

SCET Workshop 2022



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Dissecting the collinear structure of quark splitting at NNLL

Tuesday 19 April 2022 14:00 (20 minutes)

Higher-order splitting kernels comprise an essential ingredient for enhancing the logarithmic accuracy of parton showers. Beyond NLL, collinear dynamics of quark and gluon splitting at NLO is encoded in the triple-collinear splitting functions. This talk provides latest insights into various ingredients that enter the construction of higher-order parton showers. First, I will show that suitable integrals of the splitting functions, plus virtual corrections, furnishes a solid understanding of the scale of the coupling beyond the soft limit (CMW scheme). Second, I will establish a relationship between the splitting functions and the familiar NLO DGLAP kernels. Third, I will discuss the construction of a differential version of the coefficient B_2 , which controls the next-to-next-to-leading logarithm in the hard-collinear limit. I will show the general structure of the coefficient B_2 and how it arises in resummation approaches such as SCET.

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