

Status and prospects of the Hyper-Kamiokande project

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The Hyper-Kamiokande project is a 260-kton Water Cherenkov together with an upgraded high-intensity neutrino beam from J-PARC. The inner detector with the 190-kton fiducial volume is viewed by 20-inch PMTs and multi-PMT modules providing state-of-art of Cherenkov ring reconstruction with a few MeV energy thresholds. Thanks to the further improvements of systematic errors with near detector complex, precision neutrino oscillation study will be performed with the 8-times larger fiducial mass and with 20-times higher intensity of neutrino beam. Significant improvement is also foreseen in the studies in nucleon decay and low energy neutrino astronomy such as solar or supernova neutrinos.

In 2020, construction of the far detector has been started at the Tochibora mine, Kamioka. The initial rock excavation and detail geological survey are on-going as well as logistics preparation around the construction area. The first mass production of newly developed 20-inch PMTs has been also started. The organization of the project is now transited to the official Hyper-Kamiokande collaboration to pursue construction works in coming years.

Here we will present the newest update of project status and milestones of construction and physics prospect toward the operation foreseen in 2027.

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