

Exclusive π^- Electroproduction off the Neutron in Deuterium in the Resonance Region ¹

Ralf W. Gothe and Ye Tian

Department of Physics and Astronomy, University of South Carolina,
Columbia, SC, USA

The goal of our research is to provide the exclusive $\gamma^*(n) \rightarrow p^+\pi^-$ reaction cross section from the deuterium data using the final-state-interaction (FSI) correction factor (R) that can be determined by the data itself. The “e1e” Jafferson Lab CLAS data that we analyze includes both a hydrogen and deuterium target run period, which allows a combined analysis of pion electroproduction off the free proton, the bound proton, and the bound neutron. Hence it will provide the experimentally best possible information about the off-shell and final state interaction effects in deuterium, which must be considered in order to extract the neutron information. This data set will provide results with a kinematic coverage for the hadronic invariant mass W up to 1.7 GeV and in the momentum transfer Q^2 range of $0.4 - 1.0 \text{ GeV}/c^2$. The cross section analysis 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. In this talk, I will present current data analysis status, and preliminary cross section results.

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