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## Next-to-leading order QCD corrections to five jet production at the LHC

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We present theoretical predictions for five jet production in proton-proton collisions at next-to-leading order accuracy in QCD. Inclusive as well as differential observables are studied for collision energies of 7 and 8 TeV. In general the next-to-leading order corrections stabilize the theoretical predictions with respect to scale variations. In case of the inclusive jet cross sections, we compare with experimental data where possible and find reasonable agreement. We observe that the four-to-three and five-to-four jet ratios show better perturbative convergence than the known three-to-two ratio and are promising candidates for future  $\alpha_s$  measurements. Furthermore, we present a detailed analysis of uncertainties related to parton distribution functions. For the computation of the full colour virtual seven-point matrix elements, we use a generalised d-dimensional unitarity framework implemented in the publicly available library NJet.

### Summary

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