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Constraining Oscillation Analysis Inputs at the T2K Near Detector

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The T2K long-baseline neutrino oscillation experiment is composed of a near detector at 280m and a far detector at Super-Kamiokande located 295 km from the neutrino beam in Tokai. The main oscillation analyses are performed using fits to the data collected at the far detector. These analyses depend on our ability to predict the event rates and energy spectra at the far detector, which in turn depend on cross-section and flux uncertainties. We use inputs from external data, such as MiniBooNE and MINERνA, as well as beam flux measurements to generate prior estimates of these uncertainties. T2K's near detector then provides a direct internal constraint on the convolution of the flux and cross-section, significantly reducing the uncertainties. This talk will discuss how data from the near detector on T2K is used to constrain the oscillation analysis inputs.

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