

Shining Light on Dark Matter With LZ

Monday 7 July 2025 13:50 (10 minutes)

The LUX-ZEPLIN collaboration operates a 7-tonne active mass, two-phase xenon Time Projection Chamber surrounded by multiple anti-coincidence vetoes. In its search for the elusive dark matter, the LZ experiment involves researchers from 6 countries and 4 continents. It is located at the Sanford Underground Research Facility in Lead, South Dakota. LZ seeks standard Weakly Interacting Massive Particles (leading dark matter candidates) as well as axion-like particles, low-mass (GeV-scale) WIMPs, nuclear recoils of non-traditional high energies made possible by Effective Field Theory operators, and potential evidence of new physics in many other channels. I will present published LZ results based upon 60 and 220 live days of exposure. LZ is continuing to operate with world-leading sensitivity to WIMPs with masses above $9 \text{ GeV}/c^2$ mass. Analysis of data for lower-mass searches that are underway will also be discussed here.

Author: Prof. SZYDAGIS, Matthew (UAlbany SUNY)

Presenter: Prof. SZYDAGIS, Matthew (UAlbany SUNY)

Session Classification: Parallel 1