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How to improve on results of SUSY searches: higher-order corrections to squark and gluino production cross sections at the LHC

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Predictions for squark and gluino total production cross sections are one of the important theory ingredients for determining SUSY mass exclusion limits or, in case of discovery, masses and properties of sparticles. In this talk, I will present results of calculations of higher-order QCD corrections to all processes of squark and gluino production relevant at hadron colliders. The calculations are performed at the NLL+NLO accuracy, and provide the most precise theory predictions for the inclusive squark and gluino production through strong interactions. In particular, I will discuss predictions for the total cross sections for proton-proton collisions at 7 TeV. I will also show the reduction of the theory error achieved by performing these calculations and argue that the results of the calculations should be used in the analysis of the data.

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