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Erratum: Light quark mediated Higgs boson threshold production in the next-to-leading logarithmic approximation

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In the paper a NLL contribution of the gluon vertex correction figure 4(c) has been omitted. Including this contribution results in the following corrections. In the integrand of eq. (3.5) $\eta + \xi$ should be replaced with $4\eta + 4\xi - 2$. In eqs. (3.5), (3.6) $g_\gamma(x)$ should be replaced with $4g_\gamma(x) - g(x)$. In eq. (3.7) the coefficients of $C_F x$ and $C_F x^2$ terms should be corrected from $1/5$ and $1/35$ to $3/10$ and $1/21$, respectively. In the second and third lines of eq. (4.2) the coefficients of C_F terms should be corrected from 1 and $1/7$ to $3/2$ and $5/21$, respectively. In the text below eq. (4.2) the coefficient $(C_A - C_F)(11C_A/9 - 3C_F/2 - 2T_F)/640$ should be corrected to $(C_A - C_F)(11C_A/9 - C_F - 10T_F/3)/640$. The numerical values of the NNLO and N³LO NLL corrections in table 1 should be changed from -2.170 and -2.189 to -2.183 and -2.204 , respectively. After the correction the abelian part of our result agrees with the results [1–3] for the Higgs boson two-photon decay amplitude. The numerical impact of the correction on the threshold cross section in NNLO and N³LO is very small.

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References

- [1] Z.L. Liu, B. Mecaj, M. Neubert and X. Wang, *Factorization at Subleading Power and Endpoint Divergences in Soft-Collinear Effective Theory*, [arXiv:2009.04456](#) [INSPIRE].
- [2] Z.L. Liu, B. Mecaj, M. Neubert and X. Wang, *Factorization at Subleading Power and Endpoint Divergences in $h \rightarrow \gamma\gamma$ Decay: II. Renormalization and Scale Evolution*, *JHEP* **01** (2021) 077 [[arXiv:2009.06779](#)] [INSPIRE].
- [3] M. Niggetiedt, *Exact quark-mass dependence of the Higgs-photon form factor at three loops in QCD*, [arXiv:2009.10556](#) [INSPIRE].