

Semi-Inclusive DIS at NNLO in QCD

Thursday, 12 September 2024 09:00 (30 minutes)

We present the first results for the next-to-next-to leading order (NNLO) corrections to the semi-inclusive deep-inelastic scattering process in perturbative quantum chromodynamics. We consider scattering with polarized and unpolarized protons and obtain the complete contributions analytically for all parton channels. All relevant virtual and real emission Feynman diagrams have been computed using integration-by-parts reduction to master integrals and two approaches for their subsequent evaluation (parametric phase-space integration and method of differential equations). The numerical analysis demonstrates the significance of the NNLO corrections and their great impact on the reduction of the residual scale dependence.

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Session Classification: Plenary