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## **Estimating the Impact of Neutrino Interaction Mismodeling in DUNE with Multivariate Event Reweighting**

*Wednesday, July 22, 2020 11:05 AM (25 minutes)*

Next generation long-baseline experiments will measure neutrino mixing parameters with unprecedented precision, requiring stringent constraints on systematic uncertainties. We present the methods used in the recently published DUNE technical design report to test the robustness of the experiment with respect to variations of the neutrino interaction model. A multivariate method was used to reweight the existing DUNE simulated event sample to alternative interaction models, including a modification of the nominal model designed specifically to induce a bias in reconstructed neutrino energy. These reweighting schemes are used in oscillation analysis studies to demonstrate the ability of the DUNE near detector complex to resolve bias-inducing model variations, in particular by taking data at several positions with respect to the beam axis.

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