Contribution ID: **83** Type: **not specified**

Flavor-nondiagonal neutral Higgs Yukawa couplings revisited

Friday 25 October 2024 14:40 (20 minutes)

In the most general two-Higgs doublet model, flavor-nondiagonal neutral Higgs couplings to fermions are present. Experimental constraints on flavor-changing neutral currents imply that such flavor-nondiagonal couplings must either be absent or significantly suppressed. One possible suppression mechanism proposed many years ago by Cheng and Sher relates the suppression of off-diagonal neutral Higgs couplings to the hierarchy of fermion masses and the corresponding suppression of CKM mixing angles. In this talk, the ansatz proposed by Cheng and Sher is revisited in light of the most recent CKM mixing angle data and the approximate Higgs alignment limit implied by the LHC Higgs data (in which the observed Higgs boson couplings are close to the corresponding Standard Model predictions).

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Session Classification: Contributed Talks