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Measuring nuclear effects of semi-exclusive CCNpMπ^0 final states using the MINERνA Detector

The current status of probing nuclear effects in CC muon neutrino interactions with at least one proton (N>0) and one π^0 (M>0) in the final state is presented. This work considers the differential cross section on hydrocarbon as a function of double transverse momentum – a kinematic imbalance of the final state hadronic system transverse to the neutrino direction and muon momentum plane. By considering events in MINERνA's active tracker, a plastic scintillator, semi-exclusive final states are selected to gain an insight into nuclear effects. Such a measurement will not only provide crucial information to current and future multi-GeV neutrino oscillation experiments like NOνA and DUNE but may also enable reliable measurements of neutrino interactions on hydrogen to be realised.

Authorship annotation

David Coplowe on behalf of the MINERvA Collaboration

Session and Location

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yes

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