Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Production of Short-Lived ^{37}K[1] HEATHER STEPHENS, Rose-Hulman Institute of Technology, DAN MELCONIAN[2], PRAVEEN SHIDLING[3], Texas A&M University — The purpose of our work during the summer months of 2010 was to produce a beam of ^{37}K with $\geq$ 99% purity and characterize in detail the remaining contaminants. A projectile beam of ^{38}Ar at 25 and 29 MeV/nucleon from the K500 cyclotron generated the ^{37}K by reacting with an H_2 gas target. The *MARS* spectrometer was then used to separate the reaction products of interest from the primary beam and other unwanted reaction products. From analysis of our production experiment, we were able to successfully produce 807 counts/nC of ^{37}K with 99.19% purity at 25MeV/u and 1756 counts/nC with 98.93% purity at 29MeV/u. The purity of this beam and rate of production is more than adequate for use in determining the half-life of ^{37}K, the next step to be done by the team in August 2010. This measurement will be accomplished by implanting the activity into a Mylar tape, placing it between two high-efficiency gas counters and counting the amount of beta decays as a function of time. It is expected the half-life will be measured using the ^{37}K produced from ^{38}Ar at 29MeV/u.

[1]Funded by DOE and NSF-REU Program.
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Date submitted: 09 Dec 2010 Electronic form version 1.4