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The compatibility of the LHC data with a scalar with a mass around 270 GeV and its possible connection to the X(750) excess

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After the discovery of the Higgs boson in LHC Run 1, a number of excesses were seen by ATLAS and CMS collaborations. A minimalistic model with a heavy scalar H, predicts the kinematics of these final states and compare the prediction against data directly. A statistical combination of these results shows that a best fit point is found for a heavy scalar having a mass of 272^{+12}_{-9} GeV. This result has been quantified as a three- σ effect. Recently, with the early Run 2 data, an excess in the di-photon spectrum around 750 GeV has been reported by the ATLAS and CMS collaborations. The possibility of

explaining this excess with another heavy boson with a mass of 750 GeV, along with the H(270) in the framework of the 2HDM model will be discussed.

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