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CP violation and mass hierarchy with a combined sensitivity of T2K-II, NOνA and JUNO

Recent T2K data indicates a CP violation in the neutrino oscillations and mildly favours the normal neutrino mass hierarchy. This work explores the physics potentials with a combined sensitivity of T2K-II, NOνA, and JUNO experiments. T2K-II, a proposed run extension up to 2026 by T2K collaboration, is sensitive to CP violation at a level of 3σ or higher if $\delta_{CP} \sim -\pi/2$. NOνA is sensitive to both mass hierarchies and CP violation. JUNO, expected to take data from 2021, has 3σ or higher sensitivity to the mass hierarchy and 1% or better precision measurement of solar parameters and atmospheric mass splitting. A combined sensitivity of the three experiments allows us to achieve the most sensitivity to the CP violation and mass hierarchy before 2027 when Hyper-Kamiokande and DUNE are expected to start.

Mini-abstract

CP violation and mass hierarchy with a combined sensitivity of T2K-II, NOνA and JUNO

Experiment/Collaboration

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