Resummation, Evolution, Factorization 2022



Contribution ID: 8

Type: not specified

Double-Real-Virtual and Double-Virtual-Real Corrections to the Three-Loop Thrust Soft Function

Tuesday 1 November 2022 16:20 (15 minutes)

We compute the $calO(\alpha_s^3)$ double-real-virtual (RRV) and double-virtual-real (VVR) soft contributions to the thrust/zero-jettiness event shape. The result clears up one of the most stubborn obstacles toward the complete $calO(\alpha_s^3)$ thrust soft function. The results presented here serve the key input to realize the next-to-next-to-next-to-leading logarithmic prime (N³LL') and even the next-to-next-to-next-to-next-to-leading logarithmic (N⁴LL) resummation of the thrust event shape. The obtained results also constitute the important ingredients of the *N*-jettiness-subtraction scheme at next-to-next-to-next-to-leading order (N³LO).

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Session Classification: Parralell Session B: TMD theory