

Inclusive and Exclusive Pionless Cross Section Measurements with MicroBooNE

Thursday, 19 September 2024 15:21 (24 minutes)

Making high-precision measurements of neutrino oscillation parameters requires an unprecedented understanding of neutrino-nucleus scattering. To help fulfill this need, MicroBooNE has produced an extensive set of multi-differential charged-current muon neutrino cross-section measurements which probe both the leptonic and hadronic systems. This talk will present the first energy-dependent multi-differential cross-section measurement and simultaneous measurements of final states with and without protons for the inclusive channel. Furthermore, to more directly probe the nuclear effects which complicate the modeling of neutrino-argon interactions, we present the first charged current double-differential cross-sections in kinematic imbalance variables using events with no detected final-state pions. These variables characterize both the transverse and total kinematic imbalance in a neutrino interaction and are sensitive to the modeling of final-state interactions, Fermi motion, and multi-nucleon processes.

Working Group

WG 2: Neutrino Scattering Physics

Primary authors: PAPADOPOULOU, Afroditi; BARROW, Daniel (University of Oxford)

Presenter: BARROW, Daniel (University of Oxford)

Session Classification: Parallel: WG2

Track Classification: WG2: Neutrino Scattering Physics