

Threshold Photoproduction of J/ψ at GlueX

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The GlueX experiment at Jefferson Lab uses a 12 GeV electron beam to produce tagged photons via coherent Bremsstrahlung. This linearly-polarized photon beam impinges on a liquid-hydrogen target contained within a hermetic detector with near-complete coverage by drift chambers and electromagnetic calorimeters. The available energy range is ideal to study the J/ψ production close to its threshold at 8.2 GeV and the energy-dependence of the cross-section is very sensitive to the details of the production mechanism. The cross-section is also closely related to the s -channel production of the pentaquark resonances $P_c(4380)$ and $P_c(4450)$ observed by LHCb in $J/\psi p$ systems. Taking advantage of the exclusivity of the reaction and the precise knowledge of the beam energy, the GlueX experiment achieves a fine mass resolution and a pure data sample. We will present results for the cross-section and an upper limit on the $P_c \rightarrow J/\psi p$ branching fraction.