

${}^3\text{He}(\gamma,p), {}^3\text{He}(\gamma,n)$

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. E. Purcell [#] , C. G. Sheu [*]		NDS 130 1 (2015)	30-Jun-2015

Table 3.8.1 in (1975Fi08) lists over 20 articles for the two-body breakup reaction ${}^3\text{H}(\gamma,p){}^2\text{H}$ for E_γ =threshold (5.49 MeV) to 800 MeV. In Fig. 2 of (1965Fe01) for example, the total cross section for this reaction is shown to rise from threshold to a maximum of about 1 mb at around 12 MeV and drops slowly from there. Also, studies of this reaction are reported in (1982Br12,1983So10) for E_γ from 150-350 MeV. The reaction ${}^2\text{H}(p,\gamma){}^3\text{He}$ was also studied and no evidence of time reversal invariance was found. In the third mass 3 evaluation, (2010Pu04), there are seven additional articles reporting measurements of two-body photodisintegration for E_γ from 10.2 MeV to 800 MeV.

Table 3.8.2 in (1975Fi08) lists 9 articles dealing with the three-body breakup reaction ${}^3\text{He}(\gamma,n)pp$ for γ energies from threshold (7.7 MeV) to 170 MeV. The reference (1988Di02) is an atlas of photoneutron cross sections for a number of nuclei. For the ${}^3\text{He}$ reaction ${}^3\text{He}(\gamma,n)pp$, the authors of (1988Di02) quote results from (1974Be64) and (1981Fa03). Additional articles reporting three-body photodisintegration are listed in (2010Pu04) for E_γ from 10 MeV to 1,550 MeV. The reference (2014La04) reports the results of a study of the reaction ${}^3\text{He}(\gamma,n)pp$ at E_γ =12.8, 14.7 MeV. Fig. 12 of this reference shows their own results plus a collection of all prior results of this reaction for E_γ from threshold to 30 MeV: The total cross section starts from zero at threshold, grows to about 1 mb at 16 MeV and drops slowly from there. Two additional articles reporting studies of the three-body breakup reaction with similar energies are (2011Pe08,2013La14).