

CPT violation due to quantum decoherence tested at DUNE

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In this work we study the intrinsic CPT violation in the neutrino oscillations phenomena produced by quantum decoherence as sub-leading effect. In the usual representation, we find that only fifteen elements of the decoherence matrix violate the CPT symmetry intrinsically. We find exact solutions for the CPT asymmetry function in vacuum. We define an observable \mathcal{R} to make predictions of this model for the future Long-Baseline experiment, DUNE. We found values of the decoherence parameters with 5σ of discrepancy to standard physics which are allowed by the current experimental limits, suggesting hints for new physics by this model in the context of future experiments.

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