

Abstract Submitted
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Improving the ft value of ^{37}K via a precision measurement of the branching ratio¹ ASIM OZMETIN, DAN G. MELCONIAN, VICTOR E. IACOB, PRAVEEN SHIDLING, VELI SAKARI KOLHINEN, DAVID J. MCCLAIN, MORGAN NASSER, Texas AM University, BENJAMIN SCHROEDER, none, BRIAN ROEDER, HYO-IN PARK, Texas AM University, MELISSA ANHOLM, University of British Columbia, ANTTI J. SAASTAMOINEN, Texas AM University, TRINAT COLLABORATION — The TRIUMF Neutral Atom Trap collaboration is searching for new physics via precision measurements of the isobaric analogue β^+ decay of ^{37}K . The recent 0.3% measurement of the β asymmetry parameter, A_β , was combined with the present ft value to improve the value of V_{ud} for this decay as well as to search for right-handed currents. Presently, uncertainties in A_β remain the limiting factor in these standard model tests, however, the next A_β measurement will reach $\leq 0.1\%$ precision; at that point, uncertainties in the ft value will no longer be negligible. This motivated us to improve the ft value to ensure its precision does not limit our search for new physics. The current uncertainty in the ft value is dominated by the branching ratio. This talk will describe how, using the fast-tape-transport system at the Cyclotron Institute and the world's most precisely calibrated HPGe, we measured the branching ratio to be 97.81(2)%. This $5\times$ more precise result leads to, $ft = 4585(4)\text{s}$, which is precise enough that A_β would have to be measured to 0.07% before the ft value limited searches for new physics.

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