Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Measurement of 26Al(d,p)27Al to constrain the 26Al(p,gamma) reaction rate[1] STEVEN PAIN, D.W. BARDAYAN, ORNL, J.C. BLACKMON, LSU, K.Y. CHAE, University of Tennessee, K.A. CHIPPS, J.A. CIZEWSKI, Rutgers University, K.L. JONES, University of Tennessee, R.W. KAVANAGH, California Institute of Technology, R.L. KOZUB, Tennessee Tech., J.F. LIANG, ORNL, C. MATEI, ORAU, M. MATOS, LSU, C.D. NESARAJA, ORNL, P.D. O'MALLEY, W.A. PETERS, Rutgers University, S.T. PITTMAN, K.T. SCHMITT, University of Tennessee, J.F. SHRINER, Tennessee Tech, M.S. SMITH, ORNL, G.L. WILSON, University of Surrey — The galactic mapping of the 1809-keV γ ray from the beta decay of ^{26}Al has provided an insight into ongoing galactic nucleosynthesis. Understanding the abundance of ^{26}Al requires knowledge of rate of destruction of ^{26}Al, partially via the ^{26}Al(p,γ)^{27}Si reaction, which is determined by states near the proton threshold in ^{27}Si. Due to the difficulty of measuring these resonances directly, an alternative is to measure mirror states in ^{27}Al to inform the ^{27}Si structure. The spectroscopic strengths of a few known mirror states are the dominant sources uncertainty in the ^{26}Al(p,γ)^{27}Si reaction rate. The ^{26}Al(d,p)^{27}Al reaction has been measured in inverse kinematics at the HRIBF. A beam of $\sim$5 million ^{26}Al per second impinged on a $\sim$150 μg/cm^2 CD$_2$ target. Proton ejectiles were detected in the SIDAR and ORRUBA silicon detector arrays. Details of the experimental setup and data analysis will be presented.

[1]Work funded in part by the DoE and NSF

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Date submitted: 04 Aug 2010 Electronic form version 1.4