Contribution ID: **155** Type: **Poster**

Constraining NSI and Sterile Neutrino Physics with nu_tau Appearance in DUNE

We consider the ν μ ⟶ ν τ appearance channel in the future Deep Underground Neutrino Experiment (DUNE) which offers a good statistics of the ν_τ sample. In order to measure its impact on constraining the oscillation parameters, we consider several assumptions on the efficiency for ν_τ charged-current signal events (with subsequent τ ⟶ e decay) and the related backgrounds and study the effects of various systematic uncertainties. Two different neutrino
fluxes have been considered, namely a CP-violation optimized flux and a ν τ optimized flux.
Our results show that the addition of the ν μ ⟶ ν τ appearance channel does not reduce the current uncertainties on the standard 3-ν oscillation parameters while it can improve in a significant way the sensitivity to the Non-Standard Interaction parameter | \epsilon_μτ | and to the new mixing angle θ 34 of a sterile neutrino model of the 3 + 1 type.

Collaboration name

Primary authors: Mr GHOSHAL, Anish (University Roma Tre & LNF-INFN); Mr GIARNETTI, Alessio (University Roma Tre); Prof. MELONI, Davide (University Roma Tre)

Presenter: Mr GHOSHAL, Anish (University Roma Tre & LNF-INFN)

Session Classification: Poster session

Track Classification: Neutrino Physics