

Search for the Higgs boson in the VH(bb) channel with the ATLAS detector

The data of the ATLAS experiment collected in 2015-2016, corresponding to an integrated luminosity of 36.1 fb^{-1} , are analyzed in order to search for the decay of the Higgs boson into a bb quarks pair when produced in association with a vector boson. Two methods were used for data analysis, BDT multivariate techniques for obtaining the main results and «cut-flow» method for the validation of the results. The results obtained after the event selection were compared with the results of the other groups and good agreement was observed. For the Higgs boson with a mass of 125 GeV, an excess of events over the expected background from other Standard Model processes is found with an observed significance of 3.5 standard deviations, compared to an expectation of 3.0 standard deviations. This excess indicates the existence of the decay of the Higgs boson into bb quarks and for its production in association with a vector boson.

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