

Phenomenology 2018 Symposium



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Flavorful 2 Higgs Doublet Models with a Twist

Tuesday 8 May 2018 17:00 (15 minutes)

We explore 2 Higgs Doublet models with non-standard flavor structures. In analogy to the four, well studied models with natural flavor conservation (type 1, type 2, lepton-specific, flipped), we identify four models that preserve an approximate $SU(2)_5$ flavor symmetry acting on the first two generations. In all four models, the couplings of the 125 GeV Higgs are modified in characteristic flavor non-universal ways. Also the heavy neutral and charged Higgs bosons show an interesting non-standard phenomenology. We discuss their production and decay modes and identify the most sensitive search channels at the LHC. We also study the effects on low energy flavor violating processes. We find relevant constraints from B_s meson oscillations and from the rare decay $B_s \rightarrow \mu^+ \mu^-$. Lepton flavor violating B meson decays like $B_s \rightarrow \tau \mu$ and $B \rightarrow K(*) \tau \mu$ can have branching ratios at an observable level.

Summary

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