

YP talk: CP-violation in lepton sector with a combined analysis of T2K-II and NOvA experiments

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In this talk, we will present the study about the combined sensitivities of T2K-II and NOvA, the world leading long-baseline neutrino oscillation experiments, to CP-violation in the lepton sector. By operating until the year 2026, T2K-II is expected to collect a total exposure of 20×10^{21} protons-on-target. Meanwhile, NOvA experiment with significant improvement in electron (anti-) neutrino event classification can boost their search for CP-violation along with a sensational measurement on the neutrino mass hierarchy. By combining analyses of T2K-II and NOvA with an ultimate constraint from reactor, 4 sigma or higher significance can be achieved if δ is close to $-\pi/2$, which is indicated by the latest T2K data. It is also pointed out that by reducing the systematic uncertainties of both T2K-II and NOvA to a level of 2%, the sensitivity to CP-violation will remarkably increase. Understanding the systematics in neutrino oscillation experiments is therefore crucial for exploring CP-violation.

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