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New Approach to M1 Cross Section for $D(\gamma, n)$ via the $D(7\text{Li}, 7\text{Be})$ Reaction. S. NAKAYAMA, University of Tokushima, T. YAMAGATA, Konan University, H. AKIMUNE, Y. ARIMOTO, I. DAITO, H. EJIRI, H. FUJIMURA, Y. FUJITA, M. FUJIWARA, K. FUSHIMI, M.B. GREENFIELD, H. KOHRI, N. KOORI, K. TAKAHISA, T. TAKEUCHI, M. TANAKA, K. YONEHARA, H.P. YOSHIDA — The n-p capture cross section is inferred via the “detailed balance” of the deuteron photodisintegration by using the gamma-d cross section above the deuteron binding energy of $E_x=2.225$ MeV up to and including the energy region in the Big Bang (BB). In the threshold energy region, the contribution of the M1 capture process dominates over the E1 capture process. The gamma-d cross sections in the threshold energy region can then provide parameters used in evaluations of nucleosynthesis in the early universe. In this contribution we present a new method to deduce the M1 gamma-d cross section as a function of excitation energy in the deuteron by using the charge-exchange spin-flip (CESF) reaction. The CESF reaction of $(7\text{Li}, 7\text{Be})$ at 65 A MeV was used to deduce the distribution of the $B(M1)$ reduced matrix elements for the photodisintegration of the deuteron from the analogous $B(GT)$ distribution. The results are in agreement with recent photodisintegration measurements and effective field calculations.

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