

**Report of the  
July 13–15, 1998 Meeting  
of the  
Jefferson Lab  
Program Advisory Committee**

**— PAC14 —**

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For more information or copies of this report contact:

Thomas Jefferson National Accelerator Facility

User Liaison, MS 12B

12000 Jefferson Avenue

Newport News, VA 23606

Phone: (757) 269-7586 / Fax: (757) 269-7003

E-mail: [users@jlab.org](mailto:users@jlab.org)

WWW: [http://www.jlab.org/exp\\_prog/PACpage/pac.html](http://www.jlab.org/exp_prog/PACpage/pac.html)

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August 1998

Dear Members of the Jefferson Lab User Group,

The experimental nuclear physics program at Jefferson Lab is in full swing. A total of 10 experiments and 144 days run have been completed. Machine energy was pushed to 5 GeV with the goal of running experiments at 5 GeV by late Summer. The Hall A group has achieved a data acquisition duty factor of 100 times better than last Fall. The Hall B virtual Compton is running fine and the polarized target is scheduled for a late-September run. In late June, Hall C Experiment 93-026 began commissioning of the 240-channel neutron detector and checkout of the HMS. In late July, with the polarized target, the beam polarimeter, and the magnetic chicane operational, full commissioning began. The polarized target is performing as expected and neutrons are detected in coincidence with electrons with a large signal to noise ratio. The experiment is now poised for production running when high-beam polarization becomes available. In addition, the Free-Electron Laser program is off to an exciting start. Thus far the laser has delivered IR light at more than 300 W, surpassing the 11-W mark set by a free-electron laser at Vanderbilt University and their own 150-W mark set on June 17.

The User Group met in June to refine the goals established at the 1994 workshop "CEBAF at Higher Energies" with a focus on a 10–12 GeV future for Jefferson Lab. Upgrades or additions to the present halls required to meet the physics opportunities of the 12-GeV upgrade were considered as well as an introduction of ideas for an additional experimental hall.

The Jefferson Lab Program Advisory Committee (PAC14) met July 13–15, 1998 to hear details on the progress of the Accelerator and all three Halls, the run plans for all three Halls, new and updated proposals and letters-of-intent, and review the lab's current Few Body Physics Program.

On August 3-5, a subcommittee of the Nuclear Science Advisory Committee (NSAC) visited Jefferson Lab to review the science programs here in medium-energy physics. The panel heard presentations and saw first-hand the accelerator and reviewed experimental operations. They also heard presentations from the Users regarding the experimental program, and were given the opportunity to interact with Users, grad students, and post docs. Based on this review, the User Group Board of Directors and myself concur that while pressures were apparent, the need to support our Users was thoroughly addressed and recognized. While the panel did not have a formal close-out, we expect to hear the committee's findings around the middle of September.

The Science and Technology Review for Jefferson Lab is scheduled for mid-September. DOE and SURA will review the lab's performance objectives and key indicators with respect to our contract with the DOE.

Attached is the PAC14 Report. I want to thank Brad Filippone and the members of the PAC for their efforts on behalf of Jefferson Lab and its User Community, and for the PAC's thoughtful deliberations on the physics program. I also wish to thank you, the Users, for your efforts on the proposals, updates and letters-of-intent, and I look forward to the flow of publications informing the scientific community of the exciting results coming from the Jefferson Lab experimental program.

Sincerely,

Hermann Grunder,  
Director

# Report of the July 13–15, 1998 Meeting of the Jefferson Lab Program Advisory Committee (PAC14)

## Introduction

The Jefferson Lab Program Advisory Committee held its 14th meeting on July 13–15, in CEBAF Center. PAC14 also met at the Williamsburg Lodge in Williamsburg, Virginia to discuss the Lab's current approved Few-Body program. The PAC14 membership is given in Appendix A. In response to the charge (Appendix B) from the director, Dr. Hermann Grunder, the committee reviewed and made recommendations on seven new/updated proposals and three letters-of-intent.

Nathan Isgur and Larry Cardman reported on recent accelerator developments and outlined progress in the experimental halls. The accelerator's full design power of 200 microA at 4 GeV was delivered to Hall C. The evolution to higher energies, made possible by the excellent performance of the super-conducting cavities, began with first physics data taken at 4.4 GeV and a 5 GeV test completed. A physics program at 5.5–6 GeV is expected to begin late in 1999.

Continued progress was evident in the experimental program with promising data presented from all three halls. Hall A completed the first virtual Compton scattering experiment and in a major success carried out the first data run for the parity violation experiment in elastic scattering from the proton. The performance of the accelerator, in terms of minimal helicity correlated beam characteristics and significant improvements in the polarized electron source was exceptional, likely allowing a publishable result from this initial test run. This demonstration suggests that parity violation holds promise as a precise tool to explore the structure of the nucleon and nuclei at Jefferson Lab.

For Hall B, initial electron-proton scattering distributions were presented that in some cases exceed the world's data after only a few shifts of analyzed data. First data with the photon tagger has also recently been obtained. In Hall C, the 4 GeV part of the pion form-factor measurement was completed. Also, the second large installation experiment using a polarized target, GeN, is preparing for beam. These successes in the halls along with the apparent achievement of reliable three-hall running suggests a productive future (subject to funding) for the lab.

## Few-Body Physics Workshop

A new format was initiated at this PAC meeting whereby a single scientific topic — few-body physics in this case — was reviewed. The review involved summaries of recent theoretical and experimental developments (provided by R. Schiavilla and R. Ent respectively). A summary of the approved few-body program in each Hall was then presented by the Hall leaders. This was followed by an extensive round table discussion where key scientific questions were formulated and then matched to the approved program, in order to identify possible future experimental opportunities for the Lab's program. A short report and summary from this meeting will be appended to this report at a later date, as Appendix G. Overall, the PAC finds this format (short off-site retreat) to be highly effective in providing a broad overview of the program and summarizing the status and opportunities within a particular physics sub-field.

## Report of the July 13–15, 1998 Meeting of the Jefferson Lab Program Advisory Committee (PAC14)

### General Comments and Recommendations

Overall the PAC was impressed with the progress with the accelerator regarding three Hall operation and higher energies. The PAC was also pleased to see the publication of the first Jefferson Lab results with several other papers likely to follow shortly. It is also clear that having passed through the initial commissioning phase in each Hall, the lab has chosen to pursue the highest-rated physics. This ambitious plan will result in all three Halls running polarized beam on polarized targets this fall.

This was the first PAC meeting where a limitation on the number of hours to be approved was recommended by management. The goal of this limitation is to reduce the significant backlog of experiments to be run. It should be noted that this limitation is only a guideline and can be exceeded for sufficiently high priority physics.

During a discussion of experimental jeopardy, initial plans for future presentations were outlined. It is expected that the PAC will hear from all Hall C experiments that are in jeopardy at the next PAC meeting. The corresponding collaborations will be contacted by the Laboratory and given guidelines for updating their proposals. Hall A Jeopardy, which begins in summer 2000, will likely need to be split (perhaps via a lottery) over two PAC meetings. For Hall B, where jeopardy begins in winter 00/01, experiments within run groups (eg, e1, g1, etc.) will likely be reviewed together.

The reports and PAC recommendations for the reviewed proposals and letters-of-intent are given in Appendices D and E. The tables on page 6 summarize results from PACs 4–14.

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Brad Filippone  
Chair, Jefferson Lab Program Advisory Committee

Date: \_\_\_\_\_

### APPENDICES

- A. PAC14 Membership
- B. Charge to PAC14
- C. PAC14 Recommendations
- D. Individual Reports for PAC14 Proposals
- E. Individual Reports for PAC14 Letters-of-Intent
- F. Approved Experiments, PACs 4–14, Grouped by Physics Category

(To access Appendix F, type [http://www.jlab.org/exp\\_prog/PACpage/](http://www.jlab.org/exp_prog/PACpage/) in your web browser.)

### Totals for PACs 4-14

	Experiments Recommended for Approval	Experiments Recommended for Conditional Approval	Totals
Experiments	105	15	120
Authors	659	56	715
Institutions	131	7	138
Countries	21		21

### Totals of Approved Experiments by Physics Topics for PACs 4-14

Topic	Number	Hall A	Hall B	Hall C
Nucleon & Meson Form Factors & Sum Rules	14	6	3	5
Few Body Nuclear Properties	22	11	6	5
Properties of Nuclei	18	4	8	6
N* & Meson Properties	33	6	20	7
Strange Quarks	18	4	9	5
<b>Total</b>	<b>105</b>	<b>31</b>	<b>46</b>	<b>28</b>

### Approved Days and Conditional Approved Experiments by Hall

Hall	Approved Experiments				Conditionally Approved Experiments
	No. of Exps Completed (full/partial)	Days Run	No. of Exps in Queue	Days to be Run	
A	2 / 2 x 1/2 / 1 x 1/4	64	28	609	6
B	1 / 13 x 0.5 / 6 x .10 / 1 x .50	29	43	410	6
C	7 / 2 x 1/2	144	20	434	4
<b>Total</b>	<b>10 / ~4</b>	<b>237</b>	<b>93</b>	<b>1453</b>	<b>16</b>

## Appendix A

### PAC14 Membership

BRAD FILIPPONE (Chair)  
California Institute of Technology  
Kellogg Radiation Laboratory  
Pasadena, CA 91125  
Ph/Fax: (626) 395-4517/564-8708  
brad@krl.caltech.edu

JACQUES MARTINO  
DAPNIA/SPhN  
CEA Saclay  
91191 Gif-sur-Yvette, CEDEX, France  
Phone/Fax: 33 01 69 08 7455/7584  
jmartino@cea.fr

ENZO DESANCTIS  
Laboratori Nazionali Do Frascati  
Casella Postale 13  
00046 Frascati (Rome) Italy  
Phone/Fax: (217) 333-8079/9819  
desanctis@Inf.infn.it

VIJAY PANDHARIPANDE  
University of Illinois  
1110 W. Green Street  
Urbana, IL 61801  
Phone/Fax: (217) 333-8079/9819  
vijay@rsm1.physics.uiuc.edu

FRANCIS CLOSE  
DivAS/CERN  
1211 Geneva 23  
Geneva, Switzerland  
Phone/Fax: +41-22-767-8875/8780  
Frank.Close@cern.ch

CHARLES PRESCOTT  
SLAC, Mail Stop 78  
2575 Sand Hill Road  
Menlo Park, CA 94025  
Phone/Fax: (660) 927-2856  
prescott@slac.stanford.edu

DON GEESAMAN  
Argonne National Laboratory  
Physics Division, Bldg 203  
9700 South Cass Avenue  
Argonne, IL 60439  
Phone/Fax: (708) 252-4059/3903  
geesaman@anlphy.phy.anl.gov

BERTHOLD SCHOCH  
Physikalisches Institut  
Universitaet Bonn  
D 53115 Bonn, Germany  
Phone/Fax: 49-228-73-2344/3518  
schoch@physik.uni-bonn-de

HAROLD JACKSON  
Physics Department  
Argonne National Laboratory  
Argonne, IL 60439  
Phone/Fax: (630) 252-4013/3903  
hal@anl.gov

STEVEN VIGDOR  
Indiana University  
Department of Physics  
Swain West 117  
Bloomington, IN 47405  
Phone/Fax: (812) 855-9369/6645  
vigdor@iucf.indiana.edu

ROBERT LOURIE  
Renaissance Technologies Corp.  
600 Rt. 25A  
East Setauket, NY 11733  
Ph/Fax: (516)-444-7000/7074  
lourie@rentec.com

## Appendix B

### Charge to PAC14

Following is the charge to PAC14 from Jefferson Lab Director, Hermann Grunder.

Jefferson Lab requests that PAC14:

- 1) Review proposals, extensions and updates and provide advice on their scientific merit, technical feasibility and resource requirements.
- 2) Recommend one of four actions on each proposal, extension or update:
  - \* approval,
  - \* conditional approval status pending clarification of special issues,
  - \* deferral, or
  - \* rejection.
- 3) Provide a scientific rating and recommended beam-time allocation for all proposals recommended for beam-time.
- 4) Provide comments on letters-of-intent.
- 5) Comment on the Hall running schedules.

As of this meeting we are re-initiating the formal use of the PAC as an advisory body on the directions of the overall scientific program of the laboratory (this was done previously in the initial planning for the present complement of experimental equipment). We will begin with a review of the present scientific program in the subfield of "few body nuclear properties." We therefore add a sixth item to the charge of PAC14:

- 6) Review the scientific opportunities accessible through CEBAF's capabilities in the area of "few body nuclear properties." Are the key open questions in this subfield addressed optimally by the presently approved experiments? Would extensions to or modifications of presently approved experiments provide clearer answers to these questions? Finally, are there important open questions not addressed by approved experiments that should be added to the program?

## APPENDIX C

### PAC14 Recommendations

<b>*Pac Action</b>	<b>Class/ Days</b>		
<b>A</b>	<b>B+/16</b>	E-98-101	Spin Polarization in Kaon Electroproduction
<b>R</b>		PR-98-102	A Measurement of Dispersive Effects in The Elastic Scattering of Electrons from Polarized $^3\text{He}$
<b>D</b>		PR-98-103	Measurement of $p(\bar{e}, e \bar{p})$ and the Strangeness Content of the Proton
	<b>/+2</b>	†PR-98-104	Measurement of the Polarized Electron Beam Aymmetry on Exclusive Reactions In Nuclei with CLAS
<b>D</b>		PR-98-105	A Precision Measurement of the Neutral Pion Lifetime via the Primakoff Effect
<b>D</b>		PR-98-106	$K^+$ Photoproduction and $\pi^0$ Polarization for $E = 3$ to 6 GeV
<b>A</b>	<b>B+/+0</b>	E-98-107	Deeply Virtual Electroproduction of Vector Mesons
<b>A</b>	<b>B+/21</b>	E-98-108	Electroproduction of Kaons up to $Q^2 = 3$ (GeV/c)
<b>A</b>	<b>B+/13</b>	E-98-109	Photoproduction of Mesons with Linearly Polarized Photons

\* **A=Approve, C=Conditionally Approve, D=Defer, R=Reject**  
 = Concurrent running with already approved Hall C experiment.

† PR98-104 was not reviewed by the PAC but was approved by laboratory Management as a 0 day add on to the e2 run group and awarded +2 days by Laboratory management decision to carry out the proposed research and add beam polarization measurements (2 days total) to the entire e2 run group.

## Appendix D

### Individual Proposal Reports

**Proposal:** E-98-101  
**Scientific Rating:** B+  
**Spokesperson:** O.K. Baker  
**Title:** Spin Polarization in Kaon Electroproduction

#### **Motivation:**

This experiment proposes to measure spin observables in  $K^+$  electroproduction. Both spin transfer and induced polarization will be employed to elucidate the kaon electroproduction process.

#### **Measurement and Feasibility:**

The self-analyzing property of the  $\Lambda$  decay will allow its polarization to be determined from measurement of the decay proton angular distribution. The proton will be detected simultaneously with the  $\Lambda$  in the SOS, a technique that has been demonstrated in E-93-018.

#### **Issues:**

The issues raised by PAC12 appear to have been adequately addressed. While the PAC remains skeptical about the experiment's ability to determine the  $\Lambda$  form factor, it should provide important information on the kaon electroproduction process.

#### **Recommendation:**

The experiment is approved for 16 days in Hall C.

## Appendix D

### Individual Proposal Reports (Continued)

Proposal: PR-98-102  
Spokespersons: K. A. Assamagan, R. Ent, J. H. Mitchell  
Title: A Measurement of Dispersive Effects in Elastic and Inelastic  
of Electrons from Polarized EMBED Equation.2

#### **Motivation:**

The aim of the experiment is to obtain data on dispersive corrections to the one-photon exchange in electron scattering. It is proposed to measure the target polarization asymmetry for elastic and inelastic scattering, with a target polarization axis normal to the scattering plane.

#### **Measurements and Feasibility:**

The experiment requires the scattering of unpolarized electrons from a polarized  $^3\text{He}$  target. The expected sensitivity is at the level of  $10^{-4}$ . The required statistical precisions imply counting rates higher than acceptable by the standard data acquisition of Hall A, and therefore an integration using segmented plastic scintillators and a 200 MHz scaler is proposed. Elastic and quasi-elastic kinematics are proposed, each at two beam energies: 0.845 GeV and 1.645 GeV.

#### **Issues:**

The PAC acknowledges the pertinence of the target asymmetry method, which is only sensitive to dispersive effects in the elastic channel, and also to time reversal invariance violation in the quasi-elastic one. But the goal of achieving the  $10^{-4}$  asymmetry seems much too ambitious: it relies mainly on target characteristics, which have been neither designed for such a level of precision, nor studied and tested for systematic problems at this level. The PAC has not been convinced that this goal is achievable. Moreover, a compelling scientific case for the need of such a measurement was not made.

#### **Recommendation:**

Reject

## Appendix D

### Individual Proposal Reports (Continued)

**Proposal:** PR-98-103  
**Spokespersons:** J. R. Calarco , H. Gao, and R.D. Ransome  
**Title:** Measurement of  $p(\bar{e}, e'\bar{p})\phi$  and the Strangeness Content of the Proton

**Motivation:**

To probe the strange quark content of the proton.

**Measurements and Feasibility:**

The recoil proton polarization in the reaction  $p(\bar{e}, e'\bar{p})\phi$  will be measured at a single kinematics where theoretical models of this reaction indicate that it may be sensitive to  $s\bar{s}$  pairs in the nucleon. This measurement appears to be possible provided a large beam current of  $50\ \mu\text{A}$  of 80% polarized beam is available.

**Issues:**

The general approach used in this proposal is interesting; however, the PAC feels that the reaction mechanism for  $p(\bar{e}, e'\bar{p})\phi$  is not well established. Measurements under several kinematical conditions are necessary to test the theoretical models used to relate the measured recoil proton polarization to the probability of finding color singlet  $s\bar{s}$  pairs in the proton. In addition, since this reaction is not sensitive to all  $s\bar{s}$  pairs (only color singlets), it may not yield a measure of the total strangeness content of the proton.

**Recommendation:**

Defer.

## Appendix D

### Individual Proposal Reports (Continued)

**Proposal:** PR-98-105  
**Spokespersons:** D. Dale, S. Danagoulian, A. Gasparian, R. Miskiman  
**Title:** A Precision Measurement of the Neutral Pion Lifetime via the Primakoff Effect

#### **Motivation:**

A measurement of the neutral pion lifetime with uncertainty of 1.8% is proposed. The measurement would use Primakoff production from Cu and Pb, tagged photons in Hall B and a hybrid Pb glass – PbWO<sub>4</sub> calorimeter. One goal of the measurement is to test the corrections to the pion lifetime calculated in the chiral limit which are expected to be at the level of 2%.

#### **Measurements and Feasibility:**

A tagged photon beam and a highly segmented calorimeter are important elements in limiting systematic errors. The measurement requires knowledge of the absolute beam energy to 0.1% and the luminosity to 1%. There are also distortion corrections that give 0.5% to the systematic error.

#### **Issues:**

The PAC understands that a measurement as demanding as that proposed would require careful attention to detail and an uncompromising approach to all elements of the experiment. There was some concern that a full optimization of the experiment has not yet been attained, including the choice of target materials, the calorimeter design, and the influence/importance of collimation of the photon beam. The PAC suggests that the collaboration consider additional studies and possibly beam tests in order to produce a compelling proposal. In particular, the collaboration should address in more detail the following issues:

1. The background rates created upstream of the target, especially due to the radiator and any collimators.
2. The reliability of the treatment of the pion-nucleus final-state interaction with state-of-the-art calculations.

## Appendix D

### Individual Proposal Reports (Continued)

The PAC considers a high-precision measurement of the pion lifetime a very significant opportunity for Jefferson Lab. However, to have significant impact and provide a useful test of the chiral symmetry breaking corrections, a measurement with total error of 1–1.5%, as discussed in the PAC13 report, appears necessary. We encourage the collaboration to continue to pursue this important experiment and encourage the laboratory to provide needed test beams to further advance this proposal.

**Recommendation:**

Defer.

## Appendix D Individual Proposal Reports (Continued)

**Proposal:** PR-98-106  
**Spokespersons:** A. Afanasev, R. Gilman, M. Liang  
**Title:**  $K^+$  Photoproduction and  $\Lambda^0$  Polarization for  $E_\gamma = 3$  to 6 GeV

### **Motivation:**

The aim of this proposal is to study reaction mechanisms for  $K^+ \Lambda^0$  photoproduction in the energy range  $E_\gamma = 3$  to 6 GeV.

### **Measurements and Feasibility:**

Two Hall A spectrometers would detect the  $K^+$  and p (from  $\Lambda$  decay) in coincidence. The circularly polarized Bremsstrahlung photon beam is produced in a 6% Cu radiator from an 80%-polarized, 25-microamp beam. The Bremsstrahlung photons and (degraded) electron beam pass through the 15-cm LH2 target. Data points for 5 center-of-mass angles from 30 to 150 degrees at 4 energies (only 3 angles for 6 GeV) require separate spectrometer settings. Considerable time is requested for changing spectrometer settings and background (Cu radiator out) runs.

### **Issues:**

The PAC does not believe that the physics motivation stated in the proposal justifies the run time requested. The PAC believes the physics goals should be sharpened and a better use of beam time, such as reducing the number of background runs (for example, through calibration of the real vs. virtual photon spectra) could be made to address these goals. There is some concern that the multiple spectrometer settings required may degrade the accuracy of the measurements. We call attention to the collaboration that there may soon exist data relevant to this proposal from CLAS.

### **Recommendation:**

Defer.

## Appendix D

### Individual Proposal Reports (Continued)

**Proposal:** E-98-107  
**Scientific Rating:** B+  
**Spokespersons:** M. Guidal, C. Marchand, and E. Smith  
**Title:** Deeply Virtual Electroproduction of Vector Mesons

#### **Motivation:**

Deeply Virtual Compton Scattering (DVCS) accesses off forward parton distributions (OFPD). The second moment of the OFPD gives the total quark contributions (sum of the intrinsic orbital and spin) to the nucleon spin. This has considerable interest in view of the nucleon spin puzzle. The proposed experiment is not DVCS but has a rho in the final state. However, recent theoretical developments show that in pQCD the cross-section for producing a longitudinally polarized rho has a characteristic  $Q^{-6}$  dependence and that the amplitudes factorize such that OFPD may be extracted. Thus the proposed experiment has the possibility to allow a first exploratory analysis of the OFPD.

#### **Measurements and Feasibility:**

To extract OFPD meaningfully the data must exhibit the  $Q^{-6}$  behavior predicted by pQCD. The large amount of beam time requested is required by the low count rate at high  $Q^2$ . Longitudinal rhos need to be identified through their decay angular distributions and s-channel helicity conservation (SCHC) needs to be checked. If either of these fail the fundamental aims of extracting OFPD will be compromised.

#### **Issues:**

The PAC was concerned that the theoretical arguments underpinning the extraction of OFPD in this experiment are only applicable if  $W$  is large enough that (1) direct-channel resonances are negligible and (2) that rho production is driven by hard gluon exchange rather than string breaking. These requirements point towards  $W > 3\text{GeV}$  as being optimal for the extraction of OFPD though there may be interest in measuring the cross-sections at moderate  $Q^2$  for developing intuition and confrontation with models.

This experiment is speculative but potentially very interesting. If the e1 group runs at 6 GeV rather than the currently approved 4 GeV then this experiment would be a very good add-on. However, this experiment alone should not drive a 6 GeV program.

#### **Recommendation:**

Conditionally approved for zero incremental time subject to the e1 group taking data at 6 GeV.

## Appendix D

### Individual Proposal Reports (Continued)

**Proposal:** E-98-108  
**Scientific Rating:** B+  
**Spokesperson:** O.K. Baker, C.C. Chang, S. Frullani,  
M. Iodice, P. Markowitz  
**Title:** Electroproduction of Kaons up to  $Q^2=3(\text{GeV})^2$

#### **Motivation:**

The main motivation for this experiment resides in the extraction of the kaon form factor at three momentum transfers: 2, 2.5, and 3  $(\text{GeV})^2$ . (This is an update of the conditionally approved experiment 94-108.)

#### **Measurement and Feasibility:**

A realistic assessment of errors and a successful determination of L/T separation in the Hall C experiment were the conditions for approval. In the new proposal the questions raised by the previous PAC have been answered convincingly, especially, due to the successful running of the Hall C experiment, E-93-018.

#### **Issues:**

Given the results of E-93-108 the PAC suggests that the group reconsider the chosen kinematical settings. A possible  $W$ -dependence of the cross-sections might increase the uncertainties for the extraction of the kaon form factor. A more favorable kinematical setting addressing the possible  $W$ -dependence should be given priority over the momentum transfer setting of 2.5  $(\text{GeV})^2$ . The PAC considers optimization of the extrapolation to the kaon pole to be the more important goal in choosing the proper kinematics.

#### **Recommendation:**

Approved for 21 days.

Appendix D  
Individual Proposal Reports (Continued)

**Proposal:** E-98-109  
**Scientific Rating:** B+  
**Spokesperson(s):** P. L. Cole, J.A. Mueller, D.J. Tedeschi  
**Title:** Photoproduction of  $\phi$  Mesons with Linearly Polarized Photons

**Motivation:**

This proposal is an update of PR-97-005 which addresses the nature of the vector meson-nucleon interaction.

**Measurement:**

The experiment measures the photoproduction of  $\phi$  mesons from the proton by using a linearly polarized beam of photons together with the complete of  $\phi \rightarrow K^+K^-$  decay distribution. The combination of the linearly polarized photon facility and CLAS is well matched to determine 9 of the 11 density matrix elements.

**Issues:**

PAC12 conditionally approved the experiment calling for an integrated run plan coordinated with other linear polarized photon-vector meson production experiments. This update provides the requested cohesive run plan sharing some beam time with approved experiment 94-109 (the photoproduction of  $\rho$  mesons from the proton with linearly polarized photons). A convincing case was not made for the measurement at 4 GeV.

**Recommendation:**

Approval for 13 days at 6 GeV.

## Appendix E

### Individual Letter-of-Intent Reports

**Letter-of-Intent:** LOI-98-102  
**Spokesperson:** P. Markowitz  
**Title:** Kaon Electroproduction via the  ${}^3\bar{H}e(\bar{e}, e'K^+)$  Reaction

This letter outlines a clever use of spin observables to study hyperon production in the mass 3 system. As outlined, strong spin-dependent effects are expected if polarization transfer in  $\Lambda$  electroproduction is large and final state interactions between the  $\Lambda$  and the nucleon pair are substantial. Currently approved experiment 98-101 will measure polarization transfer in  $\Lambda$  production on the proton and experiment 91-013 will measure the excitation spectrum in the  ${}^3H^\Lambda$  system. The PAC recommends that a proposal to study spin observables in the mass 3 system be developed when the implications of these experiments can be taken into account.

**Letter of Intent:** LOI-98-103  
**Spokesperson(s):** L. Kramer  
**Title:** Phi Vector Meson Electroproduction via the  ${}^1H(e, e'p)\phi$  Reaction

The PAC feels that it is important to understand the phi-meson photo- and electroproduction mechanisms at CEBAF energies. Experiments pursuing some aspects of this goal are already approved for Hall B. In order to convince the PAC of the need for a supplementary program in Hall A, a proposal would have to spell out clearly and sharply how the proposed measurements complement those in Hall B in terms of sensitivity to specific aspects of the reaction mechanism. Toward this end, some combination of polarization and cross-section measurements might be helpful. A proposal would also have to demonstrate that backgrounds under the phi signal are manageable at all the proposed kinematic settings.

## Appendix F

### **PACs 4–14 Grouped by Physics Category**

To access Appendix F (titled Experiment Summary), type  
[http://www.jlab.org/exp\\_prog/PACpage/](http://www.jlab.org/exp_prog/PACpage/)  
in your web browser.

Appendix F includes a list of experiments organized by physics category including rating, hall, spokesperson(s), etc.