Jefferson Lab
Thomas Jefferson National Accelerator Facility

Jefferson Lab PAC 48
Proposal Cover Sheet

Proposal Type: Jeopardy
Physics Category3D structure of the hadrons
Proposal Title: Run Group H Jeopardy Update Document. CLAS12 Experiments with a TransverselyPolarized Target
Experiment Hall: B
Days Requested for Approval: 110

Proposal Physic Goals:
Indicate any Experiments that have physics goals similar to those in your proposal. Approved Conditionally approved, and/or Deferred Experiment(s) or proposals.

E12-09-018
E12-10-006
E12-11-108

Collaboration-Approved Proposals:
If you will be running in parallel with an approved experiment, please indicate the experiment number

N/A

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If you will be running in parallel with an approved experiment, please indicate the experiment number

N/A

Contact Person:

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1. Harut Avakian
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8. Marco Mirazita
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10. Marco Radici
11. Xiangdong Wei

Lab Resources List

JLab Proposal No. : No Data
Date: No Data

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

None beyond standard Hall B and HDice

New Support Structures:

None beyond standard Hall B

Data Aquisition/ Reduction

New Support Structures:

Standard Support. JLab computer farm, Hall B DAQ, MSS for data storage, work disk space forcooking and analysis, standard Hall B online/offine computing, Open Science Grid for simulation

New Software:

Standard Hall B DAQ for online, standard calibration, cooking, and analysis software and support for Hall B data reduction, analysis, and simulation, CLAS12 database.

Major Equipment:

Magnets:

CLAS12 torus and solenoid, standard beamline magnets including the Hall B photon tagger for beam tuning and Moller polarimeter, HDice magnets.

Power Supplies:

Standard supplies for Hall B operation of CLAS12 and beamline elements

Detectors:

CLAS12, MM, CND, RICH, tagger and beamline

Electronics:

Standard for Hall B and CLAS12, including Moller polarimeter

Computer Hardware

Standard for Hall B online, JLab computer farm, MSS, and work disk storage, Open Science Grid

Other:

N/A

Beam Requirements List

JLab Proposal No: No Data **Hall:** B **Date:** No Data

Anticipated Run Date: No Data **PAC Approved Days:** No Data

Contact Person: Marco Contalbrigo **Phone:** +390532974310

Email: contalbrigo@fe.infn.it **Hall Liaison:** No Data

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.)

Beam Energy(MeV)	Mean Beam Current(μA)	Polarization and Other Requirements	Est Beam-On Time(hours)	Target Materials	Target Thickness(mg/cm²)
10.6 GeV	few nA	Beam polarization	110 days	HDice	0.147 g/cm2

The beam energies, EBeam, available are: EBeam = N x ELinac where N = 1, 2, 3, 4, or 5. ELinac = 800 MeV, i.e, available EBeam 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: No Data **Date:** No Data

Check all items for which there is an anticipated need.

Cryogenics
- [ ] Beamline Magnets
- [ ] Analysis Magnets
- [x] Target Magnets

Type: N/A
Flow Rate: N/A
Capacity: N/A

Electrical Equipment
- [x] Cryo/Electrical Devices
- [ ] Capacitor Banks
- [x] High Voltage
- [ ] Exposed Equipment

Radioactive Materials
List radioactive or hazardous/toxic materials planned for use:
N/A

Pressure Vessels
Inside Diameter: N/A
Operating Pressure: N/A
Window Material: N/A
Window Thickness: N/A

Flammable
Type: N/A
Flow Rate: N/A
Capacity: N/A

Drift Container
Type: N/A
Flow Rate: N/A
Capacity: N/A

Other Target Materials
- [ ] Beryllium
- [ ] Lithium
- [ ] Mercury
- [ ] Lead
- [ ] Tungsten
- [ ] Uranium
- [ ] Helium

Other Target Material:
HD

Special Target Materials
- [ ] Helium
- [ ] Deuterium

Vacuum Vessels
Inside Diameter: N/A
Operating Pressure: N/A
Window Material: N/A
Window Thickness: N/A

Radioactive Sources
- [ ] Permanent Installment
- [ ] Temporary Use

Type: N/A
Strength: N/A

Large Mech. Structures
- [ ] Lifting Devices
- [ ] Motion Controllers
- [ ] Scaffolding
- [ ] Elevated Platforms

Lasers
Type: N/A
Wattage: N/A
Class: N/A
- [ ] Permanent
- [ ] Temporary
- [ ] Calibration
- [ ] Alignment

Hazardous Materials
- [ ] Cyanide Plating Materials
- [ ] Scintillation oil
- [ ] PCBs
- [ ] Methane
- [ ] TMAE
- [ ] TEA
- [ ] Photographic Developers

Other Hazardous Materials:
N/A

General
- [ ] Base Equipment
- [ ] Temp. Mod. To Base Equip.
- [ ] Perm. Mod. to Base Equip.
- [ ] Major New Apparatus

Other General:
N/A

Computing Requirements List

Proposal Title: Run Group H Jeopardy Update Document. CLAS12 Experiments with a TransverselyPolarized Target
Contact Person: Marco Contalbrigo
Experiment Hall: B

Data

Silo/Mass Storage (Tape): 2100 TB

Amount of Simulated Data Expected (TB): 150 TB

Amount of Raw Data Expected (TB): 1500 TB

Amount of Processed Data Expected: 500 TB

Online Storage (Disk) Required (TB): 210 TB

Imported Data Expected from Offsite Institutions: 150 TB

Exported Data Expected to Offsite Locations: 1300 TB

Computing

Simulation Requirements (SPEC CINT2000 hrs): 22

Production (Replay, Analysis, Cooking) Requirements (SPEC CINT2000 hrs): 20

Other Requirements:

Please add any additional information that will be useful for JLab's Information Technology group regarding unique configurations or that may require additional resources and/or coordination. Please indicate if possible what fraction of these resources will be provided by collaborating institutions and how much is expected to be provided by JLab.

JLab will provide MSS, disk space for data processing/cooking, disk space for DSTs. DSTs will be made available for offsite copying and analysis, Open Science Grid for simulation.

Assumed Resource Requirements:

Use this section to provide any information regarding the assumed requirements for the resources needed.

Standard Hall B requirements