

XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects



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J/ψ meson production in SIDIS: matching high and low transverse momentum

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We consider the transverse spectrum and the $\cos 2\phi$ azimuthal distribution of J/ψ mesons produced in semi-inclusive deep-inelastic electron-proton scattering, where the electron and the proton are unpolarized. At low transverse momentum, we propose factorized expressions in terms of transverse momentum dependent gluon distributions and shape functions. We show that our formulae correctly match with the collinear factorization results at high transverse momentum, obtained in the framework of collinear, nonrelativistic QCD. Moreover, we find that the perturbative tail of the shape function does not depend on the angular momentum of the charm-anticharm pair, initially produced in a color-octet state.

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