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## Two-loop QCD corrections for radiative top decay process

I will present the calculation of two-loop QCD amplitudes for the radiative top decay process  $t \rightarrow Wbg$ , with the W-boson decay to a lepton-neutrino pair included. This amplitude is required in the computation of top quark pair production in association with a jet at NNLO QCD accuracy where the top decays are included in the narrow width approximation. Analytic form of the two-loop helicity amplitudes are derived in terms of master integrals. These master integrals are evaluated numerically using generalised series expansion method to solve the associated differential equations.

### Field

Pheno

**Authors:** BRANCACCIO, Colomba; HARTANTO, Heribertus Bayu (Asia Pacific Center for Theoretical Physics (APCTP), Pohang, South Korea); KRAUS, Manfred (UNAM)

**Presenter:** BRANCACCIO, Colomba