



Contribution ID: 228

Type: not specified

Primary and secondary production of heavy quarks in final state jets

Tuesday 9 September 2014 14:50 (30 minutes)

We present results for the production of primary heavy quarks in final state jets, as well as secondary radiation of heavy quark pairs related to gluon splitting. We focus in the thrust and C-parameter distributions for $e+e-$ collisions. The results are given in the dijet limit where the hard interaction scale and the scales related to collinear and soft radiation are widely separated. In this limit one can use Soft-Collinear Effective Theory with the inclusion of mass modes in order to factorize the cross section and perform resummation of large Sudakov logs at N3LL order. When the invariant mass of the massive jet is close to the heavy quark mass we match onto a boosted Heavy Quark Effective Theory to sum up a new class of large logs along with the treatment of finite width effects. Our results are relevant for determining the bottom mass, and more importantly for the measurement of the top mass at a future linear collider.

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Session Classification: Parallel III: C2 Heavy Quarks

Track Classification: Section C: Heavy Quarks