

Electron-Nucleus Scattering Constraints For Neutrino Interactions And Oscillations

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The ability of current and next generation accelerator-based neutrino-oscillation measurements to reach their desired sensitivity requires a detailed understanding of neutrino-nucleus interactions. These include precise knowledge of the relevant cross sections and of our ability to reconstruct the incident neutrino energy from the measured final state particles. Incomplete understanding of these interactions can skew the reconstructed neutrino spectrum and therefore bias the extraction of fundamental oscillation parameters. In this talk, I will present new wide phase-space electron-nucleus scattering data, collected using the decommissioned CLAS6 spectrometer at the Thomas Jefferson National Accelerator Facility (JLab), where we studied how well we can reconstruct the incident lepton energy from the measured final state particles. Disagreements with the commonly used GENIE event generator are observed, indicating a potential bias for future oscillation analyses and pointing the way for improving these event generators.

Attendance type

In-person presentation

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