

## Neutrino oscillation sensitivity of the Hyper-Kamiokande experiment

*Friday 25 August 2023 17:11 (20 minutes)*

The next-generation water Cherenkov experiment Hyper-Kamiokande (HK) includes a rich long-baseline neutrino oscillation component. This will make use of a 1.3MW proton beam from J-PARC, coupled with a suite of near detectors, including an upgraded ND280 and a new Intermediate Water Cherenkov Detector (IWCD). The 185 kton fiducial mass Hyper-Kamiokande will be used for the far detector. The high beam power and this large fiducial mass will provide the statistics necessary for precise determination of the atmospheric mass splitting,  $\Delta m^2_{23}$ , mixing angle  $\theta_{23}$ , and the neutrino CP violating phase  $\delta_{CP}$ . Such measurements have the potential to become systematically limited over the course of HK's running period. The impact of systematic uncertainties on the oscillation sensitivity will be discussed, along with the potential to minimise this impact with near-detector measurements.

**Primary author:** NASEBY, Charlie

**Presenter:** NASEBY, Charlie

**Session Classification:** parallel (room#101)

**Track Classification:** WG1: Neutrino Oscillation Physics