

# XX International Workshop on Deep-Inelastic Scattering and Related Subjects



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## High energy exclusive lepton production of the rho-meson: theory and phenomenology

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Exclusive lepton production of vector mesons has been the subject of recent significant progress, both theoretically and experimentally. In particular, the hard regime with a highly virtual photon exchange allows to separate a short distance dominated amplitude of hard subprocess from suitably defined hadronic objects. However, a consistent picture is still missing, in particular for contributions to the scattering amplitude beyond the leading power in the photon virtuality.

We recently described the hard production of transversally polarized rho-meson, up to twist 3 accuracy, including 2- and 3- particles Fock-states, in the HERA kinematics of high center-of-mass energy. Furthermore, we

here show how saturation effects could be included in our model. This is based on the dipole representation of the scattering amplitude in coordinate space, which we extend up to twist 3, based on our previous studies of the scattering amplitude in momentum space.

We compare our model with H1 and ZEUS data for the ratios of helicity amplitudes  $T(\gamma T \rightarrow \rho T)/T(\gamma L \rightarrow \rho L)$  and

$T(\gamma T \rightarrow \rho L)/T(\gamma L \rightarrow \rho L)$  and get a good description of the data.

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