Jefferson Lab PAC 27
Proposal Cover Sheet

This document must be received by close of business Monday, December 6, 2004 at:

Jefferson Lab
User/International Liaison
Mail Stop 12B
12000 Jefferson Ave.
Newport News, Va
23606

Experimental Hall:	**A**
Days Requested for Approval:	**46**

Proposal Title:

Polarized e-2H parity violating deep inelastic scattering at CEBAF 6 GeV

Proposal Physics Goals:
Indicate any Experiments that have physics goals similar to those in your proposal.

Approved Conditionally approved, and/or Deferred Experiment(s) or proposals.

Qweak, LOI03-106

Contact person:

Name :	Xiaochao Zheng
Institution :	Argonne National Lab
Address :	MS 16B, Rm 16/46
Address :	12000 Jefferson Avenue
City, State, ZIP/Country :	Newport News, VA 23606
Phone :	757-269-5923
Fax :	757-269-6273
Email :	xiaochao@jlab.org

Spokespersons:

1. Xiaochao Zheng
2. Paul E. Reimer
3.
4.
5.
6.
7.
8.

Contact person:

Recipient Date :

By :

LAB RESOURCES LIST

Jlab Proposal No. : Date

List below significant resources - both in equipment and human - that you are requesting from Jefferson Lab in support of mounting and executing the proposed experiment. Do not include item that will be routinely supplied to all running experiments such as the base equipment for the hall and technical support for routine operation, installation, and maintenance.

Major Installations (either your equip. or new equip requested from JLab)

Upgrade of the electron detector in the Hall A Compton polarimeter

New Support Structures

Data Acquisition/ Reduction

New Support Structures

A new fast counting DAQ based on FADCs

New Software

Major Equipment

Magnets :

Power Supplies:

Targets:

Detectors:

Electronics:

Electronics needed by the fast counting DAQ

Computer Hardware:

Other:

Other:

BEAM REQUIREMENTS LIST

Jlab Proposal No. :		**Date :**	
Hall: A	**Anticipated Run Date** 2007	**PAC Approved Days:**	
Spokesperson:	Xiaochao Zheng	**Phone:**	757-269-5923
Email:	xiaochao@jlab.org	**Hall Liaison:**	

List all combinations of anticipated targets and beam considerations required to execute the experiment. (This list will form the primary basis for the Radiation Safety Assessment Document (RSAD) calculations that must be performed for each experiment.)

Condition No.	Beam Energy (MeV)	Mean Beam Current (μA)	Polarization and Other Special Requirements (e.g. time structure)	Target Material (use multiple rows for complex targets - e.g. w/windows)	Material Thickness (mg/cm^2)	Est. Beam-On Time for cond. No. (hours)
1	6000	85		LD2	4175	216
2	6000	85			4175	768
3	6000	85			4175	5
4	6000	85			4175	5
5	6000	5			4175	8
6	6000	5			4175	8
7	6000	85		Be	2253	5
8	6000	85			2816	17

The beam energies, E_{Beam}, available are: $E_{Beam} = N \times E_{Linac}$ where N = 1, 2, 3, 4, or 5. E_{Linac} = 800 MeV, i.e, available E_{Beam} are 800, 1600, 2400, 3200 and 4000 MeV. Other energies should be arranged with the hall leader before listing.

HAZARD IDENTIFICATION CHECKLIST

Jlab Proposal No. : ______ **Date :** ______

Check all items for which there is an anticipated need.

Cryogenics ☐ beamline magnets ☐ analysis magnets ☐ target magnets type: flow rate: capacity:	**Electrical Equipment** ☐ cryo/electrical devices ☐ capacitor banks ☐ high voltage ☐ exposed equipment	**Radioactive/Hazardous Materials** List any radioactive or hazardous/toxic materials planned for use:
Pressure Vessels ☐ inside diameter ☐ operating pressure ☐ window material ☐ window thickness **Special Target Materials** ☐ *Helium (^{3}He) ☑ Deuterium	**Flammable Gas or Liquids** type: flow rate: capacity: **Drift Containers** type: flow rate: capacity:	**Other Target Materials** ☑ Beryllium (Be) ☐ Lithium (Li) ☐ Mercury (Hg) ☐ Lead (Pb) ☐ Tungsten (W) ☐ Uranium (U) ☐ *Helium (^{3}He) ☐ Other (List below)
Vacuum Vessels ☐ inside diameter ☐ operating pressure ☐ window material ☐ window thickness	**Radioactive Sources** ☐ permanent installation ☐ temporary use type: strength:	**Large Mech. Structure/System** ☐ lisfting devices ☐ motion controllers ☐ scaffolding or ☐ elevated platforms
Lasers type: wattage: class: Installation: ☐ permanent ☐ temporary Use: ☐ calibration ☐ alignment	**Hazardous Materials** ☐ cyanide plating materials ☐ scintillation oil (from) ☐ PCB's ☐ methane ☐ TMAE ☐ TEA ☐ photographic developers ☐ other (list below)	**General** Experiment Class ☐ Base Equipment ☐ Temp. Mod. to Base Equip. ☐ Permanent Mod to Base Equipment ☐ Major New Apparatus Other: Upgrade of the Hall A Compton polarimeter's electron detector

Computing Requirements List

Proposal Title: Polarized e-2H parity violating deep inelastic scattering at CEBAF 6 GeV

Spokesperson: Xiaochao Zheng **Experimental Hall:**

Raw Data Expected
Total: 200 GBytes **Per Year (long duration experiments only):**

Simulation compute Power (SPECInt95hours) Required: 1080

On-Line Disk Storage Required: 200 GBytes

Imported Data Amount from Outside Institutions:

Exported Data Amount to Outside Institutions:w

Expected Mechanism for imported/Exported Data:

Special Requirements
(For example, special configuration of data aquisition systems) that may require resources and /or coordination with JLab's Computer Center. Please indicate, if possible, what fraction of these resources will be provided by collaborating institutions and how much is expected to be produced by JLab.

A fast counting DAQ system based on FADCs is expected to be produced by JLab