Kaon Electroproduction on Hydrogen and Deuterium

JINSEOK CHA[1], Mississippi State University and Jefferson Laboratory, for the Jefferson Laboratory E91-016 Collaboration, – Electroproduction of kaons on targets of ^{1,2}H is a frontier technique to study the elementary process of strange hyperon production, and an effective, relatively simple tool for studying the hyperon-nucleon strong interaction. The angular dependence of kaon electroproduction for the reaction $^{1}\mathrm{H}(\mathrm{e},\mathrm{e}'\mathrm{K}^{+})\mathrm{Y}$ and $^{2}\mathrm{H}(\mathrm{e},\mathrm{e}'\mathrm{K}^{+})\mathrm{YN}$ was studied as a function of the polar angle between the virtual photon and Kaon. Data cover the scattering angle range from zero to approximately 50 degrees c.m. with respect to the virtual photon(γ_v) direction for four momentum transfer (Q^2) ≈ 0.38 and 0.51 GeV^2; the kinematic range for the corresponding momentum transfer for the recoil, t, was 0.15 to 0.50 GeV^2, with $W \approx 1.85$ GeV. Kinematic dependences of Λ and Σ^0 production on H as well as an analysis of the L-T and TT interference terms will be presented. For D, the results include a measurement of the cross section for Σ^- production on the neutron and a model for Λ-n final state interaction (FSI) near the Λ-n threshold on ^{2}H. These measurements will be compared with previous investigations of these reactions in other kinematic regimes and some theoretical models.

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