Contribution ID: **135**   Type: **Parallel talk**

TMD Factorization and Resummation at Sub-leading Power

Thursday 30 March 2023 17:30 (20 minutes)

In this talk, I will present our recent work on transverse momentum dependent factorization and resummation at sub-leading power in Drell-Yan and semi-inclusive deep inelastic scattering. In these processes the sub-leading power contributions to the cross section enter as a kinematic power correction in the leptonic tensor, and the kinematic, intrinsic, and dynamic sub-leading contributions to the hadronic tensor. By consistently treating the power counting of the interactions, we demonstrate renormalization group consistency. We calculate the anomalous dimensions of the kinematic and intrinsic sub-leading correlation functions at one loop and find that the evolution equations give rise to anomalous dimension matrices which mix leading and sub-leading power distribution functions. Additionally we calculate the hard and soft functions associated with each of these contributions. We find that these hard and soft contributions differ from those at the leading power. Finally, we calculate the rapidity anomalous dimension for the dynamic sub-leading distributions and find that it is the same as the leading power anomalous dimension. We then comment on the implications for the soft function associated with this contribution. Using this information, we establish the factorization formalism at sub-leading power for these processes at the one-loop level.

Submitted on behalf of a Collaboration?

No

Participate in poster competition?

No

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