

Abstract Submitted
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Test of the Standard Electroweak Model in superallowed $0^+ \rightarrow 0^+$ nuclear β decays A. BEY, B. BLANK, G. CANCHEL, C. DOSSAT, J. GIOVINAZZO, I. MATEA, CENBG, V. ELOMAA, T. ERONEN, U. HAGER, J. HAKALA, A. JOKINEN, A. KANKAINEN, I. MOORE, H. PENTILLA, S. RINTA-ANTILA, A. SAASTAMOINEN, T. SONODA, J. AYSTO, JYFL, N. ADIMI, USTHB, G. DE FRANCE, J.-C. THOMAS, G. VOLTOLINI, GANIL, T. CHAVENTRE, LPC Caen — Precise measurements of superallowed β decays provide demanding test of the fundamental symmetries of the electroweak interaction. Collectively, the corrected comparative half-lives of these transitions allow a sensitive probe of the CVC hypothesis. Moreover, by providing the most accurate determination of V_{ud} , the up-down quark-mixing element, these data serve as a stringent test of the unitarity of the CKM matrix of the Standard Model. However, prior to new results, the sum of squares of the top-row CKM elements failed to meet unity by more than 2σ . As a possible explanation for this default, uncertainties in the Coulomb corrections applied to the experimental data were pointed out. It became therefore essential to extend the study to heavy odd-odd ($A \geq 62$) and medium mass ($18 \leq A \leq 42$) nuclei where these corrections are predicted to be much larger. In this context, the $\beta - \gamma$ decays of ^{62}Ga and ^{38}Ca have been investigated at the IGISOL and ISOLDE facilities. The results obtained will be presented. Prospects for the continuation of this work will be also discussed.

A. Bey
University of Tennessee

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