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Vector Boson Fusion leading to Higgs production and subsequent decay in bottom quarks

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 19.0 fb-1 of proton-proton collisions at root(s) = 8 TeV collected during the 2012 running period has been analyzed and 95% Confidence Level upper limits are derived for five mass points from 115 to 135 GeV. At a Higgs boson mass of 125 GeV the observed limit is 3.6 while the expected limit is 3.0 times the standard model prediction. For a 125 GeV Higgs boson signal the fitted signal strength is mu = sigma/sigma_SM = 0.7 +- 1.4.

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