

J/ ψ Near-Threshold Photoproduction at JLab

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J/ ψ near threshold photoproduction plays a key role in the physics program at the Thomas Jefferson National Accelerator Facility (JLab) 12 GeV upgrade due to the wealth of information it has to offer. J/ ψ photoproduction proceeds through the exchange of gluons in the t-channel and is expected to provide unique insight about the nucleon gravitational form factors and the nucleon mass radius.

The JLab CLAS, J/ ψ -007 and GlueX Collaborations, based in Halls B, C and D respectively, aim to or have already measured the J/ ψ near threshold photoproduction cross section using both hydrogen and deuteron targets. These offer the possibility of measuring the free proton, bound proton and bound neutron mass radii, with several measurements already published and additional analyses currently ongoing. This talk will describe the aims and experimental design for the measurements of J/ ψ near threshold photoproduction on the proton, bound proton and bound neutron at JLab along with the current and upcoming results.

Primary author: TYSON, Richard (University of Glasgow)

Presenter: TYSON, Richard (University of Glasgow)

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