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Simulated Data Studies for the T2K Experiment Neutrino Oscillation Analysis

Wednesday 9 April 2025 11:00 (15 minutes)

Simulated data studies (SDS) are a method to test alternative particle interaction models within the T2K neutrino oscillation experiment. This work is focused on interactions in the ND280, T2K's near detector. Monte Carlo (MC) simulations are fitted to ND280 data and are subsequently used to inform the predictions of neutrino event rates at the far detector, Super-Kamiokande. The MC methods used by the experiment use a single set of models; therefore, it is important to investigate any potential biases introduced by the choice of model. A total of 19 simulated data sets, representing alternative models, are analysed using the Generalized and Unified Neutrino Data Analysis Method (GUNDAM) fitter. While this analysis is focused on ND280, a complete SDS analysis will include a far detector fit as well. This presentation will discuss the current status of this work.

Author: SPEERS, Adam (Lancaster University)

Presenter: SPEERS, Adam (Lancaster University)

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