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A 96 GeV Higgs Boson in the 2HDMS

Tuesday, 16 March 2021 19:00 (20 minutes)

CMS reported a ~ 3σ excess at ~ 96 GeV in the $pp \to H \to \gamma\gamma$ channel. In the same mass range, a ~ 2σ excess in the $e^+e^- \to ZH, H \to b\bar{b}$ channel has been reported at LEP as well. We interpret the experimental excesses as the lightest Higgs boson in the Two-Higgs-Doublet Model with a complex singlet (2HDMS) with type II Yukawa structure. We demonstrate the model can fit both excesses simultaneously while being in agreement with all other existing theoretical and experimental constraints. In this talk, we will present the scan of parameter space of 2HDMS and discuss the "best fit" points from the scan. Furthermore, we will also study the experimental uncertainties of specific Higgs couplings that can be obtained at the future International Linear Collider (ILC) with 250 GeV center-of-mass energy.

Time Zone

Europe/Africa/Middle East

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