

Automating antenna subtraction in color space

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In the past decade, antenna subtraction has been used to compute NNLO QCD corrections to a series of phenomenologically relevant processes. However, the application of this method proceeds in a process-dependent way, with each new calculation requiring a significant amount of work. Moreover, in the present formulation, the antenna subtraction method can not handle systematically incoherent interferences between different color orderings. In this talk we present an improved version of antenna subtraction which aims at achieving an automated and process-independent generation of the subtraction terms required for a NNLO calculation, as well as at overcoming the intrinsic limitations present in the traditional formulation. In this new approach, a set of integrated dipoles is used to reproduce the known infrared singularity structure of one- and two-loop amplitudes in color space. The real-virtual and double-real subtraction terms are subsequently generated inferring their structure from the corresponding integrated subtraction terms. We demonstrate the applicability of this method on the leading-color contribution to gluon-induced three-jet production.

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