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The Hyper-Kamiokande experiment

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The Hyper-Kamiokande (Hyper-K) is the third generation of underground water Cherenkov detectors in Japan. It will serve twofold: as the far detector for a long-baseline neutrino oscillation experiment for the upgraded, to 1.3 MW power, J-PARC muon neutrino/antineutrino beam and as a detector capable of observing proton decays, atmospheric neutrinos, and neutrinos from astronomical sources. It will consist of a cylindrical tank with a water depth of 71 m and a diameter of 68 m. The fiducial region of the detector, with a mass of 186 kton, will be instrumented with 20,000 20-inch photomultipliers (PMTs) and 800 multi-PMT modules, each of which contains 19 3-inch PMTs. The experiment is under construction, the excavation is ongoing, and the detector assembly (data taking) is scheduled to start in early 2026 (end of 2027). We will present the sensitivity of Hyper-K to CP violation, and other oscillation parameters of interest in the 3-flavour paradigm. These studies are based on the T2K model of systematic uncertainties, with projections of precision expected with the next generation of near and intermediate detectors in the J-PARC neutrino beam.

Working Group

WG 1: Neutrino Oscillation Physics

Primary authors: KISIEL, Jan (Hyper_kamiokande); DEALTRY, Tom (Lancaster University)

Presenter: DEALTRY, Tom (Lancaster University)

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