



## Measurement of the electron neutrino component of the T2K beam at ND280

*Saturday, July 7, 2012 6:00 PM (1 hour)*

One of the main physics goals of the T2K experiment is the measurement of the angle  $\theta_{13}$  in the neutrino mixing matrix. This is done through the observation of  $\nu_e$  appearance in the  $\nu_\mu$  neutrino beam. The main background to this measurement is the intrinsic  $\nu_e$  beam component that has to be measured before the oscillation at the T2K Near Detector (ND280). We performed two analyses to measure this component, using the data collected during the first two T2K physics runs. One analysis uses the  $\pi^0$  detector (P0D) to select high energy electrons measuring in this way the high energy part of the  $\nu_e$  contamination in the T2K beam mainly coming from the Kaon component. The other analysis selects neutrino interactions in the Fine Grained Detector (FGD) of ND280 and distinguishes electrons from muons combining the PID capabilities of three Time Projection Chambers (TPC) and an Electromagnetic Calorimeter (ECAL). The results of these two measurements provide confidence in the understanding of the intrinsic  $\nu_e$  beam component of the T2K beam simulation and in the T2K  $\nu_e$  appearance results.

**Primary author:** Dr LOPEZ, Glenn (Stony Brook University (US))

**Presenter:** Dr LOPEZ, Glenn (Stony Brook University (US))

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