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NLO corrections to top-quark pair hadroproduction in association with (heavy) bosons

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We present the calculation, in a completely automated approach, of the NLO EW corrections to ttH, ttZ and ttW production at hadron colliders within the MadGraph5_aMC@NLO framework. We discuss also the impact of NLO QCD corrections on ttH, ttV and ttVV production with V=W, Z, gamma. Relevant distributions for the 13-TeV LHC are considered and inclusive results from 8 to 100 TeV are shown, also for the production of two top-quark pairs (tttt). NLO QCD (matched with parton shower) results, in a realistic experimental set-up for the LHC at 13 TeV, are provided for signal and background processes involved in the searches for ttH production with the Higgs boson decaying either into leptons or photons.

This talk is based on arXiv:1507.05640, arXiv:1504.03446 and arXiv:1407.0823.

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