

Recent results on the calculation of three-loop operator matrix elements with two masses

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We report on our recent progress on the calculation of massive operator matrix elements (OMEs), which at three loop level receive contributions from Feynman diagrams containing two heavy quark lines of different masses. These OMEs are needed in order to obtain the corresponding contributions for the massive Wilson coefficients in deep inelastic scattering at large momentum transfer. They are also needed to describe the variable flavor number scheme at three loops, where the charm and bottom quarks cannot be decoupled one at a time, since the ratio of the corresponding masses is not small enough. We show the full result for the two-mass non-singlet and pure singlet OMEs, and describe in detail the methods used to calculate the scalar Feynman integrals required to obtain the gluonic OMEs.

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