

# Searching for long-lived particles at the LHC: Sixth workshop of the LHC LLP Community



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## Search for heavy neutrinos with the near detector ND280 of the T2K experiment

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Heavy Neutral Leptons (HNLs, heavy neutrinos) with masses below the electroweak scale are introduced in some extensions of the Standard Model to address consistently such effects as neutrino oscillations, light neutrino masses, dark matter and baryon asymmetry.

The talk presents the search for heavy neutrinos in the mass range of  $140 < M_{\text{HNL}} < 493 \text{ MeV}/c^2$  with the T2K neutrino oscillation experiment setup. The near detector complex ND280 is used to identify the products of decays of HNLs potentially originating from the kaon parents of the neutrino beam.

No events in the signal region were observed for the 2010-2017 T2K ND280 dataset. The limits on the mixing parameters between heavy neutrino and electron, muon- and tau- flavoured currents were extracted. The T2K data allow an improvement of the limits provided by the previous experiments such as the CERN PS191 which, together with the BNL E949 data, put the most stringent constraints in the mass region studied by T2K.

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