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Effective Field Theory Dark Matter Searches with the LZ Detector

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The LUX-ZEPLIN (LZ) dark matter search experiment, a dual-phase xenon time projection chamber operating at the Sanford Underground Research Facility in Lead, South Dakota, USA, has the world's leading sensitivity to searches for Weakly Interacting Massive Particles (WIMPs). It is comprised of a 7-tonne target mass and outfitted with photomultiplier tubes in both the central and the self-shielding regions of the liquid xenon, which is enclosed within an active gadolinium-loaded liquid scintillator veto and all submerged in an ultra-pure water tank veto system. LZ has completed its first science run, collecting data from an exposure of 60 live-days. This talk will provide an overview of LZ's search and sensitivity goals to a model-agnostic Effective Field Theory (EFT) framework that describes several possible dark matter interactions with nucleons. In this talk, we highlight the key backgrounds, data analysis techniques, and signal models relevant to this study.

Submitted on behalf of a Collaboration?

No

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