$K^*$ photoproduction off the proton at CLAS$^1$ ISHAQ HLEIQAWI, KEN HICKS, Ohio University, CLAS COLLABORATION — The photoproduction of vector mesons has previously focused on the nonstrange sector, with $\rho$, $\omega$ or $\phi$ mesons in the final state. The lightest vector meson with nonzero strangeness is the $K^*$ of which little is known for photoproduction. The large acceptance of the CLAS detector makes it possible to capture both $K^*$ decay products, the pion and the kaon. In this talk we will show differential cross sections for the $K^*\Sigma^+$ final state over photon energies ranging from about 1.8 to 3.0 GeV. These data are compared with a theoretical model by Zhao et al. using a quark-model for the $K^*$-baryon couplings. Our data show that the forward-angle data are well described by the $t$-channel, hence providing constraints for the $K^*\Sigma N$ coupling constant. At larger angles, the $s$-channel is well described by the model of Zhao et al. over a range of angles and photon energies. The $K^*$ couplings determined from our data will more tightly constrain calculations for scalar kaon production, where $K^*$ exchange occurs as a virtual particle in the $t$-channel.

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