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Linear power corrections to e^+e^- shape variables in the three-jet region

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A proper understanding of non-perturbative effects, which manifest themselves as linear power corrections, is needed to describe many observables measured at colliders. We report on recent progress in the calculation of linear power corrections to shape variables such as the C -parameter and thrust in the three-jet region arising from infrared renormalons. Previously, only the results at the two Sudakov shoulders, namely the two-jet and symmetric three-jet limits, have been known in the literature. We develop a formalism that allows us to compute power corrections in the entire three-jet region, and discuss its implications for the determination of the strong coupling constant α_s . We derive a factorisation formula for the power corrections in which the so-called Milan factor naturally arises, and present analytic results for the power corrections for the C -parameter and the thrust in the generic N -jet region.

In-person participation

Yes

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