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Study of the nature of neutrinos in the presence of environmental decoherence

In this work, we examine the scope of determining the nature of neutrinos in a dissipative environment at long baseline neutrino oscillation experiments. Assuming an open quantum system framework, we analyze the flavor transition probabilities of the neutrinos and anti-neutrinos at different baselines and study the effect of Majorana phase on these probabilities. Additionally, we explore the sensitivity of T2K, ESSnuSB, NOvA, T2HKK and DUNE to differentiate between Dirac and Majorana neutrinos.

Field of contribution

Phenomenology

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