

Unlocking the 2HDM Phase Space: Recent Experimental Insights and Discovery Potential

Monday 21 October 2024 15:10 (20 minutes)

This talk provides an overview of the direct searches for Beyond Standard Model (BSM) neutral heavy Higgs bosons conducted by the CMS experiment, focusing on both fermionic and bosonic decay channels. These searches are interpreted within the framework of the Two-Higgs-Doublet Model (2HDM), exploring various types and parameter spaces of the model. The discussion will spotlight recent CMS experimental efforts, particularly those based on the latest Run 2 data. We will analyze significant findings, including any observed excesses or anomalies, to evaluate their potential implications for new physics. Additionally, the talk will explore the remaining phase space within the 2HDM, identifying potential opportunities for new discoveries. Future directions for these searches will be outlined, focusing on the new strategies and goals of probing deeper into the BSM Higgs sector with the forthcoming data.

Primary author: JAFFEL, Khawla (University of Science and Technology of China (CN))

Presenter: JAFFEL, Khawla (University of Science and Technology of China (CN))

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