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Selection of charged-current neutrino-induced K^+ production interactions in MicroBooNE

MicroBooNE is an 85 ton active mass liquid argon time projection chamber (LArTPC) neutrino detector exposed to the Booster Neutrino Beamline (BNB) at Fermilab. One of our physics goals is the precision measurement of neutrino interactions on argon in the 1 GeV energy regime. The study of neutrino interactions producing a K^+ in the final state can improve the background estimates for future proton decay experiments looking for the $p \rightarrow K^+\nu$ channel on argon such as DUNE. In this work we present the selection of events with a K^+ produced along with a μ^- in a charged-current neutrino interaction in the MicroBooNE detector. This poster will focus on how we use the available tools for particle identification to achieve a high-purity sample.

Mini-abstract

High-purity selection of kaons from neutrino interactions in MicroBooNE.

Experiment/Collaboration

MicroBooNE

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