

Abstract Submitted
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Direct Measurement of the $^{11}\text{C}(\alpha, p)^{14}\text{N}$ Reaction S. HAYAKAWA, S. KUBONO, H. YAMAGUCHI, T. HASHIMOTO, D.N. BINH, D. KAHL, Center for Nuclear Study, the University of Tokyo, Y. WAKABAYASHI, Japan Atomic Energy Agency, N. IWASA, N. KUME, Y. MIURA, Tohoku University, T. TERANISHI, Kyushu University, J.J. HE, Institute of Modern Physics, Y.K. KWON, Chung Ang University, T. KOMATSUBARA, University of Tsukuba, S. KATO, Yamagata University, S. WANAJO, IPMU, the University of Tokyo — A recent simulation of the rp-process in neutrino-driven winds in type II supernovae (νp -process) suggests that the $^{11}\text{C}(\alpha, p)^{14}\text{N}$ reaction could be an important breakout pass from the pp-chain region to the CNO region. However, there are only very limited experimental information of the reaction cross section available from the time-reverse reaction studies. In order to determine the reaction rate of $^{11}\text{C}(\alpha, p)^{14}\text{N}$, a direct measurement by means of the thick-target inverse-kinematics method has recently been performed using low-energy ^{11}C beams from the CNS Radioactive Ion Beam (CRIB) separator, a ^4He gas target and ΔE -E position-sensitive silicon telescopes at three downstream angles. The experiment covered $E_{\text{CM}} = 0.5\text{-}5$ MeV corresponding to the stellar temperature of 1.5-7GK. The obtained reaction cross section including some resonances and transitions to the excited states of ^{14}N will be reported.

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