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Status and perspectives of the Hyper-Kamiokande project

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A future neutrino experiment based in Japan, Hyper-Kamiokande (HK) consists of a high-intensity neutrino beam from the J-PARC accelerator targeting a Near Detector suite, an Intermediate Water Cerenkov detector and an underground world-largest Water Cerenkov Far Detector, providing 0.19 Mt (fiducial mass) of ultra-pure water sensed by newly developed photo-sensors with 40%-equivalent photo-coverage, to perform Cerenkov ring reconstruction with a few MeV energy threshold. A second identical far detector may later be added in Korea.

Building on the legacy of Super-Kamiokande and T2K, the HK project will address a broad scientific program and substantially enhance our knowledge of both particle physics and astrophysics. Its objectives include precise measurements of neutrino oscillations and CP-asymmetry (with CPV discovery at 3 sigma for 76% of the phase space), solar neutrino astronomy, determination of supernova burst dynamics, detection of supernova relic neutrinos allowing to study supernova populations, searching for nucleon decay with improved sensitivity (10^{35} years for $p \rightarrow \pi^0$ mode at 90%CL) and finding possible exotic phenomena.

Here we will present the project status and milestones, from the beginning of construction in 2020 towards the commissioning in 2027.

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