



Contribution ID: 203

Type: **Oral Presentation**

## Neutron and $\gamma$ Backgrounds in the LUX-ZEPLIN Dark Matter Detector

*Tuesday 30 July 2019 16:34 (17 minutes)*

The LUX-ZEPLIN (LZ) Dark Matter Collaboration aims to identify the elusive dark matter particle that appears to make up one quarter of the energy density of our universe. LZ is optimized to detect dark matter that produce nuclear recoils using a multi-tonne liquid xenon target, making it critical that all nuclear recoil background events are identified and understood. We present here simulated results of neutron interactions in LZ's outer detector, which was designed for identifying neutrons that may deposit energy in the LZ target volume. In addition, we report on the  $\gamma$ -X phenomenon where multiple-scattering  $\gamma$  photons can appear as a single nuclear recoil event along with methods for constraining the number of  $\gamma$ -X events observed after LZ's first data is collected.

**Author:** RISCHBIETER, Gregory

**Presenter:** RISCHBIETER, Gregory

**Session Classification:** Dark Matter

**Track Classification:** Dark Matter