

Abstract Submitted
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Measurement of the Pion's Electric Form Factor Via Pion Electroproduction TANJA HORN, University of Maryland, FPI-2 COLLABORATION — A fundamental challenge in nuclear physics is the description of hadrons in terms of the constituents of the underlying theory of strong interactions. The simplest hadronic system is the pion, whose electromagnetic structure is determined by a single form factor (F_π). While F_π can be calculated using perturbative QCD in the limit of very large values of four momentum transfer (Q^2), its calculation in the transition region from moderate to asymptotic values of Q^2 is model dependent. Assuming dominance of the pion exchange process, the value of F_π can be extracted from the separated longitudinal response function. The $F_\pi 2$ -Collaboration measured the $^1H(e, e'\pi^+)n$ reaction for two values of Q^2 (1.6 and 2.5 (GeV/c)²) in Hall C at Jefferson Lab. This experiment will increase the dynamic range of precision data for which F_π has been extracted to $Q^2=2.5$ (GeV/c)². The data may give an indication on the transition to the perturbative regime and will also help to constrain non-perturbative calculations of F_π in a region where model predictions begin to diverge.

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