

Fine-Grained neutrino detector for the T2K neutrino oscillation experiment

T2K is a long baseline neutrino oscillation experiment started in 2009. The neutrino beam produced at J-PARC (Japan Proton Accelerator

Research Complex) is observed by both a near detector (ND280) and a far detector (Super Kamiokande), to produce an oscillation measurement. The main goal of T2K is to measure the unknown mixing angle θ_{13} by observing conversion from the muon-type neutrino to the electron-type neutrino. To achieve high sensitivity for this measurement, it is important to measure the neutrino beam flux and energy for each flavor of the neutrino at the near detector, located 280m from the neutrino production target. The FGDs (Fine-Grained Detector) compose main parts of the near detector complex. They consist of layers of scintillator bars and act as both a neutrino interaction target and as a tracking detector. We started data-taking in the winter of 2009/10. The performance and commissioning of the FGDs in the initial data taking is reported.

Summary (Additional text describing your work. Can be pasted here or give an URL to a PDF document):

http://www-he.scphys.kyoto-u.ac.jp/member/iekikei/files/VCI2010_abstract.pdf

Primary authors: Mr IEKI, Kei (Kyoto Univ.); MURAKAMI, akira (Department of Physics, Kyoto University)

Co-authors: MINAMINO, akihiro (Department of Physics, Kyoto University); ICHIKAWA, atsuko (Department of Physics, Kyoto University); BRONNER, christophe (LLR Ecole polytechnique); ORME, daniel (Department of Physics, Kyoto University); AUTIERO, dario (IPN Lyon); MOREAU, françois (LLR Ecole polytechnique); CHAUS-SARD, lionel (IPN Lyon); BESNIER, magali (LLR Ecole polytechnique); OTANI, masashi (Department of Physics, Kyoto University); YOKOYAMA, masashi (Department of Physics, University of Tokyo); GONIN, michel (LLR Ecole polytechnique); DRAPIER, olivier (LLR Ecole polytechnique); FERREIRA, oscar (LLR Ecole polytechnique); DINH TRAN, phoung (LLR Ecole polytechnique); NAKAYA, tsuyoshi (Department of Physics, Kyoto University); DE-CLAIS, yves (IPN Lyon)

Presenter: Mr IEKI, Kei (Kyoto Univ.)