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Search for a heavy Higgs boson decaying to a pair of W bosons in proton-proton collisions at 13 TeV with CMS

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A search for a heavy Higgs boson decaying to a pair of W bosons in the mass range from 200 GeV to 5 TeV is presented. The analysis is based on proton-proton collisions recorded by the CMS experiment at the CERN LHC in 2016, corresponding to an integrated luminosity of 35.9 fb⁻¹ at $\sqrt{s} = 13$ TeV. The decay of the W boson pair is reconstructed in fully leptonic and semi-leptonic final states. Combined upper limits at the 95% confidence level on the product of the cross section and branching fraction for heavy Higgs boson with Standard Model-like couplings and decays in the mass range are evaluated. Exclusion limits are also set in the context of two Higgs doublet models.

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