

Abstract Submitted
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Background Studies for the LUX-ZEPLIN Dark Matter Experiment¹ DONGQING HUANG, University of Michigan, LUX-ZEPLIN COLLABORATION — The LZ detector is a dual-phase time projection chamber (TPC) aiming to detect rare events resulting from the scattering of Weakly Interacting Massive Particles (WIMPs), a leading dark matter candidate. Significant effort has been made to achieve an unprecedented low background rate within its fiducial volume, including extensive detector material screenings and an inline radon removal system, to reach a target sensitivity of $1.4 \times 10^{-48} \text{ cm}^2$ at $40 \text{ GeV} / c^2$. In preparation for upcoming LZ science runs, we present here using simulated data rigorous studies of both the expected residual backgrounds as well as possible anomalous events. A thorough understanding of these backgrounds is critical for eventual definite identifications of dark matter events in the LZ experiment.

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