

Abstract Submitted
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J/ ψ Photoproduction Near Threshold With CLAS12¹ JOSEPH NEWTON, Old Dominion University, CLAS12 COLLABORATION, OLD DOMINION UNIVERSITY TEAM — Nuclear physics seeks to create a model of how quarks and gluons interact. For decades, electron scattering has been used to study the distribution of charge and magnetization in the nucleon. Even though electric and magnetic form factors have been measured, gluonic form factors in the proton have not. J/ ψ photoproduction near threshold is sensitive to the color charge distribution of the proton. Available data on J/ ψ photoproduction at high energies are described by a diffractive, two-gluon exchange mechanism. However, J/ ψ photoproduction at low energies may deviate from the two-gluon model in favor of the three-gluon model, which has been supported by the recent data from GlueX in Hall D at Jefferson Lab. With beam energies up to 11 GeV from CEBAF, the CLAS12 detector is capable of studying J/ ψ photoproduction near threshold. The reaction is studied in the untagged photoproduction regime when the incoming electron scatters at approximately 0 degrees. In this talk, we present an analysis of data from the Fall 2018 run of CLAS12 with a 10.6 GeV beam impinging on a liquid Hydrogen target. Details of analysis will be discussed, including particle identification and event selection, using the experimental data and Monte-Carlo simulations.

¹J/ Photoproduction Near Threshold with CLAS12

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