Contribution ID: **20** Type: **not specified**

Supersymmetric mass spectra and the seesaw scale

Wednesday 1 June 2011 17:00 (15 minutes)

The talk is based on our recent paper arXiv:1101.2140. I will talk about supersymmetric mass spectra within two variants of the seesaw mechanism,commonly known as type-II and type-III seesaw. Using published, estimated errors on SUSY mass observables attainable
at the LHC and in a combined LHC+ILC analysis, we calculate expected errors for the parameters of the models, most notably the seesaw scale. If SUSY particles are within the reach of the ILC, pure mSugra can be distinguished from mSugra plus type-II or type-III seesaw for nearly all relevant values of the seesaw scale. Even in the case when only the much less accurate LHC measurements are used, we find that indications for the seesaw can be found in favourable parts of the parameter space. Since our conclusions crucially depend on the reliability of the theoretically forecasted error bars, I will discuss in some detail the accuracies which need to be achieved for the most important LHC and ILC observables before an analysis, such as the one presented here, can find any hints for type-II or type-III seesaw in SUSY spectra.

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Session Classification: P10 - SUSY, SEESAW & GUTS