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Renormalization of the quark chromomagnetic dipole operators in the gradient flow scheme at next-to-next-to-leading order QCD

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Quark chromomagnetic dipole operators encode low-energy effects of heavy particles on flavor observables related to neutral Kaon mixing or Kaon decays, for example. However, their renormalization on the lattice is complicated by the power-divergent mixing with lower-dimensional operators. The gradient flow provides a promising scheme to circumvent this problem. The matching to the MSbar scheme can be obtained by a perturbative calculation. In this talk, we report on the results for the matching coefficients through NNLO QCD and discuss the impact of these corrections on the theoretical precision.

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