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Heavy Meson Lifetimes using Gradient Flow

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Lifetimes of mesons containing a heavy quark can be described by an operator product expansion involving four-quark operators. To determine these lifetimes, both perturbative Wilson coefficients as well as non-perturbative hadronic matrix elements are needed. The gradient-flow formalism provides a way for calculating the latter in lattice gauge theory. Suitable perturbative matching coefficients allows one to combine them with the corresponding Wilson coefficients. We report on first results of this method, with a focus on the perturbative evaluation of the matching coefficients to next-to-next-to-leading order in perturbation theory.

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