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Examining the Influence of Quantum Decoherence on Precision Measurements at DUNE and T2HK

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We explore how neutrino quantum decoherence could affect the accuracy of standard neutrino oscillation parameter measurements in the DUNE and T2HK experiments. Our analysis reveals that the measurements of δ_{CP}, $\sin^2\theta_{13}$, and $\sin^2\theta_{23}$ are more significantly impacted in DUNE compared to T2HK. Conversely, DUNE exhibits greater sensitivity to detecting decoherence effects than T2HK. Through a combined analysis of DUNE and T2HK data, we demonstrate the potential for achieving robust measurements of standard parameters, which may not be achievable with DUNE data alone.

Poster prize

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