

Abstract Submitted  
for the HAW09 Meeting of  
The American Physical Society

**Direct Measurement of  $^{21}\text{Na}+\alpha$  Stellar Reaction** NGUYEN BINH DAM, H. YAMAGUCHI, Y. WAKABAYASHI, S. HAYAKAWA, T. HASHIMOTO, D. KAHL, S. KUBONO, Center for Nuclear Study, University of Tokyo, H.K. LE, T.T. NGUYEN, Institute of Physics, Vietnamese Academy for Science and Technology, N. IWASA, N. KUME, Department of Physics, Tohoku University, S. KATO, Department of Physics, Yamagata University, T. TERANISHI, Department of Physics, Kyushu University — Nucleosynthesis of  $^{22}\text{Na}$  is an interesting subject because of possible  $\gamma$ -ray observation and isotopic anomalies in presolar grain.  $^{22}\text{Na}$  would have been mainly produced in the NeNa cycle. At high temperature conditions,  $^{21}\text{Na}(\alpha,p)^{24}\text{Mg}$  reaction could play a significant role to make flow from the NeNa cycle to the next MgAl cycle and beyond. Clearly, the  $^{21}\text{Na}(\alpha,p)^{24}\text{Mg}$  stellar reaction would bypass  $^{22}\text{Na}$ , resulting in reduction of  $^{22}\text{Na}$  production, therefore, it is strongly coupled to the Ne-E problem. It could be also important to understand the early stage of the rp-process. Experiment was performed using a 39 MeV  $^{21}\text{Na}$  radioactive beam obtained by the CNS Radio Isotope Beam separator CRIB of the University of Tokyo. Both protons and alphas were measured from  $\alpha+^{21}\text{Na}$  scattering with a thick  $^4\text{He}$  gas target.

Nguyen Binh Dam  
Center for Nuclear Study, University of Tokyo

Date submitted: 01 Jul 2009

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