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Neutron Detection Efficiency of The Crystal Ball and TAPS BERHAN DEMISSIE, George Washington University, A2 AT MAMI COLLABO-RATION — Photodisintegration of the deuteron - $d(\gamma, p)n$ and π^0 production off the deuteron - $d(\gamma, p, \pi^0)n$ channels are investigated to measure the neutron detection efficiency of the combined Crystal Ball and Two Arm Photon Spectroscopy, TAPS, detector system currently employed by the A2 collaboration in the Tagged Photon hall at MAMI accelerator in Mainz, Germany. For this purpose, liquid Deuterium target data with 885 and 1557 MeV beam energy will be compared. Preliminary neutron efficiency results are produced. The resulting efficiencies will be compared to results obtained from a Geant 4 simulation of the complete detector setup in order to validate the neutron response provided therein. The ultimate conclusion of this project will be vital for cross section measurement of channels such as double π^0 and $\pi^0 \eta$ production on the neutron.

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