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Two-loop Electroweak Corrections to the Top-Quark Contribution to ϵ_K

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The parameter ϵ_K measures CP violation in the neutral kaon system. It is a sensitive probe of new physics and plays a prominent role in the global fit of the Cabibbo-Kobabyashi-Maskawa matrix. The perturbative theory uncertainty is currently dominated by the top-quark contribution. In this talk I will present the calculation of the full two-loop electroweak corrections to the top-quark contribution to ϵ_K, including the resummation of QED-QCD logarithms. I will also discuss different renormalization prescriptions for the electroweak input parameters. In the traditional normalization of the weak Hamiltonian with two powers of the Fermi constant G_F, the top-quark contribution is shifted by -1%.

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