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Higher-orders in heavy quark processes within the LTD approach (15' + 5')

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The computation of perturbative corrections to processes involving heavy quarks is crucial for the precision program of LHC and future colliders. In this talk, we describe a powerful method to calculate higher-orders in QCD skipping the traditional subtraction method. Our proposal is based in the loop-tree duality (LTD) theorem, which allows to rewrite virtual contributions in terms of integrals over the real emission phase-space. Then, we proceed to combine both real and virtual parts at integrand level, obtaining regular expressions that can be numerically integrated. In this way, we avoid dealing with complicated massive Feynman integrals and introducing infrared counter-terms. Some reference examples are explained, in order to exhibit the potential of our approach.

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