$\pi^+\pi^-$p ELECTROPRODUCTION OFF THE BOUND PROTON IN RESONANCE REGION WITH CLAS

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Experimental data on nucleon excitations showed evidence for possible modifications of the ground and excited nucleon states inside the deuteron. One of them comes from the comparison of the inclusive structure functions F_2 off the proton and off the deuteron at different photon virtualities [1, 2]. The F_2 structure function off the deuteron inside resonant peaks is getting increasingly damped as the photon virtuality increases. Another indication of the same effect can be seen in W-dependence of total photoabsorption cross sections for the free proton and deuteron [3], where the structure of the second resonance region becomes less pronounced for deuteron. All these effects cannot be explained by Fermi-motion alone and are related to the influence of nuclear medium on the production mechanisms.

We are planning to extract from the CLAS data integrated and differential cross sections of the γ_v p(n) $\rightarrow$ p(n)$\pi^+\pi^-$ reaction at 1.3 GeV $< W <$ 1.825 GeV, 0.4 GeV$^2 < Q^2 <$ 1 GeV^2 and compare them with cross sections of the same process on the free proton [4]. The difference between these two sets of cross sections allows us to investigate the initial and final state interactions for this exclusive channel inside the deuteron target and for the first time to explore possible modification of N* electrocouplings inside the deuteron. Furthermore, the analysis of the γ_v p(n) $\rightarrow$ (n)$\pi^+\pi^-$ reaction allows us to make the first step towards an investigation of $\pi^+\pi^-$n (p) electroproduction.

In this talk we are going to present details of data analysis and preliminary integrated and differential cross sections of the γ_v p(n) $\rightarrow$ p(n)$\pi^+\pi^-$ reaction. Physics analysis of these results will allow us to extend the phenomenological approach for the extraction of resonance parameters from $\pi^+\pi^-$p electroproduction data off free protons [5] to that off nucleons bound in deuterium target.

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