

Abstract Submitted
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A Study of the Superaligned β^+ Decay of ^{38}Ca H.I. PARK, J.C. HARDY, V.E. IACOB, L. CHEN, J. GOODWIN, V. HOVART, N. NICA, L. TRACHE, R.E. TRIBBLE, Texas A&M University — To test the unitarity of the CKM matrix via precise measurements of superallowed $0^+ \rightarrow 0^+$ nuclear β^+ decay, accurate calculations of small nuclear-structure-dependent corrections are essential. Currently, uncertainties in these calculations are comparable to the present level of experimental precision. However, these theoretical uncertainties can, in principle, be reduced by experiment. ^{38}Ca is a particularly favorable case for this purpose because its nuclear-structure-dependent correction term is calculated to be one of the largest in the *sd* shell [1]. We report our measured half-life to be 443.88(36) ms and the first preliminary results from a branching-ratio measurement. Combined with the well-known Q_{EC} value [1,2], these two results will ultimately lead to a precise $\mathcal{F}t$ value for ^{38}Ca , and a valuable test of the calculated nuclear-structure-dependent correction term.

[1] J.C. Hardy and I.S. Towner, Phys. Rev. C 79, 055502 (2009).

[2] T. Eronen *et al.*, to be published.

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