First results on the electrocouplings of high lying N* states from N$\pi\pi$ electroproduction off protons with the CLAS detector.

V.I. Mokeev, V.D. Burkert for the CLAS Collaboration.

We extended a phenomenological model [1, 2], that was utilized for the evaluation of $\gamma_v NN^*$ resonance transition helicity amplitudes (electrocouplings) from N$\pi\pi$ electroproduction cross section data at W $<$ 1.6 GeV and $Q^2 < 0.6$ GeV^2, to provide larger kinematic coverage for resonance masses up to 1.8 GeV. A successful description of the CLAS data [3, 4] on nine differential N$\pi\pi$ cross sections was achieved at W $<$ 1.8 GeV and $Q^2 < 1.5$ GeV^2. The phenomenological analysis allowed us to isolate the resonant contribution to the cross sections and to determine $\gamma_v NN^*$ electrocouplings for states with masses above 1.6 GeV. For the first time, results for the $S_{31}(1620)$, $S_{11}(1650)$, $F_{15}(1685)$, $D_{33}(1700)$, and $P_{13}(1720)$ states were obtained from the analysis of the p$\pi^+\pi^-$ exclusive channel. The study of p$\pi^+\pi^-$ electroproduction is essential for the determination of electrocouplings for high lying N^* states that decay preferably with emission of two pions.

References

[1] V. I. Mokeev and V. D. Burkert, J. Phys. Conf. Ser, **69**, 012019 (2007).

[2] V. I. Mokeev et al., arXiv:0906.4081[hep-ex], accepted by PRC.

[3] M. Ripani et al., CLAS Collaboration, Phys. Rev. Lett. **91**, 022002 (2003).

[4] CLAS Physics DB, http://www.jlab.org/Hall-B/ .