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Chimera Events in the MicroBooNE Experiment

Monday, 10 June 2019 14:45 (15 minutes)

MicroBooNE is a short baseline neutrino oscillation experiment based at Fermilab that employs a Liquid Argon Time Projection Chamber (LArTPC) to investigate the excess of low energy events observed by MiniBooNE, study neutrino-argon cross-sections, and perform detector R&D for future LArTPC experiments. The Micro-BooNE detector lies along the Booster Neutrino Beamline, which produces neutrinos with energies ranging from tens of MeV to 2 GeV. To study systematic uncertainties in MicroBooNE, the performance of algorithms used must be tested against event samples with known properties. Testing purely on Monte Carlo is limited by how well we understand the discrepancies between simulation and data. An alternative is to test against samples of "chimera" events, which consist of separate single-particle components from data that are combined to create neutrino-like events. This presentation will cover the ability and performance of finding and isolating tracks that match a target neutrino topology to create chimera events in MicroBooNE.

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