

Abstract Submitted  
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**Cross section measurements of the  $^{152}\text{Sm}(\gamma, n)^{151}\text{Sm}$  reaction near threshold** KAORU Y. HARA, JNC, H. HARADA, F. KITATANI, Japan Nuclear Cycle Development Institute (JNC), Japan, H. AKIMUNE, S. GOKO, S. HOHARA, T. KAIHORI, A. MAKINAGA, H. UTSUNOMIYA, T. YAMAGATA, Department of Physics, Konan University, Japan, H. TOYOKAWA, K. YAMADA, National Institute of Advanced Industrial Science and Technology (AIST), Japan — Neutron capture cross sections of the unstable nucleus  $^{151}\text{Sm}$  ( $t_{1/2}=90$  yr) are the fundamental data for nuclear transmutation and nuclear astrophysics. The  $^{151}\text{Sm}$  is one of radioactive fission products in the nuclear waste. In order to determine the  $(n, \gamma)$  transmutation rate of this nucleus, the experimental data are desired to be available in the energy range from thermal to MeV. On the other hand, the branching point nucleus  $^{151}\text{Sm}$  is important for characterizing the s-process nucleosynthesis in AGB stars. The inverse  $^{152}\text{Sm}(\gamma, n)^{151}\text{Sm}$  reaction was measured near threshold at the AIST facility. Beams of quasi-monochromatic photons from laser Compton scattering (LCS) irradiated an enriched  $^{152}\text{Sm}$  sample. We present the experimental method with the LCS  $\gamma$  beam and photoneutron cross sections for  $^{152}\text{Sm}$ . The present data will be used to evaluate the capture cross section of  $^{151}\text{Sm}$  with the Hauser-Feshbach statical model.

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