Exclusive π^0 electroproduction in the resonance region.

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Abstract

We report the analysis of single π^0 electroproduction in the resonance region to study the electromagnetic excitation of the nucleon resonances. The study is aimed at understanding the internal structure and dynamics of the nucleon. The experiment was performed using an unpolarized cryogenic hydrogen target and polarized electron beam with the CLAS detector at Jefferson Lab. The new measurements produce a data base with high statistics and large kinematic coverage for the hadronic invariant mass W up to 1.8 GeV and in the momentum transfer Q^2 range of 0.4 - 1.0 $(\mathrm{GeV/c})^2$ with full angular coverage in the Center of Mass system. Partial wave analyses of this data set is currently underway, which will considerably improve our knowledge of the Q^2 evolution of the resonance states over a wide W range.