Contribution ID: **327** Type: **Parallel**

Search for new physics in low energy electron recoil signals in LZ WS2022+2024 combined dataset

Monday 7 July 2025 15:20 (17 minutes)

LUX-ZEPLIN (LZ) is a direct detection dark matter experiment located at the Sanford underground research facility in Lead, South Dakota, USA. LZ utilizes a dual-phase time projection chamber containing 7 tonnes of active xenon surrounded by veto systems to search for signals induced by WIMP dark matter candidates. Recently, the experiment announced world-leading WIMP results achieved over 280 live days of science operation. Besides its leading sensitivity to WIMPs, LZ is also sensitive to other dark matter candidates and new physics beyond the Standard Model using electronic recoil (ER) signatures. In this talk, I will present results of the LZ search for new physics leading to ER events based on an exposure of 4.2±0.1 tonne-years. Our search includes several models, including solar axion-like particles, hidden photons, mirror dark matter models, bosonic dark matter absorption, and the exotic electromagnetic interactions of solar neutrinos.

Secondary track

T03 - Neutrino Physics

Authors: COLLABORATION, LZ; XU, YONGHENG (Universitetet i Oslo)

Session Classification: T02

Track Classification: T02 - Dark Matter