

The string landscape predicts: light higgsinos at ILC

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Our current understanding of string theory is that the 4-d laws of physics are determined by the topological properties of the compactified manifold. There may be 10^{500} (or many more) possibilities, and indeed this gives at present our only understanding of the tiny yet non-zero value of the cosmological constant. Arguments suggest the landscape of string vacua favor large soft SUSY breaking terms, but these must be tempered by a value for the weak scale which lies within the ABDS window. This scenario then predicts a Higgs mass $m(h) \sim 125$ GeV with sparticles beyond present LHC bounds. It also predicts light higgsinos in the range $m(\text{higgsino}) \sim 100\text{-}350$ GeV. The ILC with $\sqrt{s} \sim 500\text{-}600$ GeV would then be a higgsino pair factory in addition to a Higgs factory. We show sparticle and Higgs mass probability distributions using the new DEW4SLHA code which can be used to calculate the pocket-universe weak scale in vacua where the MSSM is the low energy EFT from any SUSY Les Houches Accord output file.

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