

## Uncovering tau-neutrino-philic secret interactions in DUNE

In this talk, I would like to investigate the excellent potential of future tau neutrino experiments in probing non-standard interactions and secret interactions of neutrinos. I would like to first discuss so-called secret neutrino interactions of tau neutrinos including their possible effects in cosmology and astroparticle physics. Then, the sensitivities of probing such interactions in various tau neutrino experiments such as DUNE, SHiP, SND@LHC, FASERnu, and future experiments in FPF will be discussed. Due to its ability of identifying and reconstructing the tau lepton decay products, DUNE far detector can have excellent sensitivity beyond the existing cosmological and astrophysical bounds by observing downward-going atmospheric neutrinos. Also pros and cons of other experiments will be discussed.

### Track type

**Authors:** BAKHTI, Pouya (JBNU); Prof. SHIN, Seodong (Jeonbuk National University); RAJAEI, meshkat (JBNU)

**Presenter:** Prof. SHIN, Seodong (Jeonbuk National University)