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Forward-backward asymmetries of heavy quark pair production in e^+e^- collisions at α_f^ϵ

Monday, 15 March 2021 22:30 (20 minutes)

In this talk, I will discuss a computational set-up for calculating the production of a massive quark-antiquark pair in e^+e^- collisions at order α_s^2 in the coupling of quantum chromodynamics (QCD) at the differential level by means of the antenna subtraction method.

Theoretical predictions on the production of top quark pairs in the continuum, and the bottom quark pairs at the Z-boson resonance, will be reported.

In particular, I will focus on the order α_s^2 QCD corrections to the heavy quark forward-backward asymmetry (A_{FB}) in e^+e^- collisions.

In the case of the A_{FB} of bottom quarks at the Z-boson resonance, the QCD corrections are determined with respect to both the bottom quark axis and the thrust axis.

I will also briefly discuss improvements on these QCD corrections by applying the scale-optimization procedure based on the Principle of Maximum Conformality.

Time Zone

Europe/Africa/Middle East

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