

Probing Lepton Number Violation at the LHC

Wednesday 17 May 2023 14:55 (25 minutes)

Observation of lepton number (L) violation by two units at colliders would provide evidence for the Majorana nature of neutrinos. We study signals of L-violation in the context of two popular models of neutrino masses, the type-II seesaw model and the Zee model, wherein small neutrino masses arise at the tree-level and one-loop level, respectively. We focus on L-violation signals at the LHC arising through the process $pp \rightarrow \ell^\pm \ell'^\pm + \text{jets}$ within these frameworks. We obtain sensitivity to L-violation in the type-II seesaw model for triplet scalar masses up to 700 GeV and in the Zee model for charged scalar masses up to 4.8 TeV at the high-luminosity LHC with an integrated luminosity of 3 ab^{-1} .

Author: BABU, Kaladi

Presenter: BABU, Kaladi

Session Classification: Collider