



ATLAS Note

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Search for the Standard Model Higgs boson produced in association with top quarks and decaying into $b\bar{b}$ in pp collisions at $\sqrt{s} = 13\text{TeV}$ with the ATLAS detector

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A search for the Standard Model Higgs boson produced in association with a top-quark pair, $t\bar{t}H$, is presented. The analysis uses 36.07 fb^{-1} of pp collision data at $\sqrt{s} = 13\text{TeV}$, collected with the ATLAS detector at the Large Hadron Collider, corresponding to the full pp data sets from 2015-2016. The search is designed for the $H \rightarrow b\bar{b}$ decay mode and uses events containing one or two electrons or muons. In order to improve the sensitivity of the search, events are categorised according to their jet and the number of b -tagged jets with various multiplicities and working points. Multivariate techniques are used to discriminate between signal and background events, the latter being dominated by $t\bar{t}$ +jets production. The ratio of the measured $t\bar{t}H$ signal cross section to the Standard Model expectation is found to be $\mu = 0.84 + 0.64 / - 0.61$ assuming a Higgs boson mass of 125GeV .

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