

## What pp SUSY limits mean for future e+e- colliders

It is well-known that e+e- colliders have the power to with certainty exclude or discover any SUSY model that predicts a Next to lightest SUSY particle (an NLSP) that has a mass up to slightly below the half the centre-of-mass energy of the collider. Here, we present an estimation of the power of present and future hadron colliders to extend the reach of searches for SUSY, with particular emphasis whether it can be claimed that either discovery or exclusion is {it guaranteed} in a region of LSP and NLSP masses - no set of values of the other SUSY could change the conclusion. A scan over SUSY parameter space was done, only requiring that the NLSP was a bosino - the hardest case - with mass not larger than a few TeV. The mass-spectrum, cross-sections and decay branching ratios found in this region were confronted with projections of sensitivity at future hadron colliders. In our conclusions we weigh in the maturity of the analysis the projections are based upon. The conclusion is that although future hadron colliders have a large discovery-reach, i.e. potential to discover {it some} SUSY model, hardly any models with low-to-medium LSP-NLSP mass-differences can be excluded with certainty. The models that are expected to be excluded/discovered are, on one hand, those with mass-differences larger than those allowed by models with GUT-scale M1-M2 unification, and on the other hand, a tiny region where the mass-difference is so small that the NLSP decays in the tracking volume of the detectors. Excluding the latter possibility does not, however, allow to exclude the possibility of a Wino or Higgsino LSP: at any value of the LSP mass, we could identify models where the NLSP lifetime would be too short for a signal to be seen.

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