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Non-minimal Lorentz invariance violation as a solution to the θ_{23} discrepancy in T2K and NOνA

The rise of the precision measurements in neutrino oscillation experiments marks a new era in flavour physics. With many of the standard oscillation parameters measured to nearly percent-level accuracy, the data from neutrino oscillation experiments can be used to test the fundamental laws of particle physics. We investigate whether non-minimal Lorentz invariance violation can solve the tensions that are still present in the long-baseline experiments T2K and NOνA, where the atmospheric mixing angle θ_{23} has been measured inconclusively. We present the results from Lorentz-violating terms of dimensions $D = 4$, 5 and 6 in a combined analysis of the experimental data. We find that parameters of dimension $D = 4$ can potentially solve the discrepancy in θ_{23} measurements. In this talk, we will examine these fit results in detail and discuss how they stand against the constraints derived from previous experiments.

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