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Heavy quark pair production at next-to-next-to-leading order matched to parton shower

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The production of heavy quarks at the LHC plays a crucial role in the context of precision tests of the Standard Model and the search for new physics. On top of representing a fundamental background for a huge number of processes, heavy quarks can play an important role in constraining Parton Distribution Functions, especially the gluon PDF, in relevant low x regions. Therefore it is essential to set up accurate Monte Carlo event generators for heavy quark pair production in hadronic collisions.

In this talk, we present new NNLO+PS results obtained with the MiNNLOps method. We show that distributions inclusive over QCD radiation are NNLO accurate, while distributions for a quark pair in association with one final-state hard jet retain NLO accuracy. We also compare our NNLO+PS predictions with experimental data from the LHC, mainly focusing on the top and bottom pair production. We also mention recent developments regarding charm pair production.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

No

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