

ABSTRACT

Recently four groups, GRAAL, CB/TAPS@ELSA, LNS@Tokhoku, and A2@MAMIC, reported the evidence for a narrow structure at energy 1.67 - 1.68 GeV in the eta photoproduction on the neutron.

The structure was observed as a bump in the quasi-free gamma n -> eta n cross section and as a peak in the invariant mass spectrum of the final state of eta and the neutron.

This observation was interpreted as a signal of a new narrow resonance. Alternatively, the bump in the quasi-free cross section was explained in terms of interference of known resonances.

Review of available experimental data will be presented together with the new results on Compton scattering on the neutron from GRAAL. The combination

of experimental findings, if to consider them altogether, seems to support the existence of a new nucleon resonance with unusual properties:

the mass near 1.685 GeV, the possibly narrow width about 30 MeV, and the much

stronger photocoupling to the neutron than to the proton. The

interpretation

of the structure in (gamma n-> eta n) in terms of interference of known resonances

will be discussed as well.