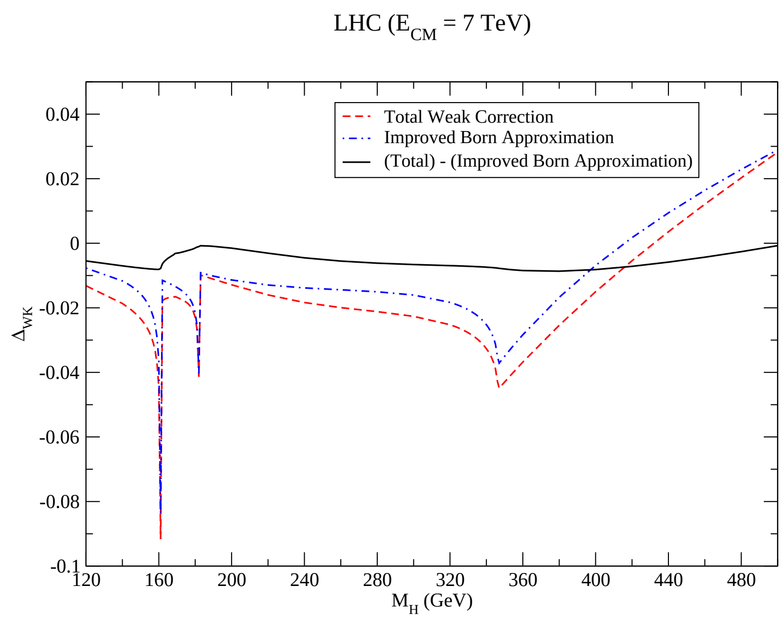

FIG. 11: LHC results for the weak corrections to $pp \to b(\overline{b})H$ with $\sqrt{s} = 7\ TeV$, $p_T^b > 25\ GeV$, and $\mid \eta_b \mid < 2.5$. The solid black curve represents the contributions which cannot be factorized into an effective $\overline{b}bH$ vertex contribution and is less than 1% for $M_H < 500\ GeV$.

of our 1− loop amplitudes reproduce their results in the $m_b = 0$ limit. Since these diagrams are not suppressed by a small b quark Yukawa coupling, they give a comparatively large contribution. At $\sqrt{s} = 7\ TeV$ and $M_H = 120\ GeV$, we find that the $\mathcal{O}(\alpha_s G_F^3)$ contribution with $m_b = 0$ is around 8% of the Born cross section shown in Fig.10 with our cuts.

Although our calculations are purely Standard Model, we are, however, motivated by a very different scenario than the authors of Ref. [23]. In models with an enhanced coupling of the b quark to a Higgs boson, the tree level amplitude can be significantly larger than in the Standard Model. In such models, it is important to understand the numerical effect of the interference of the tree level amplitude with the one-loop weak corrections. Future work will explore the role of the electroweak corrections in models with non-standard b quark Higgs Yukawa couplings, in particular the MSSM with large $\tan\beta$.

IV. CONCLUSION

We have computed the Standard Model weak corrections to the processes $pp \to b(\overline{b})H$ at the LHC and $p\overline{p} \to b(\overline{b})H$ at the Tevatron. In both cases, the results are well approximated