

Measurement of spin density matrix elements in $\Lambda(1520)$ photoproduction with the CLAS detector

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The photoproduction reaction $\gamma p \rightarrow K^+ \Lambda(1520)$ is a topic of interest due to possible interference with the $\gamma p \rightarrow \phi p$ reaction and possible heavy excited nucleon decay to $K^+ \Lambda(1520)$. In particular, an unexplained bump has been seen in measurements of the differential cross-section and provoked theoretical work. Information about the production mechanism of this reaction can be gained from studying the angular distribution of the $\Lambda(1520)$ decay products. This distribution is parameterized by a set of spin density matrix elements and reveals the polarization of the $\Lambda(1520)$. Previous measurements of the decay distribution have been limited by low statistics, small angular coverage, and coarse binning. New, high-statistics measurements of the $\Lambda(1520)$ spin density matrix elements, using the $\Lambda(1520) \rightarrow K^- p$ decay mode, from the CEBAF Large Acceptance Spectrometer at Jefferson Lab are presented here.

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