

Abstract Submitted
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Photoproduction of Λ^* Resonances Using the CLAS Detector UTSAV SHRESTHA, KYUNGSEON JOO, University of Connecticut — We present the study of the reaction $\gamma p \rightarrow K^+ \Lambda^*$ using the photoproduction data from the CLAS-*g12* experiment performed in Hall B of Jefferson Laboratory. Much is known about the photoproduction of the hyperon resonances $\Lambda(1405)1/2^-$ and $\Lambda(1520)3/2^-$, but little is known about photoproduction to the higher-mass resonances $\Lambda(1670)1/2^-$ and $\Lambda(1690)3/2^-$. In the quark model, the $\Lambda(1405)$ and $\Lambda(1520)$ resonances are assigned to the SU(3) singlet, where the $\Lambda(1670)$ and $\Lambda(1690)$ are assigned to the octet. The decay of Λ^* resonances, $\Lambda(1520)$, $\Lambda(1670)$, and $\Lambda(1690)$, into two exclusive channels, $\Sigma^+ \pi^-$ and $\Sigma^- \pi^+$, is studied from the detected K^+ , π^+ , and π^- particles. The $\Lambda(1520)$ differential cross sections are in good agreement with the previous CLAS measurements, and are extended to higher photon energies. Newly added are the differential cross sections as a function of invariant 4-momentum transfer t , which is the natural variable to use for a theoretical model based on a Regge-exchange reaction mechanism. No new N^* resonances decaying into the $K^+ \Lambda(1520)$ final state are found. The cross sections for the higher mass resonances, $\Lambda(1670)$ and $\Lambda(1690)$, are studied for the first time using photoproduction.

☒ Prefer Oral Session
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