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On the status of the heavy quark expansion for charmed hadrons

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The heavy quark expansion (HQE), which provides a perturbative expansion in the inverse heavy quark mass, has proven to be very successful for describing bottomed hadrons. However, its applicability has often been questioned for charmed hadrons due to the charm quark is actually not so heavy. In this talk we revisit the status of the HQE for charm. In particular, we study pseudoscalar D-meson semileptonic and nonleptonic decay widths including available NLO QCD and subleading $1/m_c$ corrections. We find good agreement with experimental data up to large uncertainties due to hadronic matrix elements and the charm quark mass definition. We also study the behavior of the HQE for observables specially designed for charm, where the free quark decay contribution cancels to a large extent.

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