

A muon antineutrino $CC\pi^0$ inclusive analysis at the T2K near detector ND280

In recent years neutrino oscillation physics has entered an era of high-precision measurements, which require detailed knowledge of neutrino interactions with matter.

The poster describes the study of the charged-current (CC) interactions of muon antineutrinos which produce neutral pions in the final state. The analysis aims to search for the interactions in the plastic scintillator (C8H8) target of the T2K near detector, ND280. The T2K experiment uses muon neutrino and antineutrino beams (energy peaked at 0.6 GeV) to study the oscillations. Neutral pions, decaying into photons, can mimic electrons thus forming a portion of the background for the “appearance” channel. The $CC\pi^0$ data can also constrain the description of resonance production. The selection of $CC\pi^0$ events utilises the ND280 tracking detectors to identify a leading lepton as well as the calorimeters for photon tagging.

An overview of the analysis strategy and preliminary results based on the simulation are presented.

Authorship annotation

for the T2K collaboration

Session and Location

Wednesday Session, Poster Wall #111 (Auditorium Gallery Left)

Poster included in proceedings:

yes

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Track Classification: Poster (not participating in poster prize competition)