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Study of non-collinear parton dynamics in the prompt photon photoproduction at HERA

We investigate the prompt photon photoproduction at HERA within the framework of k_T-factorization QCD approach.
Our consideration is based on the off-shell matrix elements for the underlying partonic subprocesses.
The unintegrated parton densities in a proton and in a photon are determined using the Kimber-Martin-Ryskin (KMR) prescription.
Additionally, we use the CCFM-evolved unintegrated gluon as well as valence and sea quark distributions in a proton.
A conservative error analisys is performed.
The theoretical results are compared with the recent experimental data taken by the H1 and ZEUS collaborations.
We study also the specific kinematical properties of the photon-jet system which are strongly sensitive to the transverse momentum of incoming partons.
Using the KMR scheme, the contribution from the quarks emerging from the earlier steps of the parton evolution is estimated and found to be of 15 – 20\% approximately.

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