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Development of Position Reconstruction in the LUX-ZEPLIN Outer Detector

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Position reconstruction in the LZ Outer Detector is currently based on a centroid method. Due to this, positions are being mis-reconstructed. Accurate position reconstruction would allow for additional quantities in background discrimination, full mapping of light collection efficiencies and a reduced neutron veto dead-time. Two methods have been investigated: a TPC-like method with light response functions (LRFs) and machine learning using convolutional neural networks.

Presenter: HALL, Tea

Session Classification: Poster Session