Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Measurement of the β-asymmetry in the decay of magneto-optically trapped, spin-polarized ^{37}K BENJAMIN FENKER, Texas A&M University Cyclotron Institute, MELISSA ANHOLM, TRIUMF, DANIEL ASHERY, Tel Aviv University, SPENCER BEHLING, Texas A&M University Cyclotron Institute, JOHN BEHR, TRIUMF, IULIANA COHEN, Tel Aviv University, ALEXANDRE GORELOV, TRIUMF, GERALD GWINNER, University of Manitoba, MICHAEL MEHLMAN, Texas A & M University Cyclotron Institute, DAN MELCONIAN, PRAVEEN SHIDLING, Texas A&M University Cyclotron Institute, CLAIRE WARNER, University of Waterloo — We have performed a measurement of the β-asymmetry parameter (A_β) in the isobaric-analogue $\frac{3}{2}^+ \rightarrow \frac{3}{2}^+$ β^+ decay of ^{37}K by observing the angular distribution of the decay positrons with respect to the nuclear polarization axis. The value of this parameter is sensitive to a possible $(V + A)$ admixture in the weak interaction and is a sensitive probe of physics beyond the standard model. Atoms delivered from ISAC, the radioactive ion beam facility at TRIUMF, were cooled and confined in a magneto-optical trap, providing a localized source of atoms decaying nearly from rest. Furthermore, the decaying atoms were highly spin-polarized by optical pumping techniques and monitored by photoionization, with a preliminary analysis giving a nuclear polarization near 99% with statistical uncertainty of 0.4%. Here, I will present the current status of the analysis of our recent 2014 run, from which we have the statistics necessary for a $\lesssim$ 0.5% measurement.

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Date submitted: 30 Jun 2014 Electronic form version 1.4