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Measurement of NC π^0 production and CC interactions using the ND280 P0D.

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The T2K experiment is a long baseline neutrino oscillation experiment designed for the primary goal of measuring oscillations of muon neutrinos to electron neutrinos, thereby providing an appearance measurement of θ_{13} . One of the major backgrounds of the electron neutrino appearance measurement is from neutral current muon neutrino interactions where a single neutral pion is produced and the photons from the pi-zero decay mimic the electron neutrino appearance signal. To constrain the uncertainty on this background the T2K near detector facility at 280 meters from the proton beam target was used to measure neutral current pi-zero production by muon neutrinos. Presented is a measurement of the neutral current single pi-zero production cross section using 8.55×10^{19} protons-on-target (POT) of T2K data. We also report the status of an ongoing analysis to measure charged-current interactions in the P0D in which the momentum of the muon is measured in the downstream TPC.

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