

Is a light singlet within an R-symmetric SUSY model viable?

Thursday, 1 October 2015 15:15 (15 minutes)

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, as well as its dark matter and LHC phenomenology will be presented.

This model includes a singlet Higgs state, which could be actually lighter than the 125 GeV SM-like Higgs and evading LEP bounds.

Due to the interplay of parameters in the bosonic and fermionic sector in the model this scenario lets us put an upper bound on the mass of the lightest neutralino, which will then be the LSP of our model.

In this scenario, we will discuss the phenomenological impact of LHC searches and show how the LSP can be a viable dark matter candidate.

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Session Classification: Particle Phenomenology