

2p-2h Cross-Section Systematics in DUNE

Tuesday, 17 September 2024 16:35 (20 minutes)

For the operation of precision neutrino experiments, the understanding of neutrino interactions with matter are preconditioned requirements of all detections and measurements of neutrinos. The largest uncertainties in estimating neutrino-nucleus interaction cross sections arise in the incomplete understanding of nuclear effects. In the study of neutrino oscillations and nuclear scattering processes, obtaining an interaction model with associated uncertainties is of substantial interest for the neutrino physics community. This report presents studies of simulated CC 2p-2h interactions, in which a neutrino interacts with a bound pair of nucleons. This interaction mode is very poorly constrained by current data. A comparison of three leading CC 2p-2h models is presented, along with a number of uncertainty parameters that have been implemented to account for model-to-model discrepancies in the DUNE oscillation analysis.

Working Group

WG 2: Neutrino Scattering Physics

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Session Classification: Parallel: WG1

Track Classification: WG1: Neutrino Oscillation Physics