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## Search for Higgs boson pair production in the $bbWW^*$ final state in proton-proton collisions with the full Run2 CMS data

A search for Higgs boson pair (HH) production with one Higgs boson decaying to two bottom quarks and the other to two W bosons is presented. The search is based on proton-proton collision data recorded by the CMS experiment at  $\sqrt{s} = 13$  TeV center-of-mass energy, corresponding to an integrated luminosity of  $138 \text{ fb}^{-1}$ . The final states include at least one leptonically decaying W boson. No evidence for the presence of a signal is observed and corresponding upper limits on the HH production cross section are set. The upper limit on the inclusive cross section of the non-resonant HH production, assuming standard model kinematics, is observed (expected) to be 14 (18) times the value predicted by the standard model, at 95% confidence level. The limits on the cross section are also shown as a function of various Higgs boson coupling modifiers. Limits are also set on the resonant HH production for resonances with spin 0 and spin 2 within the mass range 250–900 GeV.

### Collaboration / Activity

CMS

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