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Search for long-lived Heavy Neutral Leptons with the CMS experiment

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A search for long-lived Heavy Neutral Leptons (HNLs) in proton-proton collisions at 13 TeV with the CMS detector is presented. The theorized right-handed neutrinos are a possible candidate for HNLs, and within a mass range from 1 to 15 GeV they naturally become long-lived particles. The search focuses on HNL production in W boson decays followed by a displaced decay of the HNL within the tracker volume of CMS. It uses advanced vertex reconstruction techniques and machine learning to perform the signal extraction. The obtained exclusion limits are the best available to date within the targeted mass range.

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