

Hadronic matrix elements for exclusive rare B decays

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I will report on the QCD calculation of the hadronic matrix elements relevant for the exclusive rare B decays, such as $B \rightarrow K^{(*)} \ell^+ \ell^-$ and $B \rightarrow K^* \gamma$.

The hadronic input for the decay observables, in addition to the heavy-light form factors, contains specific contributions, generated by the four-quark and penguin operators, such as the charm-loop effects.

The corresponding hadronic matrix elements are calculated by the same method as the form factors, applying OPE and light-cone sum rules in QCD. This technique allows one to take into account the nonfactorizable soft-gluon contributions.

The results are expressed in terms of (process-dependent) corrections to the short-distance coefficients of the effective Hamiltonian.

The impact of these corrections on the most important observables, e.g., on the forward-backward asymmetry in $B \rightarrow K^* \ell^+ \ell^-$, is estimated.

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