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Search for the H->bb~ in association with a single top quark at √s = 13TeV in ATLAS experiment

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A direct search for the production of a Higgs boson in association with single top quark is performed. The analysis considers single top quark production via t channel and uses Higgs boson decays to a bottom quark-antiquark pair and semileptonic top quark decays. Such process is strongly suppressed in the Standard Model. An observation of this production mode would be an unambiguous indication of the New Physics providing an important insight on the nature of the Higgs mechanism. The production is sensetive to the relative dign of the coupling parameters decribing its interaction with fermions and gauge bosons. The thbq production mode therefore provides an good handle on the Yukawa cupling. We have investigated the production of a Higgs boson (H->bbbar) for Standard Model and Beyond Standart Model.

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