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Measurement of Charged-Current ν_e On-Water Interaction Rate with the PiZero Detector at T2K

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T2K is a long-baseline neutrino oscillation experiment designed to observe ν_e appearance in a ν_μ beam. The objective of the PiZero detector (P0D), which is a part of the T2K off-axis near detector ND280, is to characterize the T2K neutrino beam and to measure neutrino cross-sections, in particular the neutral-current single pi-zero production cross-section. The design of the P0D includes fillable water targets, which allows to measure on-water neutrino interaction cross-sections. In this talk, an analysis of charged-current ν_e on-water interactions, which is the largest background for the ν_e appearance measurement, within the P0D will be presented. The selection criteria and systematic uncertainty studies will be explained and preliminary results will be shown.

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