

## Call for Beam Time Requests - A Message from Larry Cardman

August 15, 2006

Experiment collaborations requesting beam time during calendar 2007 must deliver their requests to the User Liaison Office, CEBAF CENTER, Room C111 by close of business **FRIDAY, SEPTEMBER 15, 2006**.

These requests will be reviewed by the Nuclear Physics Experiment Scheduling (NPES) committee, which prepares the combined accelerator and experiment schedule. Before submitting a request, you should review the characteristics of the beams routinely available at Jefferson Lab (see the section at the end of this call) to ensure they meet the requirements of your experiment).

There is a specific set of forms to be completed as part of the beam request. These forms are available from the User Liaison Office (CEBAF Center, Room C111) and on line at:

[http://www.jlab.org/exp\\_prog/experiments/beam\\_req.html](http://www.jlab.org/exp_prog/experiments/beam_req.html)

You may also request that they be mailed or faxed to you by contacting Rachel Harris at [harris@jlab.org](mailto:harris@jlab.org) or 757-269-6388. Note, a full description of the scheduling process is also available at:

[http://www.jlab.org/exp\\_prog/experiments/exp\\_sched.html](http://www.jlab.org/exp_prog/experiments/exp_sched.html)

Experimental collaborations should submit these forms as follows:

If your experiment is currently scheduled in the "Tentative" portion of 2007, i.e. from January through June 2007, you do not need to submit the forms. However, you should submit a one-page update on the status of preparations for running your experiment and a one-page summary of your experiment (see below). Note, experiments considered to be "Major Experiments," i.e. requiring major installations, should contact their Hall Leader and determine if they need any special reviews, etc.

If your collaboration has previously submitted a request to run, you should review the information that has been previously submitted and verify that it is complete. If the information is complete, and you wish to run during this period, you should submit a one-page summary of your status and update any sections of the earlier submission where the information has changed. Be sure to use the new forms for checking if all of the information needed has been provided.

A one-page summary of your experiment is required if your experiment is currently scheduled in the "Tentative" portion of the 2007 schedule, i.e. from January through June 2007, or if you are submitting a beam request for the second half of calendar year 2007. The summary should provide a broad overview of the experiment and the questions it is addressing aimed at a general science audience rather than a nuclear physicist. A current list of one-page summaries can be found online at:

[http://www.jlab.org/exp\\_prog/experiments/summaries/](http://www.jlab.org/exp_prog/experiments/summaries/)

The following experiments currently have previously submitted beam requests on file:

<b>Hall A</b>	<b>Hall B</b>	<b>Hall C</b>
03-101 (Tentative Schedule)	g02-112 (Tentative Schedule)	04-001 (Tentative Schedule)
04-018 (Tentative Schedule)	g03-105 (Tentative Schedule)	06-009 (Tentative Schedule)
06-007 (Tentative Schedule)	g04-102 (Tentative Schedule)	06-008 (Tentative Schedule)
04-007	g05-012 (Tentative Schedule)	05-017 (Tentative Schedule)
05-110	04-005	04-019
06-010	04-102	04-108
06-011	04-116	04-115
	06-013	
	04-005	
	04-017	
	01-113	

All other experiments requesting beam time should submit a full set of forms with all appropriate sections complete. If you have submitted a beam request and it is not on the list above, please contact Rachel Harris (harris@jlab.org, 757-269-6388).

All beam time requests and one-page summaries must be signed off by the appropriate Hall Leader PRIOR to their submission. Please allow for adequate time, particularly if your experiment requires any engineering, testing or installation.

The dates for this current scheduling period are as follows:

<b>August 15:</b>	<b>Call for beam time requests</b>
<b>September 15:</b>	<b>Beam time requests due</b>
<b>October 20:</b>	<b>Preliminary running schedule posted</b>
<b>October 31:</b>	<b>Final running schedule open meeting with Users</b>

For experiments requiring major installations, please be sure to note the special requirements in the NPES document.

If you have any questions or comments, please send them to harris@jlab.org or contact one of the Hall Leaders.

Hall A: Kees de Jager ([kees@jlab.org](mailto:kees@jlab.org), 757-269-5254)  
Hall B: Volker Burkert ([burkert@jlab.org](mailto:burkert@jlab.org), 757-269-7540)  
Hall C: Rolf Ent ([ent@jlab.org](mailto:ent@jlab.org), 757-269-7373)

Thank you for taking time to help ensure an optimal process for scheduling experiments at Jefferson Lab. The scheduling is of great importance to the Laboratory User community and the Laboratory and we appreciate your endeavors.

#### RADIATION BUDGET ESTIMATES:

Pavel Degtiarenko ([pavel@jlab.org](mailto:pavel@jlab.org), 757-269-6274) is making the radiation budget estimates. Please provide him with a completed Radiation Budget Form no later than October 7 if your experiment collaboration will be requesting beam time during this scheduling period.

#### HALL B PROPOSALS:

Hall B experiments running together as a group (i.e. e1, e2, e3, etc., g1, g2, g3, etc.) should work through their run coordinator who is responsible to act as the spokesperson for the group in all activities listed in the NPES document. From the point-of-view of the schedule and the interaction with Accelerator Operations, these groups of experiments will be treated as a single experiment.

#### BEAM PROPERTIES ANTICIPATED TO BE AVAILABLE FOR THE SCHEDULING PERIOD June - December 2007

#### **Maximum Energy: 5.3 – 5.7 GeV @ 725 microamps total linac beam current.**

Total linac current is  $\sum_j I_j P_j$ , where  $I$  is the beam current,  $P$  is the pass number and  $J=1,3$ . The operational beam power limit, for Halls A and C, is 800 kW/hall. For 4 GeV beam energy at fifth pass, each hall can receive a beam current of up to 200  $\mu$ A.

The energy reach of the accelerator was reduced by about 200 MeV (40 MeV per pass) following the warm-up of the cryomodules after Hurricane Isabel. The trip rate at 5.5 GeV is now less than 10 per hour, while the trip rate below 5 GeV has been excellent.

Increasing the energy reach of the CEBAF accelerator to 5.7 GeV by late 2007 is one of the highest priorities of the Accelerator Division. A cryomodule in the North Linac Zone will be replaced by Renaissance, a new prototype high-gradient module. The module has gone through extensive scrutiny, re-examination, assembly and re-assembly in an effort to extract its active operational characteristics for eventual integration into a better final design for the 12 GeV Upgrade of the CEBAF accelerator. Presently, this module is under processing, re-assembly and testing in the SRF Institute. A program of refurbishing the existing cryomodules, whose performance show degradation over time, was initiated in FY05 and accelerated in FY06. The first module was removed in May 2005, the second in October 2005. The reduced energy reach due to removal of these units from the linacs is compatible with the highest energy reach demanded by the presently scheduled experiments till summer of 2007. However it allows us to maximize progress on refurbishment of cavities and cryomodules before July 2007. Currently the plan calls for full installation in the linac tunnel of these two refurbished cryomodules as well as

the fully tested and commissioned high-gradient prototype module Renaissance, by fall 2007, with the expectation of reaching 5.7 GeV, albeit possibly with a slightly higher trip rate yet to be determined. Due to continuing degradation of linac performance with time, it is in the Jefferson Lab institutional plans to continue the cryomodule refurbishment program via Accelerator Improvement Projects (AIP) in future years.

### **Beam Polarization, minimum of 80%, usually up to 85%**

We are now operating routinely with the super-lattice photocathode delivering 85% polarization. Experiments may now expect that the polarization available will be up 80% with good lifetime, and usually up to 85%. The superlattice cathode was also used for the recent HAPPEX experiments. The helicity-correlated errors were better than required for HAPPEX- H and should be good enough for all parity experiments currently ready for scheduling. There has also been great progress in correcting the transverse coupling in the injector, which causes the degradation of the adiabatic damping. This was particularly important for the low energy G0 Backward run at 362 MeV, which successfully attained the specification for helicity-correlated position, angle and current errors. The maximum current to the halls is only subject to the beam power constraints listed above. Halls A and C are receiving beam from JLab-developed fiber lasers, which provide more current than the previous commercial Ti-Sapphire lasers with considerably less downtime. Their fast turn off time will eliminate polarization dilution due to beam bleed-through between adjacent halls. A third fiber-laser is being acquired for Hall B so the whole injector system should be much more stable and reliable than before.

### **Accelerator Availability: 75% at energies below 5 GeV**

The accelerator availability for Physics has been exceptional in FY06 (>80% for the first nine months of the year) due to operation at very low energy (more than half the accelerator components are switched off). This performance should continue at low energy and increase as the beam energy goes above 5 GeV.