Planck 2013
 <h2>From the Planck Scale to the Electroweak Scale</h2>

Contribution ID: 123

Type: not specified

Higgs phenomenology in the triplet extension of the MSSM

Thursday 23 May 2013 18:10 (15 minutes)

Extending the Higgs sector of the MSSM by triplets alleviates the little hierarchy problem and naturally allows for enhancements in the diphoton decay rate of the lightest CP-even Higgs. In this talk the Higgs phenomenology of this theory with a hyperchargeless triplet is analyzed. In particular, for any value $m_A > m_h$ there is a parameter region where the CP-even Higgs sector appears at colliders as the SM one, except for loop-induced corrections. At small m_A , moreover, there exists a second parameter region where the lightest CP-even Higgs phenomenology is as in the Standard Model except for decays into bottoms and taus. Improvements in the CP-odd and charged Higgs searches will be worthwhile to discriminate this scenario from the Standard Model.

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Session Classification: Parallel Session on Higgs Physics