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The ^{40}Ca(α,γ)^{44}Ti Reaction Using DRAGON[1] C. OUELLET, McMaster U., C. VOCKENHUBER, TRIUMF, L.S. THE, Clemson U., L. BUCHMANN, TRIUMF , J. CAGGIANO, A. CHEN, McMaster U., H. CRAWFORD, TRIUMF, J. D'AURIA, Simon Fraser U., B. DAVIDS , TRIUMF, D. FREKERS, U. of Munster, A. HUSSEIN, U. of North B.C., D. HUTCHEON, TRIUMF, W. KUTSCHERA, VERA, A. LAIRD, R. LEWIS, U. of York, E. O'CONNOR, D. OTTEWELL, TRIUMF, M. PAUL, Racah Institute of Physics, M. PAVAN, J. PEARSON, C. RUIZ, G. RUPRECHT, M. TRINCZEK, TRIUMF, B. WALES, McMaster U., A. WALLNER, U. Wien —

^{44}Ti is one a handful of short lived nuclei believed to be a signature of explosive nucleosynthesis, a product of α-rich freezeout following a core collapse supernova. To understand the production of 44Ti a key reaction, ^{40}Ca(α,γ)^{44}Ti, has been studied in inverse kinematics using the DRAGON recoil separator located at ISAC/TRIUMF in Vancouver B.C. The coincidence detection of the recoils and γ-rays coupled with a time of flight technique provided an accurate determination of the excitation function over a range of beam energies of 0.6 – 1.14 MeV/u. Direct measurement of the stopping power permitted an accurate measure of the stellar reaction rate. The excitation function hints towards previously undiscovered resonances and the new rate results in increased ^{44}Ti production from supernovae judging from prompt γ-ray studies alone.

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