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Coherent pion photoproduction on deuterium at momentum transfer $|t|$ up to 2.2 (GeV/c)^2 YORDANKA ILIEVA, The George Washington University, CLAS COLLABORATION — The reaction $\gamma d \to \pi^0 d$ was measured with the CLAS detector at the Thomas Jefferson National Accelerator Facility at photon energies between 0.54 and 2.0 GeV and pion CM scattering angles between 50° and 150°. The total CM energy s varied between 5.5 and 12 GeV^2. At pion backward CM angles the scaled invariant cross sections $s^{13}\frac{d\sigma}{dt}$ vary about a constant value as a function of s. These variations are most probably due to soft-scattering contributions. Fits to the dependence of $\frac{d\sigma}{dt}$ on s at fixed θ^{π}_{CM} show that for $\theta^{\pi}_{CM} > 100^{\circ}$ our data are generally consistent with the predictions of the Constituent Counting Rules (CCR) [1]. The predictions of the Reduced Nuclear Amplitudes (RNA) approach [2] are consistent with the data at $-t > 1.4$ (GeV/c)^2 and $s > 7$ GeV^2. Comparisons with other exclusive processes and traditional meson-nucleon models will be discussed.

1. S.J. Brodsky and G.P. Lepage, Perturbative Quantum Chromodynamics, SLAC-R-224, 133 (1979)
2. S. Brodsky, J.R. Hiller, Chueng-Ryong Ji and G.A. Miller, Phys. Rev. C **64**, 055204 (2001)

Yordanka Ilieva
The George Washington University

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