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2HDM Fate after LHC 8

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As well known, the LHC8 data clearly favors a fairly Standard Model (SM)-like Higgs boson with mass of 125.5 GeV, however, a natural curiosity whether more than one Higgs boson, particularly the charged Higgs, are existed in Nature motivates us to probe new physics beyond the SM (BSM). As the simplest extension in the BSM, Two-Higgs-Doublet Models (2HDM) is the focus of our great interest. In the talk I first present that both Type I and Type II 2HDM is able to provide a consistent description with the LHC Higgs signal. The current status and implications for future collider experiments for both the observed 125.5 GeV Higgs boson and for other Higgs bosons will be also presented. In addition, I will illustrate the possible importance of producing the lighter Higgs boson from certain heavier Higgs bosons through feed down mechanism.

Summary

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