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Neutrino NSI sensitivity studies with T2HK and DUNE

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Neutrino physics gives us an opportunity to investigate new physics beyond the standard model. Recent data from the two long-baseline accelerator experiments, NOνA and T2K, appear to show some discrepancy in the standard 3-flavor scenario. Here, we intend to explore the next generation of long-baseline neutrino experiments T2HK and DUNE. We study the sensitivities of the non standard interaction (NSI) couplings ($|\epsilon_{e\mu}|$, $|\epsilon_{e\tau}|$) and the corresponding CP-phases ($\phi_{e\mu}$ and $\phi_{e\tau}$). While both the future experiments are sensitive to NSI of the flavor changing type arising from $e-\mu$ and $e-\tau$ sectors, we find that DUNE is more sensitive to the NSI parameters than that of T2HK. In addition to that we study the impact of NSI on the sensitivities of standard CP-phase δ_{CP} and atmospheric mixing angle θ_{23} in the normal as well as inverted ordering. We also observe difference in probabilities for both the experiments in the presence of NSI.

Session

Neutrino Physics

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