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Measurement of Neutral Current Pi 0 Cross Section using T2K ND280 Pi 0 Detector KARIN GILJE, GLENN LOPEZ, SUNY Stonybrook, T2K COLLABORATION — The T2K experiment is a long baseline neutrino experiment designed to directly measure $\nu_\mu \rightarrow \nu_e$ oscillation, thereby provide a measurement of θ_{13} , the last unknown neutrino mixing angle. To achieve this goal, a beam of muon neutrinos is produced at the Japanese Proton Accelerator Research Complex (JPARC) in Tokai-Mura, Japan and sent 295 kilometers across Japan towards the Super-Kamiokande detector. One of the major backgrounds of the ν_e appearance measurement is from the production of π^0 s from the neutral current ν_μ interactions where the photons from the π^0 decay mimic the ν_e appearance signal. In order to constrain the uncertainty on this background, a π^0 -detector (PØD) has been designed and installed as part of the T2K near detector at 280 meters from the beam origin (ND280). The PØD is designed specifically to measure the neutral current π^0 production cross section on water. In this talk, we present the details of this measurement.

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