Contribution ID: **48**   Type: **not specified**

Factorization and Resummation for Massive Quark Effects in Exclusive Drell-Yan

Tuesday, 31 May 2016 17:30 (30 minutes)

Within the framework of Soft-Collinear Effective Theory we discuss how to incorporate massive bottom quark effects in the resummed cross section for exclusive 0-jet Drell-Yan, where as a specific example for a measured exclusive observables we consider the transverse momentum of the electroweak boson. At NNLL' order, i.e. including matrix elements at $O(\alpha2\ s)$ and NNLL resummation, one has to account for both heavy quark initiated (primary) corrections to the hard scattering process as well as secondary radiation effects. The theoretical description depends on the hierarchy between the involved scales, ranging from the decoupling limit for large masses to the massless limit for small masses, and involves quark mass dependent TMDPDFs and soft functions in between. The emerging rapidity divergences can be different with respect to the massless quark case and we also discuss the resulting evolution which resums the associated rapidity logarithms.

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Session Classification: Talks