

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

Friday, July 17, 2009 12:10 PM (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 longitudinally 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.

Primary author: Dr WALLON, Samuel (Laboratoire de Physique Théorique)

Co-authors: PIRE, Bernard (CPhT, Ecole Polytechnique, CNRS, F-91128 Palaiseau, France); IVANOV, Dmitry (Institute of Mathematics, 630090 Novosibirsk, Russia); ANIKIN, Igor (Bogoliubov Laboratory of Theoretical Physics, JINR, 141980 Dubna, Russia); SZYMANOWSKI, Lech (Soltan Institute for Nuclear Studies, Hoza 69, 00-681 Warsaw, Poland)

Presenter: Dr WALLON, Samuel (Laboratoire de Physique Théorique)

Session Classification: VI. QCD in Hadronic Physics

Track Classification: QCD in hadronic physics