

A Precision Measurement of the Neutron Electric Form Factor in Hall A at Jefferson Lab

Aidan M. Kelleher
The College of William & Mary

June 29, 2009

Abstract

Knowledge of the electric and magnetic form factors of the nucleon is essential for an understanding of nucleon structure. Recent measurements of the proton form factor show remarkable features at higher Q^2 . Additionally, form factor data constrain the Generalized Parton Distributions and give insight into orbital angular momentum. Of the form factors, the electric form factor of the neutron has been measured over the smallest range in Q^2 and with the lowest precision. A recent precise measurement of G_E^n in Hall A of Jefferson Lab has doubled the measured range in Q^2 by measuring G_E^n at four Q^2 points from 1.4-3.5 GeV². Results of this experiment as well as the performance of the new electron detector, neutron detector, and polarized ³He target will be presented.