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[322] Search for long-lived heavy neutral leptons in leptonic final states with displaced vertices at the CMS experiment

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A search is presented for heavy neutral lepton (HNL) production in proton-proton collisions using the full CMS Run 2 dataset. The search focuses on final states with three charged leptons - of which two are displaced - and one neutrino, providing a clean signature for long-lived HNL decays. The analysis methods are optimised for HNL decays beyond the CMS tracker system, which extends the sensitivity of previous CMS searches in the high HNL lifetime region. This analysis is also conceived as a basis for future HNL searches in the same phase space region, which will profit from new strategies targeting displaced objects together with the increased luminosity in Run 3.

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