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## Development of calibration method of the new near detector SuperFGD in the T2K experiment using cosmic muons

The T2K experiment showed the strongest constraint on the CP violation phase in the lepton sector using neutrino oscillation and is seeking further improvement of the measurement sensitivity. To reduce systematic uncertainties, upgrades of the near detector are ongoing. In 2023, a new type of detector, called SuperFGD, is planned to be installed. SuperFGD is a high granular scintillator detector and has about 2 million scintillator cubes and more than 55 thousand channels. It is necessary to understand the detector properly for analysis such as cross-section measurement. To calibrate this detector, we plan to use cosmic muons as one of the approaches. To develop calibration methods for the light yield and timing, cosmic data were generated using Monte Carlo simulation, and reachable precision and required time were estimated. This poster presentation will give the current status and prospects for the development of calibration methods using cosmic muons.

**Auteur principal:** KODAMA, Shoma (The University of Tokyo)

**Orateur:** KODAMA, Shoma (The University of Tokyo)

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