

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

Saturday 4 December 2021 10:15 (15 minutes)

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-Kobayashi-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% .

Primary authors: BROD, Joachim (University of Cincinnati); POLONSKY, Zach (University of Cincinnati); Dr KVEDARAITE, Sandra (University of Cincinnati)

Presenter: Dr KVEDARAITE, Sandra (University of Cincinnati)