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Looking for Lorentz invariance violation (LIV) in the latest long baseline accelerator neutrino oscillation data

In this paper, we have analysed the latest data from $\text{NO}\nu\text{A}$ and T2K with the Lorentz invariance violation along with the standard oscillation hypothesis. We have found that the $\text{NO}\nu\text{A}$ data cannot distinguish between the two hypotheses at 1σ confidence level. T2K data and the combined data analysis excluded standard oscillation at 1σ . All three cases do not have any hierarchy sensitivity when analysed with LIV. There is a mild tension between the two experiments, when analysed with LIV, as θ_{23} at $\text{NO}\nu\text{A}$ best-fit is at higher octant but the same for T2K is at lower octant. $\text{NO}\nu\text{A}$ has a new degeneracy over $\sin^2 \theta_{23}$ value, when analysed with LIV.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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