Contribution ID: **27** Type: **Parallel session talk**

Calibrating the LUX-ZEPLIN (LZ) Dark Matter Detector

Tuesday 7 October 2025 14:40 (20 minutes)

The LUX-ZEPLIN (LZ) experiment is a direct detection dark matter experiment located 4,850 feet underground at the Sanford Underground Research Facility in South Dakota. The core of the detector is a dual-phase Time Projection Chamber that utilizes 7 tonnes of active liquid xenon as its target medium to search for dark matter interactions. The primary candidate of interest is the Weakly Interacting Massive Particle, but other Beyond the Standard Model (BSM) candidates can be probed as well. A detailed understanding of detector response to particle interactions and microphysics modeling are essential for accurately identifying potential BSM signals. This talk will highlight LZ's advanced high- and low-energy calibration techniques that enable LZ's world-leading sensitivity and results.

Author: GENOVESI, Jack (Pennsylvania State University)

Presenter: GENOVESI, Jack (Pennsylvania State University)

Session Classification: RDC 1 Noble Element Detectors

Track Classification: RDC 1 Noble Element Detectors