

Theory of $B \rightarrow K^{(*)} l+l-$ decays at high q^2

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We discuss a systematic framework for exclusive rare B decays of the type $B \rightarrow K^{(*)} l+l-$ at large dilepton invariant mass q^2 . It is based on an operator product expansion (OPE) for the required matrix elements of the nonleptonic weak Hamiltonian in this kinematic regime. Matrix elements of subleading terms in the OPE are computed explicitly and a quantitative estimate of duality violation is presented. The main conclusion is that the high- q^2 region of $B \rightarrow K^{(*)} l+l-$ is theoretically under excellent control. Interesting opportunities exist for precision flavour physics and new physics tests at the LHC and Super Flavour Factories.

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