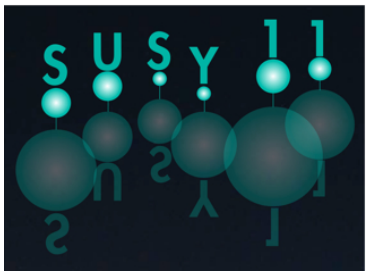

Contribution ID: **163** Type: **not specified**

NNLL threshold resummation for squark-antisquark production at the LHC

Monday, August 29, 2011 2:50 PM (20 minutes)

In this talk we will present the most precise theoretical prediction for squark-antisquark production in hadronic collisions. The production of a squark-antisquark pair is among the most important production channels for supersymmetric particle (sparticle) production processes at the LHC since the production of sparticles is dominated by processes involving coloured sparticles in the final state. Due to the high importance of these processes for SUSY searches at the LHC, precise theoretical predictions are needed. Higher-order QCD corrections are dominated by large logarithmic terms due to the emission of soft gluons from initial and final state particles. A systematic treatment of these logarithms to all orders in perturbation theory is provided by resummation methods. We present new analytical expressions needed for resumming soft gluon emissions for squark-antisquark production at full next-to-next-to-leading logarithmic (NNLL)-accuracy, which constitutes the most precise theoretical result currently available. Furthermore, numerical predictions for the LHC will be discussed.

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Session Classification: Parallel Session 4

Track Classification: SUSY: phenomenology