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Characterization of background electron emissions in the LUX detector JINGKE XU, Lawrence Livermore Natl Lab, LUX COLLABORATION — Dual-phase xenon detectors as used in current direct detection dark matter experiments have observed high rates of background electrons in the low energy region. This background negatively impacts the performance of such detectors in various aspects, but its origin has not been well explained. In this talk, we report a systematic investigation of the observed electron background pathologies in the LUX dark matter experiment. Based on the apparent correlation of the dominant background electrons with preceding energy depositions, we classify this background into different categories using the correlation time scale, and discuss possible mechanisms that may lead to such emissions. We will also present the implications of this study on ongoing and future xenon experiments.

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