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The Two-Body Photodisintegration Reaction ${}^{4}\text{He}(\gamma,\mathbf{p}){}^{3}\text{H}$ between 22 and 30 MeV^1 R. RAUT, M.W. AHMED, A.C. CROWELL, G. RU-SEV, S.C. STAVE, A.P. TONCHEV, W. TORNOW, TUNL & Duke University, J.H. KELLEY, TUNL & NCSU — The ⁴nucleus is often considered as the link between the classical few-body systems and more complex nuclei. Only recently it became possible to calculate the photoabsorption cross section of 4 with realistic nucleon-nucleon potential models. However, the experimental situation is still as controversial as it was a quarter century ago. Using TUNL's HIGS facility, the two-body photodisintegration cross section of ⁴He into a proton and triton was measured between 22 and 30 MeV in 0.5 MeV energy steps. High-pressure 4 He/Xe gas scintillators of various compositions served as targets and detectors. Pure Xe gas scintillators were used for background measurements. A NaI detector was employed for the incident photon flux determination. Our data are in fairly good agreement with recent theoretical calculations of the Trento group [1], but differ significantly from the majority of the previous data, including the recent data of Shima et al. [2] obtained with mono-energetic photon beams and a time-projection chamber.

[1] S. Quaglioni *et al.*, Phys. Rev. C **69**, 044002 (2004).

[2] T. Shima *et al.*, Phys. Rev. C **72**, 044004 (2005).

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