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Towards NLO computations in the Parton Reggeization Approach

Tuesday, 28 June 2016 12:00 (20 minutes)

The Parton Reggeization Approach (PRA) is the hybrid scheme of k_T -factorization which combines the gauge-invariant definition of hard-scattering matrix elements with Reggeized (off-shell) initial state partons, derived using L. N. Lipatov's effective theory for the Regge limit of QCD, and the Kimber-Martin-Ryskin scheme for the determination of unintegrated PDFs. The LO PRA description of multiscale observables, sensitive to the multiple hard emissions (dijet azimuthal decorrelations, p_T -spectra, polarization observables in Drell-Yan) was rather successful. However, the full NLO calculations are required to describe the observables, sensitive to soft emissions and to test the stability of the description w. r. t. NLO corrections.

The issues of double-counting subtraction for the real NLO corrections, and rapidity divergences for virtual NLO corrections will be described in the talk. The different regularization schemes for rapidity divergences will be discussed. The application of the covariant regularization scheme by [A. S. Vera, M. Hentschinski, 2012] to the case of Reggeized quarks will be presented.

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