



Poster session 1 - Monday 4 July

P1.039 Muon neutrino and antineutrino selection in the tracker of the T2K off-axis near detector

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T2K (Tokai to Kamioka) is a long-baseline neutrino oscillation experiment located in Japan. Since its discovery of electron neutrino appearance in 2013 excluding $\theta_{13} = 0$ with a significance of 7.3σ , T2K has switched the beam magnet polarities to run in anti-neutrino beam mode in order to enhance its sensitivity to δ_{CP} . The beam is dominated by muon antineutrinos; however it also contains a sizable contamination from muon neutrinos. The analysis of both $\nu\mu$ and $\bar{\nu}\mu$ interactions in the off-axis near detector ND280 provides a significant reduction of the ux prediction and cross-section modelling systematic uncertainties in the oscillation analysis. ND280 data also gives us the opportunity to measure cross sections for processes that have not yet been thoroughly studied for antineutrinos in the energy range of 1 GeV. The second largest reaction type in this energy range after the charged-current (CC) quasi-elastic reaction includes processes involving pion production. The poster will present the selections of CC interactions of both antineutrinos and neutrinos in the tracker of ND280. It will also cover the separation into three sub-samples of the CC sample based on the pion content in each event.