

Abstract Submitted  
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**Data Analysis Using the Side Muon Range Detector (SMRD) of the T2K Experiment** JEREMIAH HAREMZA, RYAN MINVIELLE, Louisiana State University, T2K COLLABORATION COLLABORATION — The goal of T2K (Tokai to Kamioka), a second generation long baseline neutrino experiment, is to obtain an accurate measurement of  $\theta_{13}$  - a parameter which determines the oscillation between muon neutrinos and electron neutrinos. The T2K  $2.5^\circ$  off-axis near detector (ND280) is located 280 m from the beam target, and consists of 5 different sub-detectors which are encased in the UA1 magnet. The SMRD (Side Muon Range Detector), 1 of the 5 sub-detectors of the ND280, consists of slabs of 0.7 cm thick plastic scintillator material with embedded wavelength shifting fibers and each scintillator slab is sandwiched between the iron plates of the magnet yokes. The SMRD contributes to the measurement of the neutrino energy spectrum, triggers on cosmic ray muons for calibration, and identifies backgrounds. We present work on the following uses of the SMRD: (1) the general role of the SMRD in T2K analyses, (2) status of data quality considerations and data selection performance, (3) SMRD performance measurement with cosmic ray data and comparison with simulations, (4) extraction of neutrino cross-sections on Fe and comparison with simulations.

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