Comparison of v_{μ} -Ar multiplicity distributions observed by **MicroBooNE to GENIE model predictions** KANSAS STATE Aleena Rafique **µBooNE** On behalf of the MicroBooNE collaboration UNIVERSITY

1. Abstract

We measure a large set of observables in inclusive charged current muon neutrino scattering on argon with the MicroBooNE liquid argon time projection chamber operating at Fermilab. We evaluate three neutrino interaction models based on the widely used GENIE event generator using these observables. The measurement uses a data set consisting of neutrino interactions with a final state muon candidate fully contained within the MicroBooNE detector. These data were collected in 2016 with the Fermilab Booster Neutrino Beam, which has an average neutrino energy of 800 MeV, using an exposure corresponding to 5e19 protons-on-target. The analysis employs fully automatic event selection and charged particle track reconstruction and uses a datadriven technique to separate neutrino interactions from cosmic ray background events.

2. Motivations

5. Candidate Neutrino Event Displays

7. GENIE predictions

1. This quantity is comparable across experiments and generators **2.** Testing and tuning of neutrino event generators inclusively **3.** Several desirable attributes for an early measurement **4.** Knowledge can be expanded to DUNE

5. First measurement of charged track multiplicity in v_{μ} CC interactions in Ar









Collaboration), Phys. Rev. D [arXiv:1805.06887 [hep-ex]] (submitted).

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