Privacy and Security Notice

Proposal Number: P04-014 **Hall: C**

Title: Measurement of GEp/GMp using elastic polarized p(e,e?)p up to Q^2=3.50 $(GeV/c)^2$

Contact person: Xiaochao Zheng (Argonne National Lab)

Beam time request:

Days requested for approval: 17 days

Tune up included in beam line request: yes

Beam characteristics:

Energy: 3.6, 6 GeV

Current: 85-200 nA

Polarization: 80%

Targets:

Nuclei: NH3

Rastering: PT raster

Polarized: yes

Spectrometers:

HMS: yes

SOS: no

Special requirements/requests: This is a Large Installation experiment, requiring installation of the Polarized Target and Beam Line Chicane

Technical Comments:

1) This is a large installation experiment, albeit a standard one requiring the polarized target and associated beam line chicane. Installation time has not been included, and is estimated to be 2-3 months. Teardown is estimated to be one month.

2) The beam time request assumes 80% beam polarization. If the more commonly achieved value of 75% is assumed, the beam request would increase by about 2 days.

3) Strong technical support is assumed from the JLab Target Group for the installation, calibration, and operation of the polarized target. We do note that this may be alleviated by the strong involvement on this proposal by the UVa group.

4) The experiment will require a low current dump in the Hall for the non-parallel field measurements. This technique has before been used for the E93-026 experiment.

5) There is no basis for the claimed 0.3 mrad absolute angle accuracy of the HMS (with the polarized target field in place), but a larger value of 1 mrad does not significantly affect the error budget.

6) No details were given of how the target spin direction was previously determined to 0.1 degrees, and whether this was with respect to an unspecified laboratory coordinate system or with respect to the q-vector for central HMS kinematics. If this value were several times larger, it would become one of the larger systematic errors.

7) Careful alignment of the target will be needed to get the beam through the target without clipping the coils.

8) The approved E01-109 GEp-III experiment already provides a sensitive test to systematic uncertainties due to spin precession in the Hall A apparatus. Does this experiment bring more to this problem?