

PROPOSAL to the CEBAF Program Advisory Committee
Measurement of K° Electroproduction

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Abstract

The reaction $p(e, e'K^0)\Sigma^+$ can play an important role in our understanding of the mechanism of the electromagnetic production of strangeness, since it would provide complementary information to that given by charged kaon electroproduction and by charged and neutral kaon photoproduction. The CLAS Large Acceptance Spectrometer provides a unique means to observe this process for the first time through the two-pion decay modes of the K^0 . K^0 events will be identified through reconstruction of the invariant mass of the pion pairs and the missing mass of the undetected hyperon. Simulations show that a cut to identify K^0 decay tracks which are well separated from the electron vertex will make it possible to reduce multipion background further. By measuring the cross section as a function of Q^2 , we can test specific predictions of recent theoretical models for the $K^{*0}K^0\gamma$ transition form factor, which enters in through the dominant t -channel diagram.