Erratum: Two-loop amplitudes for $t\bar{t}H$ production: the quark-initiated N_f-part

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After publication we noticed that the flux factor $1/(2\hat{s})$ was missing in the calculation of the leading order event distribution shown in figure 2 of the original publication. This has been corrected in figure 1 shown below. As this correction only affects the LO event distribution, which was shown for illustration, all other results remain unchanged.
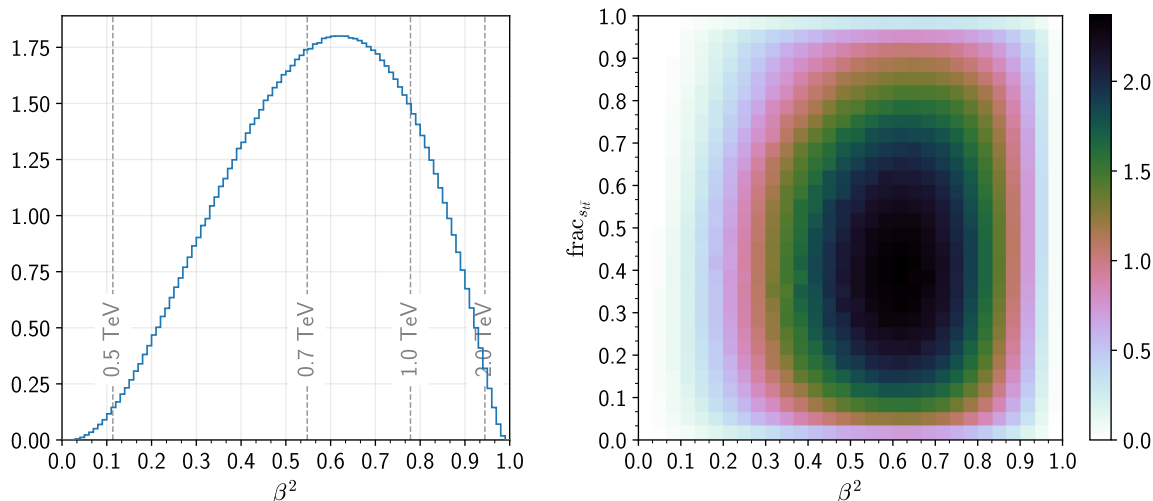
Figure 1. Event probability distribution in β^2 (left), and β^2 and $\mathrm{frac}_{s_{t\bar{t}}}$ (right), according to the LO $q\bar{q} \to t\bar{t}H$ amplitude. For this plot we take the energy of incoming quarks to be distributed according to the ABMP16 parton distribution functions [1] (which we evaluate via LHAPDF [2]), with the collision energy set to 13.6 TeV. We have also applied cuts on the top quark momenta (as we calculate with on-shell top-quarks) in line with those reported in [3, 4]: we enforce a minimal transverse momentum of 25 GeV, a maximal rapidity of 4.5, and a separation ΔR in rapidity and azimuthal angle between the top quarks of $\Delta R > 0.4$. These cuts remove about 3% of the events, and mostly affect the low-β region.

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References

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[2] A. Buckley et al., *LHAPDF6: parton density access in the LHC precision era*, *Eur. Phys. J. C* **75** (2015) 132 [`arXiv:1412.7420`] [INSPIRE].

[3] ATLAS collaboration, *Observation of Higgs boson production in association with a top quark pair at the LHC with the ATLAS detector*, *Phys. Lett. B* **784** (2018) 173 [`arXiv:1806.00425`] [INSPIRE].

[4] CMS collaboration, *Evidence for associated production of a Higgs boson with a top quark pair in final states with electrons, muons, and hadronically decaying τ leptons at $\sqrt{s} = 13$ TeV*, *JHEP* **08** (2018) 066 [`arXiv:1803.05485`] [INSPIRE].