

# NEW RESULTS OF NUCLEON RESONANCES STUDIES IN PHOTO AND ELECTROPRODUCTION OF CHARGED PIONS IN CLAS

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A broad scientific program of exploration of nucleon excited states ( $N^*$ ) spectrum and structure is carried out in Jefferson Laboratory[1]. Detailed information of  $N^*$  structure and spectrum gives access to fundamental mechanisms of strong interaction in the domain of large quark-gluon coupling constant. Unique combination of continuous electron beam and CLAS [2] detector made it possible for the first time to study photo and electroproduction of nucleon resonances in exclusive channels.

The reactions of single and double pion production give the most significant contribution to the total cross section of photo and electroproduction of pions. Double pion channel offers preference when studying high-lying resonances with masses larger than 1.6 GeV because these resonances decay mostly to two pions. Also, this channel is most preferable for searching the “missing”  $N^*$  states.

The preliminary analysis of CLAS data on double pion photo and electroproduction was completed. In case of photoproduction due to large statistics it was possible to extract one and two-fold differential cross sections with the bin width of CM-energy – 25 MeV.

Both photo and electroproduction will be analyzed in the framework of the phenomenological model JM [3].

1. I.G.Aznauryan, V.D.Burkert // Prog. Part. Nucl. Phys. 2012. V.67. P.1.
2. I.G.Aznauryan *et al.* // Int. J. Mod. Phys. E. 2013. V.22. 1330015.
3. V.I.Mokeyev *et al.* // Phys. Rev. C. 2012. V.86. 035203.