

Abstract Submitted
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Precision experiments on mirror transitions at Notre Dame¹

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— Thanks to extensive experimental efforts that led to a precise determination of important experimental quantities of superallowed pure Fermi transitions, we now have a very precise value for V_{ud} that leads to a stringent test of the CKM matrix unitarity. Despite this achievement, measurements in other systems remain relevant as conflicting results could uncover unknown systematic effects or even new physics. One such system is the superallowed mixed transition, which can help refine theoretical corrections used for pure Fermi transitions and improve the accuracy of V_{ud} . However, as a corrected Ft -value determination from these systems requires the more challenging determination of the Fermi Gamow-Teller mixing ratio, only five transitions, spreading from ^{19}Ne to ^{37}Ar , are currently fully characterized. To rectify the situation, an experimental program on precision experiment of mirror transitions that includes precision half-life measurements, and in the future, the determination of the Fermi Gamow-Teller mixing ratio, has started at the University of Notre Dame.

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