Hadronic Contributions to New Physics Searches 2019



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Epsilon prime in the Standard Model

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The recent release of improved lattice data has revived again the interest on precise theoretical predictions for the direct CP-violation ratio ε'/ε . We present a complete update of the Standard Model prediction, including a new re-analysis of isospin-breaking corrections which are of vital importance in the theoretical determination of this observable. Contrary to recent claims, the Standard Model prediction turns out to be in good agreement with the experimental measurement. In addition, we analyse the prospects for future improvements on the current uncertainty, which is dominated by our current ignorance about $1/N_C$ -suppressed contributions to some chiral-perturbation theory low-energy constants.

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