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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 NOνA and T2K with the Lorentz invariance violation along with the standard oscillation hypothesis. We have found that the NOνA data cannot distinguish between the two hypotheses at 1 σ confidence level. T2K data and the combined data analysis excluded standard oscillation at 1 σ. 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 NOνA best-fit is at higher octant but the same for T2K is at lower octant. NOνA 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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