Contribution ID: **73**   Type: **not specified**

Groomed jet substructure observables for inclusive jet production

Tuesday, 28 August 2018 17:00 (25 minutes)

The phenomenology of highly energetic jets and their substructure plays an important role for the physics program at the LHC. In recent years various grooming techniques have been proposed that need to be included consistently in perturbative calculations. Within Soft Collinear Effective Theory (SCET) we establish factorization theorems for jet substructure observables measured on an inclusive jet sample. The developed effective field theory framework allows the resummation of large logarithmic corrections to next-to-leading logarithmic (NLL) accuracy and a consistent treatment of non-perturbative effects. For example, we consider the jet mass distribution with and without grooming. We present numerical results and compare to the available data from the LHC.

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Session Classification: Perturbative QCD, jets and substructure

Track Classification: Perturbative QCD, Jets and Substructure