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Simultaneous decoupling of bottom and charm quarks

The framework of simultaneous decoupling of two heavy quarks in QCD is discussed. In particular we compute the decoupling constant for α_s with massive charm and bottom quarks to three-loop accuracy taking into account the exact dependence on m_c/m_b. The application of a low-energy theorem on this quantity allows for the extraction of the three-loop effective Higgs-gluon coupling valid for extensions of the Standard Model with additional heavy quarks.

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