

Abstract Submitted
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Precise Lifetime Measurement of ^{37}K P.D. SHIDLING, R.S. BEHLING, J.C. HARDY, V.E. IACOB, M. MEHLMAN, D. MELCONIAN, B.T. ROEDER, H. STEPHENS, Cyclotron Institute, Texas A&M University — To determine the correlation parameters of the β decay of transitions between isobaric analogue states, the ft value is needed to determine ρ , the ratio of Gamow-Teller to Fermi matrix elements. A recent review of all $T = \frac{1}{2}\beta$ mirror decays [1] indicates that ^{37}K is one of the best candidates for testing the Standard Model. The ft value is currently limited by the 0.6% uncertainty in the lifetime. In order to make Standard Model predictions of the correlation parameters negligible compared to planned experiments, we have performed a precision lifetime measurement of ^{37}K . We used the MARS separator for producing a secondary beam of ^{37}K with a purity of 98.5%. We implanted the activity in an aluminized-Mylar tape that, as part of a fast-tape drive system, quickly transported the sample to a well shielded location, stopping it in the centre of a 4π proportional gas counter. The recorded data was separated into 25 runs, each characterized by a different combination of detector high voltages, discriminator thresholds and dominant dead-time settings. An overview of the experiment and results will be presented.

[1] O. Naviliat-Cuncic and N. Severijns, Phys. Rev. Lett. **102**, 142302 (2009)

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