

Measurement of the $VH, H \rightarrow b\bar{b}$ production as a function of the vector boson transverse momentum in 13 TeV pp collisions with the ATLAS detector.

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After the Higgs discovery at LHC in 2012, most of ATLAS Higgs analyses are focusing the attention on precision measurements of Higgs kinematic properties and on the search of new decay modes sensitive to physics Beyond the Standard Model (BSM). One of the most interesting channels is the Higgs boson decay into two b-quarks due to the large branching ratio (58%).

The observation of this decay at the LHC has been announced by ATLAS only recently because this channel is affected by large backgrounds arising from multi-jet production that make a real challenge to trigger and extract the signal. The best sensitivity is presently obtained by studying the associated Higgs boson production with a vector boson V ($V=W$ or Z) decaying leptonically. The same dataset has been re-interpreted in the Simplified Template Cross-Section (STXS) framework. The STXS framework facilitates the measurement of the differential $pp \rightarrow VH$ cross section, used to extract information on the Higgs couplings and to put limits on BSM effects. In this talk an overview of the most recent results on the observation of VH production and $H \rightarrow b\bar{b}$ decay mode will be presented, together with the measurements of the $VH, H \rightarrow b\bar{b}$ production as a function of the vector boson transverse momentum.

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