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Dijet production at EIC and interplay of Sudakov and saturation effects in Weizsacker-Williams TMD gluon distribution

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We study production of two jets in DIS for EIC kinematics using the small- x improved TMD factorization (ITMD) framework. The ITMD can be derived within the Color Glass Condensate (CGC) as an adequate limit when the hard scale is considerably higher than the saturation scale, but being still in the nonlinear domain. Production of two tagged colored partons in photon-nucleus collisions is the basic process directly coupled to the Weizsacker-Williams (WW) transverse momentum dependent (TMD) gluon distribution. Unlike the dipole TMD gluon distribution, which couples to inclusive DIS, the WW TMD distribution possesses the gluon number interpretation and is known to behave drastically different in the small k_T regime. We study various observables potentially sensitive to interplay of the Sudakov effects and the nonlinear effects, in particular the azimuthal correlations between the jets, as well as the correlations between the jet system and the scattered electron. Our calculations are based on the WW TMD gluon distribution calculated from the dipole TMD distribution fitted to HERA data, in the mean field CGC approximation and with the inclusion of the perturbative Sudakov factor.

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