EPS-HEP2023 conference



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LUX-ZELPIN Effective Field Theory Search Results From The First Science Run

Friday 25 August 2023 08:50 (20 minutes)

The LUX-ZEPLIN (LZ) dark matter search experiment is a dual-phase xenon time projection chamber operating at the Sanford Underground Research Facility in Lead, South Dakota, USA. It is comprised of 10-tonnes of liquid xenon, outfitted with photomultiplier tubes in both the central and the self-shielding regions. This is then 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 and delivering a world-leading sensitivity to searches for Weakly Interacting Massive Particles (WIMPs). This talk will provide an overview of LZ's search utilising 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 and present the results from this search.

Collaboration / Activity

LUX-ZEPLIN

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