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Towards High-energy logarithmic resummation at full next-to-leading logarithmic accuracy

Thursday 18 April 2024 15:00 (30 minutes)

We derive the first components necessary for evaluating QCD scatting amplitudes to next-to-leading logarithmic accuracy in the high energy limit. Specifically, we derive both real and virtual corrections to the so-called jet impact factor to NLL accuracy within a formalism, which allows for overall energy and momentum conservation to be observed. We extract the virtual corrections from the full one-loop result for the four-parton amplitude. We recount why the high-energy limit is universal between all four-parton amplitudes.
While the impact factor has previously been calculated to the same logarithmic accruacy, it has not previously been expressed in a form, which allows for energy and momentum conservation to be observed in the resummation. This is important for ensuring the full NLL accuracy in log(s) of the constructed cross section.

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