Abstract Submitted
for the APR08 Meeting of
The American Physical Society

A Study of the ^{14}C(?,?) Reaction Rate Through the ANC Technique E.D. JOHNSON, G.V. ROGACHEV, Florida State University, A.M. MUKHAMEDZHANOV, Texas A&M University, A. AGUILAR, P. BENDER, T. DEVORE, Florida State University, G.V. GOLDBERG, Texas A&M University, K.W. KEMPER, S. LEE, L. MILLER, J. MITCHELL, P. PEPLOWSKI, M. PERRY, R. REYNOLDS, A. ROJAS, Florida State University — The astrophysical significance of the ^{14}C(?,?) reaction is due to its involvement in the NCO chain. The NCO chain is thought to trigger He flashes in white dwarf stars, and is also thought to be a neutron source for the s-process in low mass stars [L. Buchmann et al., The Astrophys. Journ. 324 (1988), M. Hashimoto et al., The Astrophys. Journ. 307 (1986)]. Recently the ANC of the 3^-, 6.4 MeV, near threshold state in ^{18}O was measured via a sub-Coulomb, inverse kinematics ?-transfer reaction at the Florida State University J.D. Fox Superconducting Accelerator Laboratory. The ^{14}C(?,?) reaction rate at stellar temperatures is highly dependent upon the structure of this 3^- state. As shown in E.D. Johnson et al. PRL 97 (2006) the measured ANC can be used to calculate the ^{14}C(?,?) reaction rate without any dependence on nuclear models.

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Date submitted: 11 Jan 2008 Electronic form version 1.4