

Radiative corrections to decay amplitudes in lattice QCD

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The precision of lattice QCD computations of many quantities have reached such a precision that isospin breaking corrections, including electromagnetism, must be included if further progress is to be made in extracting fundamental information, such as the values of Cabibbo-Kobayashi-Maskawa matrix elements, from experimental measurements. I discuss the framework for including radiative corrections in leptonic and semileptonic decays of hadrons, including the treatment of infrared divergences. I start by briefly reviewing isospin breaking in leptonic decays and presenting the first numerical results for the ratio $\Gamma(K_{\mu 2})/\Gamma(\pi_{\mu 2})$ in which these corrections have been included. I will also discuss the additional theoretical issues which arise when including electromagnetic corrections to semileptonic decays, such as $K_{\ell 3}$ decays.

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