

# Discernible NSI effects in Long-baseline Neutrino Experiments

*Friday 19 July 2024 20:40 (20 minutes)*

The upcoming long-baseline (LBL) neutrino experiments will be sensitive to non-standard interactions (NSI) and can provide information on the unknown oscillation parameter values. The observed shift in  $\delta_{CP}$  value observed for NOvA in case of standard model (SM) and NSIs arising simultaneously from two different off-diagonal sectors, i.e.,  $e - \mu$  and  $e - \tau$  could be attributed to the presence of new physics effects. We extend the study to the upcoming long-baseline experiments: DUNE and T2HK. We derive constraints on the NSI sectors using the combined datasets of NOvA and T2K. Our analysis reveals a significant impact that NSIs may have on the sensitivity of standard CP phase  $\delta_{CP}$  and atmospheric mixing angle  $\theta_{23}$ . Furthermore, when NSIs from the  $e - \mu$  and  $e - \tau$  sectors are included, we see significant changes in the CP sensitivity due to the presence of NSIs, and, in addition, the CP asymmetry exhibits an appreciable difference in DUNE and T2HK.

## Alternate track

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Yes

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**Session Classification:** Poster Session 2

**Track Classification:** 02. Neutrino Physics