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NLO accurate simulations of SUSY processes with MadGraph5_aMC@NLO

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We present NLO QCD accurate predictions of colored scalar pair production matched to parton showers, within a simplified model that can accommodate the case of stop and sgluon pair production. The computation is performed fully automatically within the MadGraph5_aMC@NLO framework, starting from the Lagrangian renormalization with FeynRules and NLOCT down to event generation. This work paves the way towards general and flexible NLO simulations for BSM processes, which can eventually improve SUSY experimental analysis and strengthen the corresponding limits. Throughout this presentation, I will give an overview of the current developments and capabilities of MadGraph5_aMC@NLO, including the recent support for the simulation of loop-induced processes.

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