

Using Short- and Long-Baseline Experiments in the Analysis of Lorentz Invariance Violation Parameters

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The Lorentz Invariance is the foundation of other successful theories, like quantum field theory, and is connected to fundamental symmetries, like charge, parity, and time reversal (CPT), which is essential in the Standard Model of particle physics. Alternative theories proposing that Lorentz Invariance may break in some scales have been considered in the context of neutrino oscillations, as they can explain some anomalies present in experiments like LSND and MiniBoone. The dependence on baseline and energy can distinguish the influence of LIV on these anomalies in contrast with other effects, like Non-Standard Interactions (NSI). In this work, we continue our simulation studies to study the influence of Lorentz-violating parameters in neutrino experiments combining two different baselines. We use the General Long-Baseline Experiment Simulator (GLOBES) with a modified probability engine to include LIV parameters.

Working Group

WG 5: Neutrinos Beyond PMNS

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