

Search for the $N(1685)$ in η π -photoproduction

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The nucleon-like member $N(1685)$ of the speculative baryon antidecuplet denotes one possible explanation for the narrow peak-structure around $W = 1.68$ GeV observed in the total cross section of η -photoproduction off the neutron. If this baryon existed, it would likely to be seen in other reactions as well. While the aforementioned peak, whatever its nature is, was confirmed by several experiments, claims for signatures of the $N(1685)$ in other reactions and observables are mainly made by V. Kuznetsov et al. using GRAAL data. Their latest work suggests signals of both $N(1685)$ charge states in all isospin channels of $\eta\pi$ -photoproduction off the proton and neutron. This contribution reports on challenging these claims with data from the A2 at MAMI experiment employing photon beam energies from $E_\gamma = 1.42 - 1.58$ GeV. The $\eta\pi^0 p$ and $\eta\pi^+ n$ final states produced from a hydrogen target were studied and new analysis cuts were tested in order to enhance a possible signal.

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