Abstract

Preliminary differential cross-sections and the $\rho^0$ spin density matrix elements (SDME) for the reaction $\gamma p \rightarrow \phi p$ for both charged- ($\phi \rightarrow K^+K^-$) and neutral-mode ($\phi \rightarrow K^0_LK^0_S$) topologies obtained from CLAS will be presented. Our kinematic coverage is from near production threshold ($\sqrt{s} \sim 1.97$ GeV) to $\sqrt{s} = 2.84$ GeV, with a wide coverage in the production angle. As seen in previous LEPS and SAPHIR results, the differential cross-sections show a localized “bump” between $\sqrt{s} \sim 2$ and 2.2 GeV. Comparisons between the charged- and neutral-mode results and possible effects from the $K^+\Lambda(1520)$ channel will be discussed. Our SDME results confirm the well-known deviations from t-channel helicity conservation (TCHC) for Pomeron exchange, but s-channel helicity conservation (SCHC) is also seen to be broken. Comparisons with the corresponding CLAS results for the $\omega$ channel (PRC 80, 065208 (2009)) and prospects of a partial wave analysis will also be described.