

MESON PHOTOPRODUCTION ON NEUTRON IN THE A2 EXPERIMENT

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In March of 2017 the A2 collaboration at MAMI microtron (Mainz, Germany) has taken the data on meson photoproduction on liquid deuterium target at tagged photon energies up to 1.5 GeV. The main aim of the experiment is to perform a high statistics study of neutral pion and η -meson production on free neutron. The measurements will greatly improve the available database on neutron target and will help to disentangle the isoscalar and isovector electromagnetic couplings of $N\pi$ and Δ resonances [1]. New detectors added to improve trigger capability of Crystal Ball/TAPS facility are described as well as methods of neutron detection efficiency measurements started by ITEP group [2]. This data taking is a continuation of the previous one made at tagged photon beam with energies up to 800 MeV. The analysis of the experimental data are in progress. Preliminary results on total and differential cross sections are discussed as well as methods used for extraction of cross sections on neutron-target from deuteron data. In addition, we compared the experimental data with the predictions of SAID (USA) and MAID (Germany) partial wave analysis .

References 1. I. Strakovsky et al. Progress in Neutron EM Couplings. AIP Conf.Proc. 1735 (2016) 040002. 2. M. Martemianov et al., A new measurement of the neutron detection efficiency for the NaI Crystal Ball detector. JINST 10 (2015), T04001.

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