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Calculating Δm_K with lattice QCD

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We have completed a lattice QCD calculation of Δm_K, the mass difference between the long- and short-lived K mesons. The calculation was performed on a $64^3 \times 128$ lattice using 152 configurations with physical quark masses and an inverse lattice spacing of $a^{-1} = 2.36$ GeV. While the statistical error approaches a relatively small size of 9%, several sources of systematic errors may have more significant effects. In this talk we will address studies performed on smaller lattices to estimate the systematic errors in our result.

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