

Automated calculation of two-loop soft functions in SCET

Thursday, August 30, 2018 5:14 PM (17 minutes)

Perturbative calculations for many collider observables suffer from large logarithmic corrections associated with soft emissions or radiation collinear to beam or jet directions. Resummation using SCET techniques is based on factorisation theorems, and requires the calculation of jet, soft and beam functions to some perturbative accuracy. This task has up to now mainly been achieved analytically, on a case-by-case basis.

To facilitate the resummation of global logarithms to NNLL accuracy, we present a framework to numerically compute the two-loop soft function for a general class of observables containing e.g. $e+e$ -event shapes and inclusive hadron collider observables. The algorithm has been implemented in the publicly available program SoftSERVE, and is currently limited to processes with two hard (coloured) directions. I will present the general strategy of our approach, some new results for event-shape and jet-grooming observables, as well as recent progress on extending the setup to processes with more than two jet-like directions.

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Session Classification: Monte Carlo and resummation

Track Classification: Monte Carlo and Resummation