

Abstract Submitted
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LUX dark matter search: expected sensitivity PETER SORENSEN,
Lawrence Livermore National Laboratory — The LUX 300 kg two-phase Xe detector aims to detect or exclude dark matter in the form of Weakly Interacting Massive Particles (WIMPs) with scalar cross section (per nucleon) as low as 7×10^{-46} cm². This is equivalent to ~ 0.5 events/100 kg/month in a 100 kg fiducial volume. The LUX design is set to ensure < 1 background event / 10 months live, which could potentially be characterized as a WIMP interaction. Based on above-ground calibrations and data from the XENON10 experiment, LUX expects to reject up to 99.9% of the dominant electron-recoil background at detector threshold (~ 5 keVr), with 50% acceptance for nuclear recoils. This talk will discuss the projected sensitivity of the LUX experiment for elastic and inelastic dark matter scenarios.

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