Abstract Submitted
for the HAW09 Meeting of
The American Physical Society

Measurement of F_2 and $R = \sigma_L/\sigma_T$ on Nuclear Targets in the Nucleon Resonance Region VAHE MAMYAN, University of Virginia — Jefferson Lab Experiment E04-001 used the Rosenbluth technique to measure $R = \sigma_L/\sigma_T$ and F_2 on nuclear targets. This experiment was part of a multilab effort[1] to investigate quark-hadron duality and the electromagnetic and weak structure of the nuclei in the resonance region. In addition to the studies of quark-hadron duality in electron scattering on nuclear targets, these data will be used as input form factors in future analysis of neutrino data which investigate quark-hadron duality of the nucleon and nuclear axial structure functions. An important goal of this experiment is to provide precise data which to allow a reduction in uncertainties in neutrino oscillation parameters for neutrino oscillation experiments (K2K, MINOS). This inclusive experiment was completed in July 2007 at Jefferson Lab where the Hall C High Momentum Spectrometer detected the scattered electron. Measurements were done in the nuclear resonance region ($1 < W^2 < 4\ GeV^2$) spanning the four-momentum transfer range $0.5 < Q^2 < 4.0$ (GeV^2). Data was collected from four nuclear targets: C, Al, Fe and Cu. After a brief presentation of the physics motivation of the experiment and its experimental and analysis details, the results will be presented. The results of global fit performed on existing world data in this kinematics region will also be presented.

[1] Fermilab Minerva Experiment[http://minerva.fnal.gov/]

Vahe Mamyan
University of Virginia

Date submitted: 30 Jun 2009 Electronic form version 1.4