

Phenomenological constraints on an R-symmetric supersymmetric model from LHC and precision observables

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R-Symmetry is an additional symmetry which can be imposed on a supersymmetric model, leading to interesting phenomenological consequences like the prediction of Dirac Gauginos. A model with a minimal implementation of this symmetry is the MRSSM and in this talk an analysis of its Higgs sector in the light of the recent SM-like Higgs boson discovery will be presented.

Due to mixing with additional scalars, which may reduce the tree level mass substantially compared to the usual MSSM upper limit, and the absence of stop mixing induced by R-Symmetry, it is not immediately clear that this model can accommodate a 125 GeV SM-like Higgs.

We will show the phenomenological impact of relevant one-loop and two-loop contributions in the MRSSM that are necessary to overcome those issues.

Additionally, as potentially large contributions to EWPO can arise in the model, we will identify regions of parameter space where simultaneous agreement with the measured Higgs mass and constraints from precision measurements is possible.

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