

Terry Generet – HEP seminar - November 10, 2026
RWTH – Aachen

Inclusive jet production at the LHC at NNLO+NNLL and theory nuisance parameters

In this talk, I will present a calculation of the inclusive jet transverse momentum spectrum at the LHC performed at next-to-next-to-leading order, including resummation of logarithms of the jet radius R at next-to-next-to-leading-logarithmic accuracy. Inclusive jet production is a key process for fitting parton distribution functions, which makes an accurate understanding of the uncertainties on the theory predictions particularly important. However, estimates of missing-higher-order uncertainties obtained from scale variations are notoriously unreliable for this process. Considerably more robust theory uncertainties can be obtained using the method of theory nuisance parameters. I will present how this method can be applied to inclusive jet production and demonstrate that the uncertainties obtained this way are far more consistent than the scale uncertainties. Additionally, uncertainties based on theory nuisance parameters have a proper statistical interpretation and can be properly correlated, unlike scale uncertainties.