

Characterisation of nuclear effects in muon-neutrino scattering at T2K

The T2K experiment's off-axis near detector (ND280) has recently measured CCQE-like (mesonless) neutrino interactions on hydrocarbon as a series of differential cross-section measurements exploiting both muon and proton kinematics in addition to correlations between them. These results provide a novel probe of the aspects of neutrino-nucleus interactions most pertinent to long-baseline neutrino oscillation analyses, particularly through the first measurement of imbalances in the plane transverse to the incoming neutrino. In this work we review the results and present a detailed campaign of model comparisons, which allow a detailed exploration of relevant nuclear-medium effects. This characterisation is expected to play a significant role in future model development, while also facilitating new constraints on the principle systematic uncertainties in neutrino oscillation measurements.

Session and Location

Wednesday Session, Poster Wall #104 (Auditorium Gallery Left)

Poster included in proceedings:

yes

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Track Classification: Poster (participating in poster prize competition)