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The study of the associated production of the Higgs boson with the W boson and decay into a pair of b-quarks

Analysis of the associated production of a Standard Model Higgs boson with the W-boson and decay into a pair of bb quarks was carried out. For the analysis used data from ATLAS experiment, corresponding to an integrated luminosity of 36.1 fb −1 , were collected in proton-proton collisions in Run 2 of the Large Hadron Collider at a centre-of-mass energy of 13 TeV. Final states are considered that contain 1 charged lepton (electron or muon), which comes from the leptonic decay of W-boson. For Higgs boson mass of 125 GeV, an excess of events over the expected background from other Standard Model processes is found with an observed significance of 2.3 compared to an expectation of 1.8. The ratio of the measured signal strength to the Standard Model expectation is found to be μ = 1.35^{+0.68}_{−0.59}.

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