

Overview on transverse momentum resummation

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We consider the transverse-momentum distribution of generic high-mass systems of non-strongly interacting particles (lepton pairs, vector bosons, Higgs particles, ...) produced in hadronic collisions.

The logarithmically-enhanced contributions at small transverse momentum are treated to all perturbative orders by a universal resummation formula that depends on a single process-dependent hard factor.

The formalism is applied to Drell-Yan lepton pairs and Higgs boson production at Tevatron and LHC energies.

We combine the most advanced perturbative information available at present for these processes: resummation up to next-to-next-to-leading logarithmic accuracy and fixed-order perturbation theory up to next-to-next-to-leading order. We show and discuss the reduction in the scale dependence of the results with respect to lower-order calculations, estimating the corresponding perturbative uncertainty.

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