



Contribution ID: 124

Type: **Talk**

Gauge-invariant TMD factorization for Drell-Yan hadronic tensor at small x .

Wednesday 8 September 2021 13:00 (15 minutes)

The Drell-Yan hadronic tensor is calculated in the Sudakov region $s \gg Q^2 \gg q_\perp^2$ with $\frac{1}{Q^2}$ accuracy, first at the tree level and then with the double-log accuracy. It is demonstrated that in the leading order in N_c the higher-twist quark-quark-gluon TMDs reduce to leading-twist TMDs due to QCD equation of motion. The resulting tensor for unpolarized hadrons is EM gauge invariant and depends on two leading-twist TMDs: f_1 responsible for total DY cross section, and Boer-Mulders function h_1^\perp . The corresponding qualitative and semi-quantitative predictions seem to agree with LHC data for Z-boson production at transverse momentum of DY pair \sim few tens GeV.

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Session Classification: QCD, spin physics and chiral dynamics

Track Classification: QCD, spin physics and chiral dynamics