

# Application of machine learning to find anomalous events in LZ data

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The LUX-ZEPLIN (LZ) experiment is a WIMP direct detection experiment using a dual-phase xenon time projection chamber with a 7 ton active volume, expecting science results in 2022. In a rare-event experiment such as LZ, it is important to identify events stemming from unexpected backgrounds, errors in reconstruction, and abnormalities in detector function. General-purpose, unsupervised anomaly finders operating on high-dimensional data can help in quickly finding these events that may otherwise be difficult to characterize. Further, anomaly finders can also increase the efficiency of identifying known but rare backgrounds with unusual topologies. In this presentation, I will discuss two approaches to anomaly finding that have been used to identify outliers in simulations and early LZ data.

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