

Abstract Submitted
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Electron-Capture on Excited States of pf-shell Nuclei in Stellar Environments¹ A.L. COLE, T.S. ANDERSON, A.C. DOMBOS, A.K. SCHOOLEY, Physics Department, Kalamazoo College, R.G.T. ZEGERS, SAM M. AUSTIN, B.A. BROWN, L. VALDEZ, NSCL, JINA, Department of Physics and Astronomy, Michigan State University, S. GUPTA, Indian Institute of Technology Ropar, G.W. HITT, O. FAWWAZ, Department of Applied Mathematics and Sciences, Khalifa University of Science, Technology & Research — At stellar temperatures and densities electron-capture rates on ground and excited states of pf-shell nuclei can influence the dynamics of core-collapse and thermonuclear supernovae. For 13 pf-shell nuclei, we have completed a comparison between Gamow-Teller strength distributions and the corresponding electron-capture rates determined from measurements and those determined from shell model and QRPA calculations. Both of these measured and calculated electron-capture rates assumed that the parent nuclei were in the ground state. We now explore the effect that including excited states has on the calculated electron-capture rates and present preliminary results.

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