

XVth Quark Confinement and the Hadron Spectrum



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Beta decay as probe of new physics

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Beta decays offer an opportunity for low-energy precision tests of the Standard Model, in particular, checking the unitarity of the first-row CKM matrix which connects the weak and QCD flavor bases. These tests require a combination of the experimental measurements, effective field theory and phenomenology, as well as lattice QCD for non-perturbative input. State of the art theory predictions require an understanding of radiative QED corrections at the 10^{-4} level of precision. There is presently a ~ 3 sigma tension in first-row unitarity with exciting prospects to improve the experimental and theoretical inputs. I will describe some theoretical advances with an emphasis on lattice QCD contributions.

Primary author: WALKER-LOUD, Andre

Presenter: WALKER-LOUD, Andre

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