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Beyond simplified models; ATLAS SUSY searches re-interpreted in the pMSSM framework

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Many searches for supersymmetric (SUSY) particles have been conducted by the ATLAS experiment using simplified models, but so far, no evidence of physics beyond the Standard Model has been found. In the absence of new physics, exclusion limits on SUSY particle masses are typically derived from the searches. However, these simplified models do not fully cover the whole SUSY parameter space. In the phenomenological minimal supersymmetric standard model (pMSSM) the vast parameter space of SUSY is reduced to 19 parameters by assuming R-parity conservation, minimal flavour violation and the lightest SUSY particle is assumed to be the lightest neutralino.

This talk will present a summary of the ATLAS Run 2 SUSY searches within the context of the pMSSM framework. By scanning the pMSSM parameters the exclusion abilities of ATLAS SUSY searches are shown. The results will be presented in terms of constraints on SUSY particle masses and will be compared to the exclusion limits obtained from simplified models.

Summary

Primary author: RIEFEL, Ellen (Stockholm University)

Presenter: RIEFEL, Ellen (Stockholm University)

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