

Abstract Submitted
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Monitoring xenon purity in the LUX detector with a mass spectrometry system JON BALAJTHY, University of Maryland, LUX EXPERIMENT COLLABORATION — The LUX dark matter search experiment is a 350 kg two-phase liquid/gas xenon time projection chamber located at the 4850 ft level of the Sanford Underground Research Facility in Lead, SD. To monitor for radioactive impurities such as krypton and impurities which limit charge yield such as oxygen, LUX uses a xenon sampling system consisting of a mass spectrometer and a liquid nitrogen cold trap. The cold trap separates the gaseous impurities from a small sample of xenon and allows them to pass to the mass spectrometer for analysis. We report here on results from the LUX xenon sampling program. We also report on methods to enhance the sensitivity of the cold trap technique in preparation for the next-generation LUX-ZEPLIN experiment which will have even more stringent purity requirements.

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