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Implication of Higgs/EW precision on 2HDM

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Studying the properties of Standard Model (SM) –like Higgs boson becomes one important window to explore the physics beyond the SM. In this work, we present studies about the implications of the Higgs and Z-pole precision measurements at future Higgs Factories. We perform a global fit to various Higgs search channels to obtain the 95% C.L. constraints on the model parameter spaces of Two Higgs Double Model (2HDM). In the 2HDM, we analyse tree level effects as well as one-loop contributions from the heavy Higgs bosons. The strong constraints on $\cos(\beta - \alpha)$, m_Φ and heavy Higgs mass splitting can be complementary to direct search of the LHC and Z pole precision measurements. We also compare the sensitivity of various future Higgs factories, namely Circular Electron Positron Collider (CEPC), Future Circular Collider (FCC)-ee and International Linear Collider (ILC).

Time Zone

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Primary author: SU, wei (university of Adelaide)

Co-authors: SU, Shufang (University of Arizona); HAN, Tao (University of Pittsburgh); LI, Shuailong; Dr WU, Yongcheng (Carleton University)

Presenter: SU, wei (university of Adelaide)

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