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Neutrino Interactions in the T2K WAGASCI Detector and Combining Measurements With Multiple Neutrino Fluxes

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T2K is a long base line neutrino experiment in Japan with a 295 km base line between the JPARC facility, which produces the neutrino beam, and the SuperKamiokande water Cherenkov far detector. T2K has a rich physics programme including a series of world leading neutrino cross-section measurements. The current status of T2K cross-section measurements will be summarised and the future plans of the collaboration will be presented. This includes the prospects of joint measurements using the ND280 near detector, which is along the same 2.5 degree off-axis position as SuperKamiokande, and the 1.5 degree off-axis near detector WAGASCI. A combined cross sections analysis using data at both off-axis angles offers the unique ability to better constrain the flux and cross sections than either data set can accomplish individually. The incorporation of new water target data from the WAGASCI near detector will also be presented.

Primary author: NUGENT, John Columba (Tohoku University (JP))

Presenter: NUGENT, John Columba (Tohoku University (JP))

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