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A Survey of Nuclear Experimental Results Towards a Vud Extraction[1]

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Despite its success, the Standard Model (SM) has several shortcomings leading to its scrutinization at the energy, intensity and precision frontier. One probing mechanism for new physics is the unitarity test of the Cabibbo-Kobayashi-Maskawa quark mixing matrix, which up to until recently has followed the SM-predicted unitarity. However, recent radiative correction calculation results, used for the determination of the biggest matrix element, Vud, now generates approximately three standards deviation of tension with unitarity, leading to renewed interest on the experimental and theoretical fronts. A survey of various recent experimental results as well as future plans for a more precise and accurate determination of V_{ud} from superallowed pure Fermi and mixed beta decay transitions will be presented.

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