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Studying Nuclear Structure at Short Range with Real Photon Beams PHOEBE SHARP, George Washington University — Numerous experiments using electron beams have given us remarkable insight into the structure and dynamics of short range nucleon nucleon (NN) pairs. However, the results of those experiments all rely on a common set of assumptions about the reaction mechanics and final state interactions, which have yet to be tested and verified. New theoretical advances, specifically the effectiveness of scale separating techniques, indicate measurements with a real photon beam, having different reactions, final states, and kinematics, can test these foundational assumptions without the added complexity of a strongly interacting probe. An upcoming experiment in Jefferson Labs Hall D will study short range correlations (SRCs) using a 9GeV real photon beam on three targets: Carbon, Helium-4, and Deuterium, using the GlueX detector. This experiment will decisively test the phenomena of np (neutron-proton) dominance, the short-distance NN interaction, and reaction theory, while also providing new insight into bound nucleon structure and the onset of color transparency. This talk will present the status, simulations, and preparations for the running of this experiment.

Phoebe Sharp
George Washington Univ

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