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Recent Analysis Efforts of the LUX Collaboration

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LUX (Large Underground Xenon) is a retired, direct dark matter detection experiment that has published three, previously world leading limits on the spin-independent cross section for the Weakly Interacting Massive Particle (WIMP) nucleon scattering. The detector was dismantled in the Fall of 2016 and efforts were shifted to completing additional analyses with the existing WIMP-scattering and calibration data sets, some of which inform the second generation LUX-ZEPLIN (LZ) experiment. This talk describes new work that improves our understanding of radiogenic backgrounds, detector performance, and scope of dark matter models for which xenon time projection chamber detectors are competitive. Special emphasis is given to accurate characterization of backgrounds for the purpose of extracting signals at energies beyond the range of the earlier spin-independent WIMP-search analyses.

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