

Abstract Submitted  
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**CMS Discovery Potential of Standard Model Higgs Boson in the Vector Boson Fusion Process** HAIFENG PI, CMS COLLABORATION — The discovery potential of standard model Higgs boson in the vector boson fusion process with CMS detector is presented. We use cut-based strategy to establish the baseline reconstruction and the analysis scenario. The neural network technique is used to further increase the discovery potential by studying the complicated correlation among various observables. Dedicated techniques of jet energy correction, missing Et correction, hadronic W and Z reconstruction, and lepton isolation are studied and tuned to maximize S/B in the lepton+MET+multi-jet final states. Data driven strategy is used to control the systematic uncertainty from the measurement of background cross section, various detector level and instrumental effects. The Monte Carlo study shows the 5-sigma discovery for the wide mass range of SM Higgs Boson will be achieved with 1-5 fb<sup>-1</sup> of LHC data in the vector boson fusion process.

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