Contribution ID: **561** Type: **not specified**

QCD factorization beyond leading twist in exclusive processes: rhoT-meson production

Friday, 17 July 2009 12:10 (20 minutes)

Exclusive processes in hard electroproduction with asymptotic gamma*p center of mass energy is one of the best place for understanding QCD in the perturbative Regge limit.*
The HERA experiment recently provided precise data for rho electroproduction, including all spin density matrix elements. From QCD, it is expected that such a process should factorize between a hard (calculable) coefficient function, and hadronic (P and rho) matrix elements. Such a factorization is up to now only proven for a longitudinaly polarized rho. Within the kt-factorization approach (valid at large s_gamma p), we evaluate the impact factor of the transition gamma* -> rhoT taking into account the twist 3 contributions. We show that a gauge invariant expression is obtained with the help of QCD equations of motion.

More generally, relying on these equations and on the gauge invariance of the factorized amplitude, the non-perturbative Distribution Amplitudes can be reduced to a minimal set.
This opens the way to a consistent treatment of factorization for exclusive processes with a transversally polarized vector meson.

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Session Classification: VI. QCD in Hadronic Physics

Track Classification: QCD in hadronic physics