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Search for SM $VH \rightarrow bb$ with the ATLAS detector

During Run-1 of the Large Hadron Collider, a particle consistent with the Standard Model Higgs boson was observed coupling directly to the leptonic and bosonic sectors of the Standard Model. The decay of the Standard Model Higgs to $b\bar{b}$ is the most commonly occurring decay mode, with a branching fraction of approximately 58%. Probing this decay is vital to furthering our understanding of the Standard Model. Due to the large multijet background, the direct observation of $H \rightarrow b\bar{b}$ in the gluon fusion channel is very challenging. Instead, looking for the associated production of a Higgs with a vector boson (W/Z), and triggering on leptonic decays of the vector boson provides an effective way to trigger on the $H \rightarrow b\bar{b}$ decays and reduce the overwhelming multijet background. The latest results of this analysis will be presented, which provides one of the most sensitive searches for $H \rightarrow b\bar{b}$ decays.

Experimental Collaboration

ATLAS

Primary author: ROZEN, Yoram (Technion (IL))**Presenter:** BELL, Andrew Stuart (University of London (GB))**Session Classification:** Poster session**Track Classification:** Higgs and New Physics