

Data-driven model validation for neutrino-Argon inclusive measurements at MicroBooNE

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Neutrino-nucleus cross section measurements are needed to improve interaction modeling to enable precision oscillation measurements and searches for physics beyond the standard model. This poster presents the methodology and application of data-driven model validation, which supplements “traditional” fake-data driven model validation with direct comparison to the reconstructed data. Through the use of the conditional constraint formalism, this approach can yield highly sensitive tests to detect mismodeling before unfolding. The effectiveness of this approach is demonstrated through a series of fake data studies corresponding to the multi-differential cross section $d^2\sigma(E_\nu)/d\cos(\theta_\mu)dP_\mu$ measured for inclusive muon-neutrino charged-current scattering on argon in MicroBooNE.

Working Group

WG 2: Neutrino Scattering Physics

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