

T575: Test of prototypes for T2K near detectors

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We have tested prototypes for near detectors in T2K next generation long-baseline neutrino oscillation experiment. Two types of detectors for on-axis detector, which will monitor the direction of neutrino beam, were tested. One is a tracker made of plastic scintillator bars, and the other is cherenkov detector made from acrylic plate. The basic performance of the detectors, such as light yield, efficiency, and their dependence on track properties are studied. Some of results are shown in Fig. 1.

In addition, we have tested a prototype readout system for avalanche photo diode, which is one of candidates of photosensor in T2K near detector. The results obtained in this test will be used to improve the design of detectors at T2K.

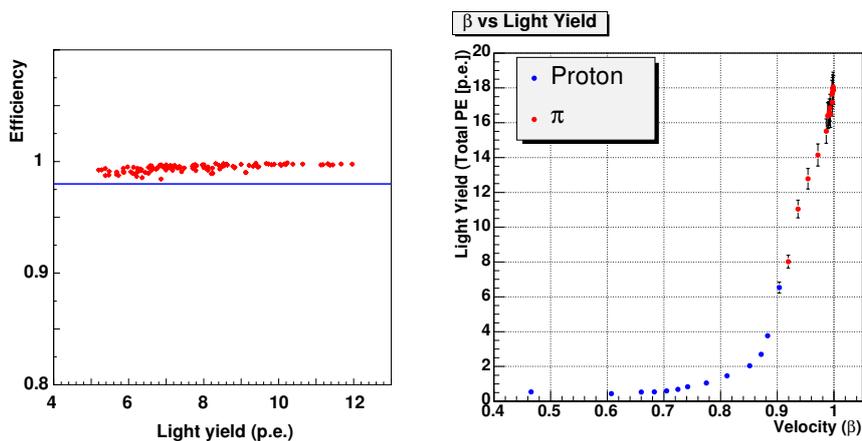


Figure 1: (Left) Efficiency versus light yield for one segment of segmented scintillator tracker. Horizontal line shows 98% efficiency, which was initial goal of the detector. (Right) Light yield of acrylic cherenkov detector as a function of particle velocity.