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# Search for Heavy Neutral Leptons with CMS detector

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The smallness of neutrino masses provides a tantalizing allusion to physics beyond the standard model (SM). Heavy neutral leptons (HNL), such as hypothetical sterile neutrinos, accommodate a way to explain this observation,through the see-saw mechanism. If they exist, HNL could also provide answers about the dark matter nature, and baryon asymmetry of the universe. A search for the production of HNL at the LHC, originating from leptonic W boson decays through the mixing of the HNL with SM neutrinos, is presented. The search focuses on signatures with three leptons, providing a clean signal for probing the production of the HNL in a wide mass range never explored before at the LHC: down to 1 GeV, and up to 1.2 TeV. The sample of pp collisions collected by the CMS detector throughout 2016 is used, amounting to a volume of 35.9/fb.

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