Abstract Submitted
for the APR10 Meeting of
The American Physical Society

The T2K π^0 Detector and Calibration of Novel MPPC Photo Sensors KIERAN RAMOS, Stony Brook University, T2K-ND280 COLLABORATION — Neutrino oscillations have been discovered by atmospheric and solar neutrino experiments, then later confirmed by experiments using neutrinos from accelerators and nuclear reactors. The Tokai to Kamioka (T2K) experiment, a long baseline neutrino oscillation experiment, will measure the neutrino mixing angle θ_{13} via a $\nu_\mu \rightarrow \nu_e$ appearance search. θ_{13} is the third mixing angle which parameterizes the mixing between the first and third generation, and has not yet been measured. T2K uses an intense neutrino beam produced at J-PARC in Tokai, Japan, a near detector (ND280) at 280 m, and Super Kamiokande as the far detector at 295 km. π^0 particles make a large contribution to the ν_e appearance background. For this reason the scintillator based π^0 detector, a sub-detector of ND280, will measure the π^0 background. The π^0 detector uses novel Multi-pixel Photon Counter (MPPC) photo sensors. MPPCs are pixelized silicon devices with $\sim 1\text{mm}^2$ active area, where each pixel is an avalanche photo diode working in Geiger mode. This poster will describe the π^0 detector and MPPC calibration.

Kieran Ramos
Stony Brook University

Date submitted: 28 Dec 2009 Electronic form version 1.4