

Prospects for CP violation measurement with Hyper-Kamiokande

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Three flavor neutrino mixing has been established by the continuous studies of neutrino oscillations since its discovery. Large mixing angles and small neutrino masses, in contrast to those in quark sector, imply new physics at ultra-high energy. In addition, as-yet unmeasured CP violation in neutrino sector is considered as a clue to investigate the origin of matter-antimatter asymmetry of the universe. Hyper-Kamiokande is a next generation large-scale water Cherenkov detector. With the baseline design, its fiducial volume is about an order of magnitude larger than Super-Kamiokande and the detector performance is significantly improved with newly developed photo-sensors. Combination of the Hyper-Kamiokande detector with the upgraded J-PARC neutrino beam will provide unprecedented high statistics of the neutrino and antineutrino signals to measure the CP violation and reveal a full picture of neutrino mixing with high precision. Prospects for the CP violation measurements by the Hyper-Kamiokande long baseline project will be presented.

Author: ISHITSUKA, Masaki (Tokyo University of Science)

Co-author: ISHITSUKA, Masaki (Tokyo Institute of Technology (JP))

Presenter: ISHITSUKA, Masaki (Tokyo University of Science)

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