

# High-Angle NuMu CCQE Measurements at T2K Using the Pi-0 Detector for Low-Energy Events

*Thursday, 15 August 2013 10:55 (25 minutes)*

T2K is an off-axis, long baseline neutrino oscillation experiment designed to measure  $\nu_{\mu}$  to  $\nu_{e}$  transition probabilities and their associated oscillation parameters. The detection apparatus consists of a suite of near detectors 280 m from the beam target (collectively referred to as ND280), and the Super-Kamiokande water Cherenkov detector 295 km away. The Pi-0 Detector (P0D) is a component of ND280 designed to measure the production of NC  $\pi^0$ 's on water to constrain backgrounds at the far detector. While not optimized for lepton tracking and identification, it can still provide a useful sample of CC interaction events, including events at energies near the peak beam energy (~600 MeV).

This talk will outline a method to use the P0D and surrounding electromagnetic calorimeters to identify these low-energy (>800 MeV)  $\nu_{\mu}$  CCQE interactions within the P0D and to accurately measure the pertinent final state kinematics. I will also discuss how this measurement can supplement existing T2K analyses by providing a significant increase in both the statistics and the phase space accessible to ND280.

## APS member ID

61150820

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**Session Classification:** Neutrino Physics

**Track Classification:** Neutrino Physics