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An investigation of the background electron emissions in the LUX detector. JINGKE XU, Lawrence Livermore Natl Lab, LUX COLLABORATION — Dual phase noble liquid detectors have demonstrated exceptional capability towards rare event detection. However, the ultimate sensitivity of such detectors at very low energies is limited by the emission of delayed ionization electrons and of uncorrelated spontaneous background electrons, generated by a variety of physical mechanisms, and originating from both the bulk liquid and detector surfaces. Using the LUX detector as an example, I will present an investigation of the different electron emission phenomena in Xe TPCs at different time scales since previous energy depositions in the detector, and attempt to identify the sources of these electrons. I will also discuss the relevance of this study for noble liquid physics and for the characterization of Xe TPC detectors.

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