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Off-shell initial state effects and gauge invariance in the Drell-Yan process

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We discuss production of Drell-Yan lepton pairs at hadron colliders in the framework of the Parton Reggeization Approach, which includes off-shell initial state effects in a gauge-invariant way. Other possible prescriptions to restore gauge-invariance of hard-scattering coefficient with off-shell initial-state partons are also investigated and significant differences for the resulting structure functions are found, especially for the $F_{UU}^{(\cos 2\phi)}$. We compare our numerical results for q_T -spectra of the lepton pair with experimental data, obtained by E-288 collaboration ($\sqrt{S} = 19.4$ and 23.8 GeV) and find a good agreement. Also we perform predictions for the Drell-Yan structure functions at NICA pp -collider ($\sqrt{S} = 24$ GeV).

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