Contribution ID: **364**   Type: **Parallel session talk**

Background Modeling for the LUX-ZEPLIN Dark Matter Experiment

Thursday 18 July 2024 11:19 (17 minutes)

LUX-ZEPLIN (LZ) is a dark matter experiment located at the Sanford Underground Research Facility in South Dakota, USA employing a 7 tonne active volume of liquid xenon in a dual-phase time projection chamber (TPC). It is surrounded by two veto detectors to reject and characterize backgrounds. A comprehensive material assay and selection campaign for detector components, along with a xenon purification campaign, have ensured an ultra-low background environment. In its first science run (SR1) LZ attained a background rate of $(6.3 \pm 0.5) \times 10^{-5}$ events/kg/day/keVee in the < 15 keVee region, enabling it to achieve world-leading limits for the spin-independent elastic scattering of nuclear recoils of WIMPs with masses above 10 GeV/c^2. This talk will provide an overview of how LZ has reached even lower background rates and improved its background modeling in its current science run. The impacts of these improvements on LZ's WIMP sensitivity and science results will also be discussed.

Alternate track

I read the instructions above

Yes

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Session Classification: Dark Matter

Track Classification: 09. Dark Matter Detection