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Soft - collinear effects in threshold and joint resummation

Perturbative expressions for many QCD observables measured at colliders are plagued by large logarithmic corrections which arise after cancellation of real and virtual contributions. These large logarithmic corrections, which arise either at small Q_T or at partonic threshold can be organized and brought under control through all order resummation. Joint resummation formalism allows simultaneous resummation of threshold and recoil effects.

We consider the effect of the leading soft-collinear terms of the form $\sum_j^{2j-1} d_{ij} \frac{\ln^j N}{N}$ and estimate the impact of leading soft-collinear effects on joint resummed calculations for prompt photon production.

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