Contribution ID: **30** Type: **not specified**

Exploring BSM models at Long Baseline neutrino experiments

Thursday 30 June 2022 17:00 (15 minutes)

Standard three-neutrino oscillations are a well known phenomenon; however, the uncertainties on the mixing parameters do not allow us to exclude the possibility of the presence of new physics effects in the lepton sector. Future long-baseline (LBL) accelerator experiments may be able to probe different BSM models in neutrino oscillations. Indeed, these experiments should be able to look at different oscillation channels and to search for new physics phenomena at both short (near detectors) and long (far detectors) distances.
We studied the performances of two of the most promising experiments, namely DUNE and T2HKK in constraining different models.

For instance, we considered the effects of the possible Non-Unitarity of the mixing matrix at the detectors of such experiments. Moreover, we show how the precision on the δ_{CP} measurements could be affected if any deviation from unitarity of the PMSN matrix is present.

Furthermore, we explored the capabilities of the DUNE experiment in measuring scalar and vector Non Standard Interaction (NSI) parameters, taking into account different benchmark scenarios.

Primary author: GIARNETTI, Alessio (Roma Tre University & INFN)

Presenter: GIARNETTI, Alessio (Roma Tre University & INFN)

Session Classification: Parallel Session III.2