

BFKL resummation effects in $\gamma^*\gamma^* \rightarrow \rho\rho$

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An unfortunate misprint in our numerical programs is corrected. This affects our evaluation of the estimate of the next-to-leading logarithmic corrections to the amplitude of the exclusive diffractive process $\gamma_L^*(Q_1^2)\gamma_L^*(Q_2^2) \rightarrow \rho_L^0\rho_L^0$ in the forward direction. The sentence

“This is quantified by the pomeron intercept $\alpha_{\mathbb{P}} = \omega_s$, which is reduced from $\alpha_{\mathbb{P}} = 0.55$ to $\alpha_{\mathbb{P}} = 0.20$, and by the second derivative ω_s'' of the kernel, which decreases from $\omega_s'' = 28\bar{\alpha}_s\zeta(3) \simeq 6.73$ at the LL level to $\omega_s'' \simeq 2.56$ using the NLL approximation,” after (36), should be replaced by

“This is quantified by the pomeron intercept $\alpha_{\mathbb{P}} = \omega_s$, which is reduced from $\alpha_{\mathbb{P}} = 0.55$ to $\alpha_{\mathbb{P}} = 0.20$, and by the second derivative ω_s'' of the kernel, which decreases from $\omega_s'' = 28\bar{\alpha}_s\zeta(3) \simeq 6.73$ at the LL level to $\omega_s'' \simeq 1.02$ using the NLL approximation.”

Figures 12 and 13 should then be replaced by the figures below.

The corrected results, based on a resummed BFKL approach for the 4-gluon Green function and leading order impact factors, are now quite close to those obtained by Ivanov and Papa [1] in an evaluation of the NLL BFKL contributions for both the 4-gluon Green function and the impact factors.

We thank Mathieu Segond for his discovery of our mistake.

The online version of the original article can be found at <http://dx.doi.org/10.1140/epjc/s2005-02451-2>.

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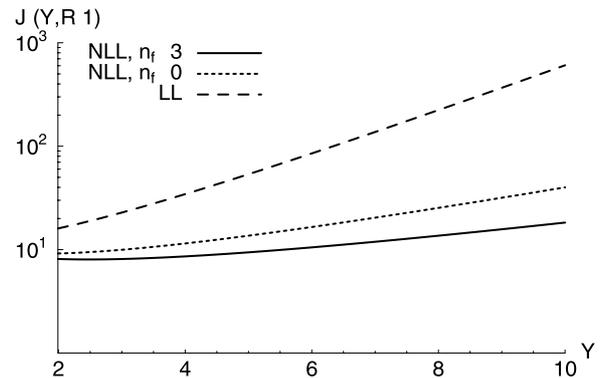


Fig. 12. Saddle point approximation of the integral $J(Y, R = 1)$ for LL BFKL and for the NLL corrected kernel

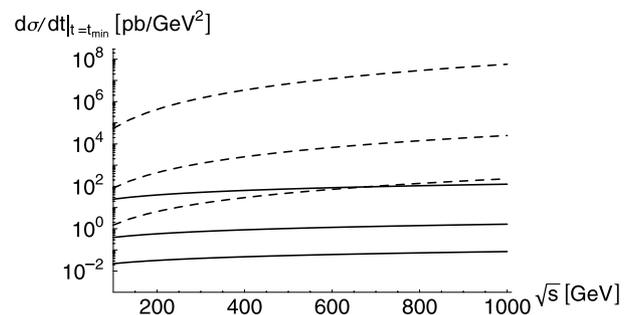


Fig. 13. Cross-section for LL BFKL (*dashed lines*) and for the NLL corrected kernel (*solid lines*), using $c_Y = 0.3$ and the BLM scale choice $c_\alpha = 1$, for the three cases $Q = Q_1 = Q_2 = 2$ GeV, 3 GeV and 4 GeV (from *top to bottom* in the plot)

References

1. D.Y. Ivanov, A. Papa, Nucl. Phys. B **732**, 183 (2006)