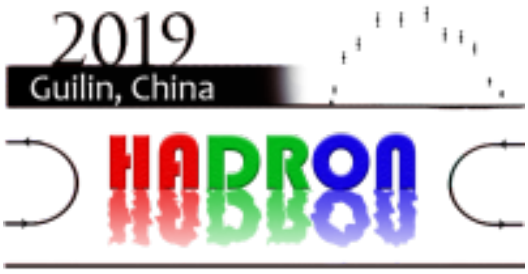

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First measurement of near-threshold J/ψ photoproduction and search for the LHCb Pc+ states

Sunday, 18 August 2019 16:15 (25 minutes)

Photoproduction of charmonium near threshold gives an excellent probe for studying the gluonic structure of the nucleon. Of more recent interest is the possibility of producing the P_c^+ pentaquark candidates reported by LHCb in the s-channel reaction: $\gamma p -> P_c^+ \to pJ/\psi$. We report on the measurement of the total cross section $\sigma(\gamma p \to pJ/\psi)$ in 10 bins of photon beam energy down to the threshold of $E_\gamma = 8.2$ GeV using a tagged photon beam with the GlueX experiment at Jefferson Lab. We find the cross section as a function of beam energy to fall less steeply near threshold than expectations from lowest-order calculations. We also find no evidence for the photoproduction of the Pc states and set upper limits on their production and $\mathcal{B}(P_c^+ -> J/\psi p)$. We will also discuss the future prospects for extending these measurements at GlueX.

Primary author: DOBBS, Sean (Florida State University)

Presenter: DOBBS, Sean (Florida State University)

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