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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 bb. 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 pT reconstruction to improve the final fit result.

Session

Works in Progress (15+5 min)

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