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P2.050 **New experiment at J-PARC to measure the muon neutrino cross section ratio between water and hydrocarbon**

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The T2K experiment is a long-baseline accelerator neutrino oscillation experiment, using an intense neutrino beam produced at J-PARC. In this experiment, neutrino oscillation parameters are determined by measuring the neutrino beam flux before oscillation at the near detector, ND280 and after oscillation at the far detector, Super-Kamiokande (SK), respectively. The target nucleus of ND280 is mainly hydrocarbon, while that of SK is water. This difference of nuclear target between detectors is one of the main systematic errors in the neutrino oscillation analysis for the T2K experiment. It is important to reduce it. Moreover, though ND280 can measure mainly forward scattering events, SK has 4π angular acceptance. The difference in acceptance also contributes to systematic errors. That is why we propose a new experiment, named WAGASCI, using a detector which can precisely measure the relation of muon neutrino cross section in charged-current interactions between water and hydrocarbon with a large angular acceptance.

The new detector mainly consists of two water target modules and two hydrocarbon target modules. Each module is composed of scintillators aligned in a 3D grid-like structure having almost 4π angular acceptance. Each scintillator has a groove for putting on the WLS fiber, and they are glued with the optical cement by using a semi-automated gluing system. WLS fibers are connected to Multi-Pixel-Photon-Counters (MPPCs), which are crosstalk suppression type, for reading out the signal of charged particles. The detector is now under construction, and we plan to complete it and to start taking the data at J-PARC in early 2017. We report the concepts of this experiment, and the status of the detector construction.