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Search for the standard model Higgs boson produced by vector-boson fusion and decaying to bottom quarks

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A search for the standard model Higgs boson in the vector boson fusion production channel with decay to bottom quarks is reported. A data sample comprising 19.8 fb^{-1} of proton-proton collisions at $\sqrt{s}$ = 8 TeV collected during the 2012 running period has been analysed and 95% confidence level upper limits on the cross section are derived in the mass range from 115 to 135 GeV. For a Higgs boson mass of 125 GeV the expected limit is 2.6 times the predicted standard model cross section, while the observed limit is 5.6. The excess corresponds to a fitted signal strength of $2.8^{+1.6}_{-1.4}$, relative to the expectation for the standard model Higgs boson.

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