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Slepton pair and electroweakinos associated production at NLO+NLL with resummation-improved parton densities for the LHC Run-II

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We make use of the recently released threshold-resummation improved PDF sets to consistently calculate theoretical predictions for slepton pair production and electroweakinos associated production at NLO+NLL accuracy. The updated cross sections have been carried out for the ongoing Run-II of the LHC and for the relevant processes that are considered in experimental searches. We study the cases of phenomenological interest concerning left-handed selectron/smuon, right-handed and maximally mixed stau production and the electroweakinos in their mostly Higgsinos and mostly gauginos configuration. A factorisation method is applied to exploit the (smaller) PDF uncertainty of the global PDF sets and at the same time to avoid the issues arising in the refitting of threshold-resummation improved PDF replicas in Mellin space. The reduction of the scale uncertainty due to the resummation instead is taken into account explicitly. Accordingly to the expectations, we find that the effects of the resummation in the fit of the PDFs partially compensate the enhancement of cross section which typically follows the resummation in the partonic matrix elements.

Parallel Session

Precision Calculations and MC tools

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