



Contribution ID: 27

Type: Poster

## Constraining Lorentz Invariance Violation Parameters Using Short and Long Baseline Experiments

The Lorentz Invariance is deeply connected to Special Relativity, which states that the laws of physics are the same for different observers in relative motion. It is the foundation of other successful theories, like quantum field theory, and connected to fundamental symmetries, like charge, parity, and time reversal (CPT), which is essential in the Standard Model of particle physics. Nevertheless, 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 perform 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.

**Primary authors:** STEKLAIN, Andre (Universidade Tecnológica Federal do Parana); HIRSCH, Luciana (UTFPR)

**Presenter:** STEKLAIN, Andre (Universidade Tecnológica Federal do Parana)