

New physics hints with 2HDM under the Higgs Boson Precision Measurements

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We perform comparative studies for four types of the two Higgs Doublet Models (2HDMs) under the precision measurements of the Standard Model (SM) Higgs observables at the proposed Higgs factories. The exploration for the discovery potential is up to one-loop level. We find 5σ observability from the global fitting in a significant theory parameter space at future Higgs factories. We also examine the extent to which the different 2HDM theories may be distinguishable from one to the other at the 95% Confidence Level with four benchmark points as case studies. It confirms that the impacts of loop corrections are found to be significant in certain parameter regions.

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