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Electroweak and Finite-Lifetime Corrections for Boosted Top Quark Production

High-precision jet mass measurements for processes involving boosted top quark pair production relevant for the determination of the top quark mass eventually require the systematic inclusion of electroweak and finite lifetime effects. For boosted top quark initiated inclusive jets we apply an electroweak Soft-Collinear-Effective-Theory (SCET) framework that allows for a coherent resummation of electroweak Sudakov logarithms and finite-lifetime effects together with large logs from QCD. Apart from double top resonant effects, the factorization approach can also account for single-resonant effects which are related to the interference of final states originating from top quark decays and background processes leading to the top decay final state. Concretely we address electroweak effects in inclusive (hemisphere mass) top-dijet production at lepton colliders.

Authors: HOANG, Andre; LECHNER, Daniel; PROCURA, Massimiliano (University of Vienna (AT))

Presenter: LECHNER, Daniel