

Abstract Submitted
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High Precision Half-Life Measurement of ^{38}Ca H.I. PARK, J.C. HARDY, V.E. IACOB, L. CHEN, J. GOODWIN, V. HORVAT, N. NICA, L. TRACHE, R.E. TRIBBLE, Texas A&M University — The measured ft values for superallowed $0^+ \rightarrow 0^+$ nuclear β decay can be used to test the Conserved Vector Current (CVC) hypothesis and the unitarity of the Cabbibo-Kobayashi-Maskawa (CKM) matrix. One of the essential elements of this test is the calculated radiative and isospin-symmetry breaking corrections that must be applied to experimental data [1]. Some of these corrections depend on nuclear structure and their uncertainties can, in principle, be reduced by improving the precision of the experimental ft values. The case of ^{38}Ca is particularly interesting since its structure-dependent correction is calculated to be one of the largest in the sd shell. The Q_{EC} value of the ^{38}Ca decay is already well measured [2] and we have now measured its half-life to better than 0.1% precision. Preliminary results will be presented.

[1] I.S. Towner and J.C. Hardy, Phys. Rev. C **77**, 025501 (2008).

[2] R. Ringle *et al.*, Phys. Rev. C **75**, 055503 (2007).

H.I. Park
Texas A&M University

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