

# $\phi$ photoproduction results from CLAS

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## 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 ( $\phi \rightarrow K_L^0 K_S^0$ ) 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.