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$\overline{\text{MS}}$ -on-shell quark mass relation with two mass scales

I will present our calculation of the $\overline{\text{MS}}$ -on-shell quark mass relation allowing for two different massive quarks. We obtain complete results at the 3-loop level and some of the fermionic contributions at the 4-loop level. The results for the master integrals are obtained analytically and by constructing series expansions around regular and singular points of the associated differential equations. By taking the limit of equal quark masses new analytical results for the quark-mass relation of a single heavy quark are found.

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