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Revisiting heavy quark radiative energy loss in nuclei with in the high-twist approach

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We revisit the calculation of multiple parton scattering of a heavy quark in nuclei within the framework of recently improved high-twist factorization formalism, in which gauge invariance is ensured by a delicate setup of the initial partons' transverse momenta. We derive a new result for the heavy quark radiative energy loss in deeply inelastic scattering. By taking the massless limit, it is consistent with the previous calculation of light quark energy loss. But in the heavy quark case, it leads to a new correction term, which vanishes in the soft gluon radiation limit. We show numerically the significance of the new correction term in the calculation of heavy quark energy loss as compared to previous studies and with soft gluon radiation approximation.

Collaboration (if applicable)

Track

New Theoretical Developments

Contribution type

Contributed Talk

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