# Erratum: Exact Top-Quark Mass Dependence in Hadronic Higgs Production [Phys. Rev. Lett. 127, 162002 (2021)]

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Because of an error in a subtraction term of our code, the numerical results for the $qg$ channel provided in Table I of the Letter are incorrect. Furthermore, there was a typo in the total cross section within HEFT for the $\mathcal{O}(\alpha_s^3)$ contribution at 8 TeV, and the $\mathcal{O}(\alpha_s^4)$ contribution at 13 TeV. We present the corrected numbers in Table I.

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TABLE I. Effects of a finite top-quark mass on the total hadronic Higgs-boson production cross section for the LHC at 13 TeV and 8 TeV, separately for the partonic channels and including Monte Carlo integration error estimates. Results obtained with the PDF set `NNPDF31_nnlo_as_0118` [1], renormalization and factorization scales $\mu_R = \mu_F = M_H/2$, Higgs-boson mass $M_H = 125$ GeV, and top-quark mass $M_t = \sqrt{23/12} \times M_H \approx 173.055$ GeV. The NNLO cross section within HEFT ($\sigma^{\text{NNLO}}_{\text{HEFT}}$) has been obtained with `SusHi` [2,3] and is split into contributions from the individual orders in $\alpha_s$.

| Channel | $\sigma^{\text{NNLO}}_{\text{HEFT}}$ [pb] | $(\sigma^{\text{NNLO}}_{\text{exact}} - \sigma^{\text{NNLO}}_{\text{HEFT}})$ [pb] | | $(\sigma^{\text{NNLO}}_{\text{exact}}/\sigma^{\text{NNLO}}_{\text{HEFT}} - 1)$ [%] |
|---|---|---|---|---|
| | $\mathcal{O}(\alpha_s^2) + \mathcal{O}(\alpha_s^3) + \mathcal{O}(\alpha_s^4)$ | $\mathcal{O}(\alpha_s^3)$ | $\mathcal{O}(\alpha_s^4)$ | |
| | | $\sqrt{s} = 8$ TeV | | |
| $gg$ | $7.39 + 8.58 + 3.88$ | $+0.0353$ | $+0.0879 \pm 0.0005$ | $+0.62$ |
| $qg$ | $0.55 + 0.26$ | $-0.1397$ | $-0.0153 \pm 0.0002$ | $-19$ |
| $qq$ | $0.01 + 0.04$ | $+0.0171$ | $-0.0191 \pm 0.0002$ | $-4$ |
| Total | $7.39 + 9.14 + 4.18$ | $-0.0873$ | $+0.0535 \pm 0.0006$ | $-0.16$ |
| | | $\sqrt{s} = 13$ TeV | | |
| $gg$ | $16.30 + 19.64 + 8.76$ | $+0.0345$ | $+0.2431 \pm 0.0020$ | $+0.62$ |
| $qg$ | $1.49 + 0.84$ | $-0.3696$ | $-0.0408 \pm 0.0005$ | $-18$ |
| $qq$ | $0.02 + 0.10$ | $+0.0322$ | $-0.0501 \pm 0.0006$ | $-15$ |
| Total | $16.30 + 21.15 + 9.70$ | $-0.3029$ | $+0.1522 \pm 0.0021$ | $-0.32$ |

[1] R. D. Ball *et al.* (NNPDF Collaboration), Eur. Phys. J. C **77**, 663 (2017).
[2] R. V. Harlander, S. Liebler, and H. Mantler, Comput. Phys. Commun. **184**, 1605 (2013).
[3] R. V. Harlander, S. Liebler, and H. Mantler, Comput. Phys. Commun. **212**, 239 (2017).