

## The latest T2K neutrino oscillation results and the future of the T2K experiment

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T2K is an accelerator neutrino experiment conducted in Japan, which studies of oscillations from muon (anti)neutrinos disappearance and electron (anti)neutrinos appearance at a distance of 295 km between the set of near detectors (at J-PARC) and the far detector SuperKamiokande (SK, at Kamioka). It has already provided world-leading measurements of the two oscillation parameters:  $\theta_{23}$  mixing angle and  $\delta_{CP}$  phase, describing the CP symmetry conservation/violation for neutrinos, as well as many cross-section measurements of muon and electron neutrino and antineutrino interactions.

Currently, T2K is heading towards phase II of the experiment (T2KII), which involves major upgrades of the neutrino beamline and the ND280 near detector. The goal of T2KII is to confirm CP symmetry violation in the neutrino sector at over the  $3\sigma$  level. The successor of the T2K experiment will be the Hyper-Kamiokande (HK) experiment. It will use the same beamline and set of the near detectors, but as a far detector it will use the Hyper-Kamiokande detector, which will be eight times more sensitive than SK. The HK experiment physics program includes confirmation of CP violation at the  $5\sigma$  level, searching for proton decay and cosmic neutrino studies, including Supernova Relic Neutrinos and Solar Neutrinos. The start of T2KII and HK is scheduled for 2023 and 2027, respectively.

I will show the latest T2K neutrino oscillation results and the status of the work performed for the second phase of the T2K experiment and the Hyper-Kamiokande experiment, as well as their physics program.

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