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Particle Physics at LPTHE

Mercredi 31 Janvier 2024, 14 :00
LPTHE, library
Domaines : hep-ph

Titre : *A systematic approach to resummation with heavy flavors*

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Résumé : *Perturbative calculations for processes involving heavy flavors can be conducted using two approaches : the massive scheme and the massless one. The former enables one to fully account for the heavy-quark kinematics, while the latter allows one to resum potentially-large mass logarithms. Furthermore, the two schemes can be combined to take advantage of the virtues of each of them. Our starting point is to consider both massive and massless calculations supplemented by soft-gluon resummation. Establishing a smooth integration between resummed calculations in the massive and massless schemes proves challenging, due to the non-commutative nature of the soft and massless limits. In this presentation, we derive an all-order expression that consistently resums both mass and soft logarithms to next-to-leading logarithmic accuracy. Finally, we will explore the applications of this formalism by studying hadronic jets initiated by heavy flavors.*