

Status of heavy-quarkonium photoproduction at NLO in High Energy Factorization

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Status of Next-to-Leading order calculation of the High-Energy Factorization coefficient function for the inclusive heavy-quarkonium photoproduction will be presented. The one-loop correction to the leading-order process:

$R(q_1) + \gamma(q) \rightarrow c\bar{c} [1S0^{\sim}(8)],$

where R -Reggeized gluon with four-momentum $q_1 = x_1 P_1 + q_{T1}$, $q_{T1} \cdot P_1 = 0$, will be discussed within an effective-action framework described in Ref.[1]. An important new ingredient of the calculation is the rapidity-divergent one-loop integral with massive internal line, which should be calculated. An important cross-check of factorization is possible with this process, since the known one-loop rapidity divergence should factorize-out, despite color-octet final-state.

The LL BFKL analysis of the energy-dependence of total cross-section of η_c production can be also discussed in the talk.

References:

[1] M.A.Nefedov, Computing one-loop corrections to effective vertices with two scales in the EFT for Multi-Regge processes in QCD,

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