

Dynamical resolution scale in transverse momentum distributions at the LHC

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The QCD evolution of transverse momentum dependent (TMD) distribution functions has recently been formulated in a parton branching (PB) formalism. In this approach, soft-gluon coherence effects are taken into account by introducing the soft-gluon resolution scale and exploiting the relation between transverse-momentum recoils and branching scales. In this talk we investigate the implications of dynamical, i.e., branching scale dependent, resolution scales.

We present both analytical studies and numerical solution of PB evolution equations in the presence of dynamical resolution scales.

We use this to compare PB results with other approaches in the literature, and to analyze predictions for transverse momentum distributions in Z -boson production at the Large Hadron Collider (LHC).

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