Contribution ID: **77** Type: **Parallel session talk**

Development of in-situ calibration system using LED and light guide for the SuperFGD

Thursday 28 May 2020 12:12 (18 minutes)

T2K is a long-baseline neutrino experiment based in Japan that aims to observe for the first time the violation of the CP symmetry in the neutrino sector. The upgrade of the magnetized near detector (ND280) is under development. The neutrino active target is a 3D highly segmented plastic scintillator detector (SuperFGD) made of about two million cubes. The light readout is based on sixty thousand SiPMs coupled with wavelength shifting (WLS) fibers. It can track charged particles and precisely measures the produced scintillation light to provide very good particle identification performances. We are developing the LED calibration system for in-situ calibration. Two configurations are investigated to distribute the LED light to the WLS fibers in limited space: one uses notched square clear fibers while the other one uses a notched light guide plate. We will present the R&D status of both configurations.

Funding information

Author: ARIHARA, Takuji (Department of Physics, Graduate School of Science, Tokyo Metropolitan University)

Co-authors: SGALABERNA, Davide (CERN European Organization for Nuclear Research); KAKUNO, Hidekazu (Department of Physics, Tokyo Metropolitan University); POLAK, Ivo (Institute of Physics, Academy of Sciences of the Czech Republic); DRAPIER, Olivier (Ecole Polytechnique, IN2P3-CNRS, Laboratoire Leprince-Ringuet); MATSUBARA, Tsunayuki (High Energy Accelerator Research Organization (KEK)); KOSE, Umut (CERN European Organization for Nuclear Research); FOR THE T2K ND280 UPGRADE GROUP

Presenter: ARIHARA, Takuji (Department of Physics, Graduate School of Science, Tokyo Metropolitan University)

Session Classification: Experiments: Trackers

Track Classification: Experiments: Trackers