

Ablinger, J.; Behring, A.; Blümlein, J.; De Freitas, A.; von Manteuffel, A.; Schneider, C.
The 3-loop pure singlet heavy flavor contributions to the structure function $F_2(x, Q^2)$ and the anomalous dimension. (English) Zbl 1326.81234
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Summary: The pure singlet asymptotic heavy flavor corrections to 3-loop order for the deep-inelastic scattering structure function $F_2(x, Q^2)$ and the corresponding transition matrix element $A_{Qq}^{(3),PS}$ in the variable flavor number scheme are computed. In Mellin- N space these inclusive quantities depend on generalized harmonic sums. We also recalculate the complete 3-loop pure singlet anomalous dimension for the first time. Numerical results for the Wilson coefficients, the operator matrix element and the contribution to the structure function $F_2(x, Q^2)$ are presented.

MSC:

81U35 Inelastic and multichannel quantum scattering
81V22 Unified quantum theories
81T18 Feynman diagrams
81T50 Anomalies in quantum field theory

Cited in 6 Documents

Software:

[Axodraw](#); [Fermat](#); [HarmonicSums](#); [MATAD](#)

Full Text: [DOI](#) [arXiv](#)

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