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Chimera events for performance checks of the MicroBooNE Deep Learning-based Low Energy Excess Search

MicroBooNE is a short baseline neutrino oscillation experiment based at Fermilab that employs Liquid Argon Time Projection Chamber (LArTPC) technology. One of its target measurements is to investigate the nature of the excess of low energy events observed by MiniBooNE. This measurement will require an excellent understanding of systematic uncertainties, obtained through testing the performance of reconstruction algorithms on samples with known properties. However, using exclusively Monte Carlo events for this task is limited by how well the discrepancies between simulation and data are understood. An alternative is to test against samples of “chimera” events, which are made up of separate single-particle components from data that are combined to create neutrino-like events in data. This poster covers the performance and status of creating and using chimera events that match a target neutrino topology in MicroBooNE.

Mini-abstract

Chimeras: images composed of real data for studying deep learning-based LArTPC reconstruction

Experiment/Collaboration

MicroBooNE

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