

# First Results from HNL Searches in IceCube

*Friday, 21 June 2024 17:30 (2 hours)*

Neutrino telescopes present a novel opportunity to search for a coupling between Heavy Neutral Leptons (HNLs) and tau neutrinos via mass mixing. These searches can leverage the tau neutrino flux from the oscillations of atmospheric muon neutrinos as they traverse the Earth. This work presents the first search for HNLs using ten years of data from IceCube's DeepCore sub-array. These results serve as a proof-of-concept for HNL searches in IceCube, enabled by the development of tailored HNL simulation tools. Progress on the development of a new reconstruction to enhance the identification of HNL events by capitalizing on their unique morphology will also be presented.

## Poster prize

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**Session Classification:** Poster session and reception 2

**Track Classification:** Beyond Standard Model searches in the neutrino sector