

Enhanced search for CP violation in leptons with the new intermediate water cherenkov detector and improved J-PARC neutrino beam in the Hyper-Kamiokande Experiment.

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The Hyper-Kamiokande experiment aims to discover the CP violation in leptons by the precise measurement of $\nu_\mu \rightarrow \nu_e$ and $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ oscillations. It will be realized by high statistics using the new 260 kiloton far-detector and the intense neutrino beam from J-PARC, and by precise understanding on the neutrino-nucleus interaction using the new intermediate water Cherenkov detector (IWCD). The J-PARC accelerator and neutrino beam facility is being improved for 1.3MW beam power from the original design value of 750kW, and the new experimental facility for IWCD will be constructed at the new site away from ~900m from the neutrino production target. The role and prospects of IWCD measurements, the IWCD facility design, and the latest progress of the upgrade of J-PARC and the IWCD project that are started in 2020 towards the data taking start in 2027 are described.

Alternate track

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