

Abstract Submitted
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Precision Measurement of π^0 Electroproduction Cross Section Near Threshold MITRA SHABESTARI, University of Virginia, JEFFERSON LAB π^0 COLLABORATION — A high precision measurement of the reaction $H(e, e'p)\pi^0$ was performed near threshold (experiment E04-007) at Jefferson Laboratory. Measurements were made in a fine grid of Q^2 , in the range $0.045 (\text{GeV}/c)^2 \leq Q^2 \leq 0.15 (\text{GeV}/c)^2$, and ΔW in the range $0\text{MeV} \leq \Delta W \leq 30\text{MeV}$. The data were taken in Hall A. Polarized electron beams at energies of 1194 and 2232 MeV were used to bombard a liquid hydrogen target. The target was contained in a new and very small aluminum cell with a thin beam entrance window, and thin side walls to minimize the energy loss of low-energy protons recoiling out of the target. The pion was identified by detecting the electron in one of the high-resolution spectrometers in coincidence with the recoiled proton, in the large acceptance “BigBite” spectrometer. These coincidence data allow us to test chiral QCD dynamics; a test which has become more critical as earlier measurements showed disagreement with the predictions of chiral perturbation theory. The experimental details will be discussed, and progress in data analysis will be presented.

Mitra Shabestari
University of Virginia

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