

# **Illuminating the Hbb Discovery at ATLAS with the VBF + photon channel**

*Saturday, 1 December 2018 13:30 (15 minutes)*

After the discovery of the Higgs Boson in 2012 a major goal for Higgs physics is the more precise measurement of its couplings, especially that of its dominant but largely unconstrained decay to  $b\bar{b}$ . Beyond the importance of this measurement to our understanding of the SM, these constraints also serve as a probe of new physics beyond the SM. This year the ATLAS collaboration leveraged the combined Run 1 and Run 2 datasets and the power of multiple analyses to produce a 5.4 sigma (observed) discovery of Hbb. In this talk I will discuss the VBF analysis which found a 1.9 sigma (observed) signal strength for Hbb using a 30.6/fb dataset at 13 TeV. This analysis took advantage of the inclusion of a final state photon to reject QCD background process as well as innovations in bottom quark  $p_T$  reconstruction to improve the final fit result.

## **Session**

Works in Progress (15+5 min)

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**Session Classification:** Works in Progress