

Charm mass dependent NNLO corrections to $\mathcal{B}(\bar{B} \rightarrow X_s \gamma)$

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The inclusive radiative decay of the B meson is known to provide strong constraints on new particles and their interactions. The current experimental world average for its branching ratio is $(3.32 \pm 0.15) \cdot 10^{-4}$ which agrees within one sigma with the present SM prediction $(3.36 \pm 0.23) \cdot 10^{-4}$. Some of the NNLO QCD corrections are included with the help of interpolation in the charm quark mass, which causes about 3 percent uncertainty in present SM prediction. Efforts towards removing this uncertainty is the topic of talk. We will present charm quark mass dependent contributions that require evaluation of two scales four-loop propagator diagrams with unitarity cuts.

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