Abstract Submitted
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Beta-Neutrino Correlation Measurements in ^{37}K[1] MELISSA ANHOLM, University of British Columbia, D. ASHERY, Tel Aviv University, I. CRAICIU, TRIUMF, S. BEHLING, B. FENKER, Cyclotron Institute, Texas A&M University, A. GORELOV, TRIUMF, G. GWINNER, University of Manitoba, L. KURCHANINOV, TRIUMF, M. MEHLMAN, D. MELCONIAN, Cyclotron Institute, Texas A&M University, K. OLCHANKSKI, TRIUMF, P.D. SHIDLING, Cyclotron Institute, Texas A&M University, S. SMALE, J.A. BEHR, TRIUMF, TRINAT COLLABORATION — The TRIUMF Neutral Atom Trap utilizes a unique set of techniques to obtain samples of cold, polarized atoms. We have been particularly interested in trapping ^{37}K atoms, which decay by β^+ emission in a mixed Fermi/Gamow-Teller transition to their isobaric analog, ^{37}Ar. Because the higher-order standard model corrections to this decay process are well understood, it is ideal for for improving constraints on interactions beyond the standard model. By observing the daughter particles, we are sensitive to possible scalar, tensor, and right-handed vector currents in a process that is known to be predominantly a left-handed form of the weak interaction. Observations of overdetermined kinematics in the ion and β time-of-flight spectra allow us to reconstruct the neutrino flight paths, thereby providing an effective strategy for measuring the β-asymmetry parameter, the recoil asymmetry, the β-neutrino correlation, and the tensor alignment parameter. Here I focus primarily on the latter two.

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