

Abstract Submitted
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Analysis Optimization of the VBF HWW Measurement at the ATLAS Experiment SAGAR ADDEPALLI, Brandeis Univ, ATLAS COLLABORATION — The precision measurements of the properties of the Higgs boson are among the principal goals of the LHC Run-2 program. This talk reports on the measurements of the fiducial and differential Higgs boson production cross section via Vector Boson Fusion with an electron, a muon, and two energetic neutrinos from the decay of W bosons, along with the presence of two energetic jets in the final states. The analysis uses pp collision data at a center-of-mass energy of 13 TeV collected with the ATLAS detector between 2015 and 2018 corresponding to an integrated luminosity of 139 fb^{-1} . The optimizations of the selection criteria and the signal extraction methods will be discussed in detail, in particular the use of machine learning techniques for performing a multidimensional fit for extracting the signal and normalizing the simulated backgrounds to data.

Sagar Addepalli
Brandeis Univ

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