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Linear power corrections to top quark production processes

Tuesday 16 April 2024 11:00 (30 minutes)

We discuss the linear power corrections in $\Lambda_{\rm QCD}$ to top quark production processes in hadron collisions using renormalon calculus. We show how such non-perturbative corrections can be obtained using the Low-Burnett-Kroll theorem, which provides the first subleading term to the expansion of the real-emission amplitudes around the soft limit. We demonstrate that there are no linear power corrections to the total cross sections provided that these cross sections are expressed in terms of a short-distance top quark mass. We also derive a universal formula for the linear power corrections to generic observables that involve the top-quark momentum.

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