will present results from the first assays performed for this radon emanation screening program including various cables, electronic components, welds, and epoxies. This abstract is part of a coordinated submission by the LZ collaboration.

About the Presenter

Dr. Eric Miller is a Postdoctoral Research Scientist at the South Dakota School of Mines & Technology. He obtained his Ph.D. in 2015 from the University of New Mexico. He will be presenting on behalf of the LZ Collaboration.

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