

Jefferson Lab Users Group Board  
Joint Meeting of Incoming and Outgoing Boards  
June 8, 2010  
Meeting Minutes

Board members present:

Andrei Afanasev  
Dan Carman  
Phil Cole  
Paul Eugenio  
Ron Gilman  
Kawtar Hafidi  
Sucheta Jawalkar  
Aidan Kelleher  
Sebastian Kuhn  
Nilanga Liyanage  
Zein-Eddine Meziani  
Katherine Myers  
Ioanna Niculescu  
Karl Slifer  
Patricia Solvignon

Board members not present:

Franck Sabatie

Also present from Jefferson Lab:

Larry Cardman, Rolf Ent, Bob McKeown

#### DISCUSSIONS WITH LAB MANAGEMENT

Zein-Eddine Meziani asks if anyone has questions for Larry Cardman about 6 GeV running.

Ron Gilman asks about how costs overruns on experiments can affect the beam schedule. Larry Cardman discusses how the priorities are 12 GeV, Qweak, and beam time. The discussion turns to  $g_2^p$ , which costs about \$500k, about half in equipment, and half in people. The laboratory now has to account for costs of people as well as equipment for experiments, except that the actual installation and decommissioning of experiments are considered part of operations. Larry had thought the chances of running  $g_2^p$  were ~90%, but recent additional costs for Qweak he thinks the odds are now down to about 50%. A decision will be made in about 1 month. The hypernuclear experiment for 2012 is in better shape since it uses existing equipment.

Karl Slifer asks if users can contribute meaningfully to impact the decision. Larry says yes. If the collaboration can pay for some things, that decreases the costs to the laboratory, and may enable the laboratory to run the experiment.

Zein-Eddine asks if the A' test is taking resources that affect the running experiments. Larry replies that the hardware for the test exists or is coming from outside, and the installation is part of the ongoing Hall A staff operations. These costs do not affect  $g_2^p$ , they do not get counted against costs.

Sebastian Kuhn asks whether decisions about changes in the schedule will involve users. Larry says that the decisions are done by the scheduling committee, people from physics and accelerator divisions, with input from the halls.

Ron Gilman asks whether the (C3) vector meson / medium modification experiment in Hall B can be run in 2011 along with the two-photon exchange and PRIMEX experiments, now that the HDICE target run has been moved back to 2012. Larry explains that reviews are underway for both TPE and HDICE for 2011/2012 in preparation for a revision of the schedule (hoped for in about a month). The goal is to run as much of the program presently scheduled as possible. It is anticipated that both HDIce and PrimeX will happen, and we would like TPE to run as well, but must first address concerns about the state of CLAS and the photon tagger after TPE and the potential impact on the ability to mount HDIce effectively. One complication with revising the schedule is that at least one installation that was originally planned for the accelerator down time will now take place while beam is available, effectively reducing the total beam time available. So far the lab has just considered moving experiments currently on the schedule. In the event HDIce fails and we end up with open beam time, he had been thinking of a special PAC; he had not thought about the C3 experiment. If HDICE runs in 2012 only, the beam time available is shorter, and it would be mainly for photons with only a test of electron running. (Note added after the meeting - another possibility under investigation is mounting HDIce earlier, starting with electrons (and hence a reduced electron run but not simply a test run, and then photon running in 2012).

Kawtar Hafidi complains that she just emphasized the HDICE electron run in a review, and had not been told it was reduced to a test. Larry describes how the decision has been under discussion for a few months, but has not been taken yet. Kawtar emphasizes that she is a spokesperson of the experiment and no one involved her in the discussion.

Ron Gilman asks about PREX. The experiment has had a number of problems and looks like it will not reach its proposed goals. Would it need to go back to the PAC to get more beam time? Larry responds that PREX has to stop before Qweak, or Hall B has to be shut down and we send 2 parity quality one pass beams to PREX and Qweak, if spin transport is okay, which he believes is not the case. (A check after the meeting indicates that the spin transport is not satisfactory for two parity experiments.)

Ron Gilman asks about planning for the 3 weeks of reduced beam time in Hall A for 2011. Larry replies that there are no plans for how to deal with it yet. If  $g_2^p$  and  $G_E^p$  run in Hall A in 2012, then some of the 2011 experiments will have to be trimmed or one of them cancelled. If  $g_2^p$  and  $G_E^p$  do not run in Hall A in 2012, then one of the 2011 experiments can be slid into 2012. The A' test in Hall A has no impact since the down time is the same length, so there is enough time to get DVCS on the floor as scheduled.

Asked what happens if HDICE is not ready for 2012, Larry responds that we will ask a PAC to consider proposals for running in Hall B.

Ron Gilman asks if there is any possibility of delaying the 2012 shutdown a few months. It would give a cushion for Qweak and could allow the A' run. Larry responds that the project schedule is fixed, and the experiment schedule is built around it.

Sebastian asks about the 12 GeV PACS. Is there a mandate that forces us to review the experiments so

early? The outcome might not be all that positive, as people with experiments with low ratings might be less fervent. Larry says that we decided to start reviewing the experiments so that the reviews could be finished in time to start planning how the 12-GeV program turns on. Zein-Eddine adds that having a rating and beam time helps when going to the funding agencies.

Zein-Eddine says that an important consideration in the labs decisions should be the students. Students choose physics, and lots of students have chosen to do Ph.D. theses on  $g_2^p$ .

There is a discussion of the upcoming PAC. It is to cover three categories of physics. People concerned about doing work do not have to submit much to the PAC, but they are allowed up to 10 pages, and a three page presentation. It is okay to decide to do the experiment differently, but it has to address the same core science. If the technology changes, there needs to be a detailed discussion – the 10 page limit is relaxed – so that there can be an adequate technical review of the new technology (the issue is discussed in some detail in the notice sent to the spokespersons).

Ron asks about a separate issue. Apparently guards are checking people's cars regularly for equipment; people are not supposed to carry equipment in personal vehicles within the site without paperwork. This seems to be silly with respect to moving equipment between different locations on site, and gets in the way of people doing work. Staff members present say they were unaware of this and have in the past moved equipment in their cars often. Sucheta Jawalkar says that her car has been checked every day recently when she has come off shift and left the accelerator site. The issue will be looked into.

Zein-Eddine asks about the lab outlook and EIC. Mont could not be at the UGBoD meeting due to a lab directors meeting, so Bob McKeown takes the lead in responding. Bob thinks that the dominant issue in the medium term is the operations budget going into the 12 GeV era. Mont regularly reminds DOE people that 12 GeV needs an increase in ops funding and that there are major experiments requiring equipment not in the project, like Moller and SOLID. Normally labs have annual S&T reviews, but this year, next month, there will be an operations review of Jefferson Lab. DOE is doing operations reviews of all the labs this year. Users should view this positively, as it concerns our ability to operate the facility fully. DOE is concerned about future budgets, and the possibility of flat budgets, after the last couple good years. The nuclear physics community wants to operate 12 GeV, needing increased ops funding, build FRIB, and continue RHIC, which is hard with flat budget. JLab is in a relatively strong position for the next several years with a new facility coming on line.

Larry notes that we always had a bump in annual ops funding for 12 GeV. It was \$10M when we started planning many years ago, now the estimate is \$20M. Without increased ops funding, we can probably only run 6 (vs. 9) months annually and staff only ~3 experimental halls.

Bob says Mont is effective in informal communications to DOE. Another issue concerns 12 GeV construction funding for the coming year, if we go into Continuing Resolution this fall. The ARRA recovery money which last year boosted 12 GeV construction funding does not count towards our base, so we have a construction funding problem if there is a CR. Jefferson Lab probably has the biggest problem in Office of Science if there is a CR, and everyone is aware of it. It might lead to a schedule slip. People seem to think the probability of a CR is high. Mike Lubell of APS said that committees in Congress are not doing much at present, as they do not want to be on record about the budget until after election. So perhaps there is a 3-6 month delay before FY11 funding is finalized, and thus a challenge.

Zein-Eddine asks if work on the EIC is premature? Bob replies that it is complicated. DOE is worried about getting constant effort budgets and how to fund construction of FRIB. It is hard for them to deal

with a subsequent EIC project. But we need to keep working on the EIC science case as input for the next Long Range Plan. The budget situation might change the long range plan schedule. While we might expect it in 2013 it might be shifted to 2014 – what is the urgency if there is no money? Our goal is to have a case ready in time for next LRP so there can be a real recommendation for construction. We have 2-3 years, maybe 4.

Larry indicates that his personal opinion is that this is optimistic. There will likely be construction of FRIB and also DUSEL, before EIC gets built. The 12 GeV upgrade will just be turning on, and running it has to be a priority. In addition, FRIB will still be on the rising portion of the construction profile. It is hard to see how EIC will fit in as a top priority construction goal in the next long range plan.

Bob continues that the Jefferson Lab user community has been effective at pushing the science case recently, setting goals and specifications. The message is clear that higher luminosity is desirable if not essential. BNL has followed this and increased their planned luminosity. Bob views this as a positive development, the Jefferson Lab community has had impact already. It needs to continue.

Rolf says that there are more people on the accelerator side working on EIC recently. The level of effort has become closer to the BNL level. Jefferson Lab should do its best to bring the facility here. User involvement is great. But he is not sure of the appropriateness and time frame for a more visible lab effort.

Kawtar says that BNL people appear to have more resources, with staff specifically for their EIC effort. Will Jlab follow? Bob says that there is no money or plans for that now. Kawtar asks Rolf what his budget is. Rolf replies that on the accelerator side, we had 2 people, but now we have 6-7 people at least 50% on it. The BNL design is changing as they have adopted Jefferson Lab ideas, which validates the Jefferson Lab work. Last year it was decided that accelerator design was the first priority. Concerning science, there was a session at last years users meeting. Zein-Eddine led the setup of workshops. BNL has 10 scientists working on EIC, whereas Jefferson Lab has 1.5 – Rolf and Pavel Nadel-Turonski. But at last and next EIC meetings much of the ideas come from Jlab. The science for EIC is largely hadronic, and Jlab has more hadronic physics than RHIC. We cannot afford 10 staff people on physics. But users are doing more EIC physics here, while BNL users are not doing EIC physics. The real problem now is that we cannot ask people to spend 100% of their time on simulations etc. for EIC. Perhaps we could have joint appointments work 50% on this? Another consideration is that BNL is working on detailed simulations, optimizing the detector. We are trying to get by without extensive time consuming detector work at this point.

Kawtar asks how is DOE money split between labs for EIC? Bob says that Mont makes the point that the Jlab community is, much more than RHIC community, the future EIC user community. BNL has an advantage in that it is multipurpose lab with LDRD; which taxes existing programs to give labs discretionary money. Jlab is not a multipurpose lab and does not have LDRD. Larry reminds us that there is a long tradition of this. Single purpose labs have to make a decision to do the work instead and put in a budget request to DOE. We could squeeze 6 GeV more to help EIC, but to do so would lead to more painful decisions about planned physics now. Larry does not think EIC will be a priority construction item in the next LRP. Perhaps there could be something inexpensive and low luminosity at BNL. We need to come up with an absolutely 1<sup>st</sup> class physics program, put a marker on the table concerning a future EIC with high luminosity. The EIC will not happen until our community is behind it, and we should not get behind it until it will do what we want it to do. Rolf mentions that a joint Jefferson Lab / BNL proposal was going in asking for \$5M/year, nearly \$3M for BNL, \$2M for JLab, and \$1M for others. It was mostly for R&D to BNL for an energy recovery linac test bed. He is not

sure of its current status.

Bob points out that there is a risk with the upcoming ops reviews of our having too large an EIC effort. Our priority is, and needs to be, getting the ops for 12 GeV.

Patricia Solvignon asks if there is any talk of higher energy 18-20 GeV fixed target program? Will EIC get in way? At present it is usually envisioned that CEBAF injects EIC part of the time, but in general there is no technical problem with the 12 GeV program continuing while EIC runs.

Zein-Eddine days that last year people thought the EIC collaboration spokespeople projected a sense that the machine was more appropriate at BNL. It would have been a bad choice to be static in that condition. Also, the physics discussed for the machine was too much a continuation of existing programs that did not require great luminosity, and BNL would win the energy race. So BNL focussed on low x kinematics and saturation physics where they had the advantage. It seems now that luminosity is more important, and the JLab machine is competitive. We are now at a stage where the community thinks there is interesting physics that needs to be worked out better. It is a great start, and we need to keep up the momentum. We can now have a discussion of equals with the other side. We can hope the structure of the EIC collaboration will be more open to a machine at JLab.

Rolf points out that we were minor players in EIC in the last LRP. High luminosity was a topic on backup slides. BNL is now paying attention to high luminosity. We need to show what is needed for science. It is a big step, that the user community sees the need for a range of energies and high luminosity. The INT meeting is biased towards particular science topics but that is okay. We need to keep developing the science program. Focus on the science, and keep arguing for our view of the needed energy and luminosity. The developments at BNL are a major victory for our work. BNL has realized they cannot ignore 1200 JLab users. But we cannot be quiet and be assumed to agree with what they are doing.

Bob reminds us to keep polarization in mind as well. Many experiments involve this. It is an advantage of the JLab figure-8 ring design, and has been a problem for the BNL design.

Rolf says that the dynamical range on the proton energy is about a factor of 3  $\rightarrow$  4. At present it is 20  $\rightarrow$  60+ GeV. We are planning on an external review of the design in September before the next EIC Advisory Committee meeting, which hopefully will be after the review, perhaps in October. Cost estimates will be done internally as well. (Keep in mind E and L reviews???) We can make adjustments with the 2<sup>nd</sup> detector region. Copying of JLab design elements by BNL validates the ideas. It seems everybody agrees on the appropriateness of having s be few hundred to few thousand GeV<sup>2</sup>,  $L \sim 10^{34}/\text{cm}^2\text{s}$ , high polarization, ...

## AREA REPORTS

*Andrei Afanasev: experiment/theory liaison:*

The report on the review of national lab theory groups is out. Anyone wanting to take a look should talk with David Richards. The lab theory group was ranked excellent. There was concern about the departure of Tony Thomas. We now know that Michael Pennington is coming in September.

The theory group did not get funding for any of the submitted topical center proposals. The group is involved in EIC workshops, 12 GeV, application of Graphical Processor Units (bought with the recovery funds) for lattice QCD and amplitude analysis. EBAC is focused on N\* and meson

production. EBAC was reviewed last year, and asked for full time staff. It is led by Harry Lee, who is sharing his time between JLab and ANL. We also lack a full time Gluex theory person. The group has 4 permanent staff plus lots of bridge / joint faculty. The DOE review was split between supporting or opposing the idea. There was some feeling that 1 full staff member is more effective than 2 bridge faculty due to teaching loads.

The request for a full staff member for EBAC still a request. Radiative corrections are still an issue in many places. There are no funds in theory group for this. The lab has submitted a \$100 M JLAMP proposal – what are implications for theory for this? The experimental community is different, but it could be good cross-fertilization to be in same theory group. C. Roberts of ANL for example has worked on laser science.

*Ioanna Niculescu, PAC Issue:*

There are concerns about the upcoming August PAC rating process and whether it is worthwhile. There was some concern about rapporteurs presenting the physics of the individual experiments, but Larry has clarified this issue. Ioanna wonders if users are aware there is a UGBoD representative on the PAC. Methods discussed of contacting users include sending notices through the CUGA list, giving lunch seminars to the community onsite, cleaning up and improving the Users Group web pages, allowing access to the feedback forms from off site, ... Karl Slifer volunteers to work on web page issues.

*Paul Eugenio, computing:*

The batch farm was severely overburdened last fall by several CLAS experiments. There were several efforts to look at how to alleviate this. A solution in the end involved meeting with Graham Heyes, and Larry's support, buying new 64-bit Nehalem processors. Processing time has been cut in half. Work disk space is tight, but should be doubled soon. We have had an ongoing problem of multiple versions of Linux around, making life inconvenient. There are RHEL5 + FC8 systems at the lab as well as user workstations with all different OS-es. The new Nehalem servers use Centos5, a free recompilation of RHEL5, and other systems will be migrated there as well. Note that all the old 32-bit systems are being retired by the end of the year.

Recently there were efforts to process large volumes of data offsite. Gigabit transfer rates were achieved, better in cases than transfers within JLab. It works great interactively, but not for batch processing. The grid SRM tools were not ported to the latest version of Jasmine, and there is currently no support – no staff - to do the upgrade. So it is hard for Hall B to cook lots of data offsite. Processing small amounts for quality control during a run works fine.

At present, to Paul's knowledge, no one is using the grid except for ongoing Hall D simulation work.

There are problems with the H.323 (polycom) videoconferencing systems. Many meeting rooms have insufficient hardware. Management of the systems is a problem – one staff member has it as extra duty. Often configurations are changed and need to be reset, but people generally do not know how. Systems are also somewhat unreliable, with interruptions or dropped sessions. Web conferencing, wikis and evo, are a useful tool. After some discussion, the UGBoD concludes we should videoconference with Roy Whitney about this issue, and the lab should look into having more than 1 expert on the systems.

*Nilanga Liyanage: running experiments:*

Qweak is being installed in Hall C. The installation is starting to cut into measurement time. In Hall B, G9 FROST is going well.

PREX is running in Hall A. It has had numerous problems. It could not initially get parity quality

beam, until a double Wien filter was installed. High radiation levels in the Hall caused a scattering chamber o ring failure and vacuum problems. Fixing it took a week, in part to let radiation levels decrease. High radiation levels have also complicated access to the target region. PREX is now back up and running, and maybe can get decent amount of data. It is perhaps at 25% of proposed statistics, and might achieve ~33%.

There is a common problem for many graduate students coming to take shifts during the summer. The residence facility is full and they do not have cars. Paul says that for his graduate students, after they forget to reserve early, they are put in the Econolodge across the street, and afterward they remember to register early since they prefer the residence facility. Karl says that he has had students stay with some local landlords, who are eager to have them since they are working hard, and thus good residents. Aidan Kelleher wonders if students could stay in dorms at CNU, since there is a bus. It might be good if HUGS/SULI people could be housed there and bussed freeing up space in the ResFac. Rolf says it would be a problem – some years DOE money has come late for HUGs, and SURA has accepted not being paid for several months, but that might not be acceptable for CNU. Sucheta Jawalkar thinks it is a potential safety issue for night shifts. William & Mary has arrangements with local cab companies around finals time. Nilanga notes that office space is also tight at the lab. Larry reminds us that there is a ``bubble" in people now related to the 12-GeV project, putting pressure on available space. The situation is unlikely to change until the TEDF is completed.

*Patricia Solvignon, postdocs:*

We have started the JSA Initiative of postdocs giving colloquia and being mock job interviewed. One person went to UNH and it worked well. We plan to select 3 more people for colloquia in the fall, write a report, and maybe ask for more money to expand the program. Karl says that people had many unanticipated questions about the program, so it is probably good it started as a limited pilot program, although he was not happy with the decision when it was made.

*Katherine Myers, graduate students:*

There have been a few grad student/postdoc association meetings. The date is not firm yet, but we will likely have a student picnic at the end of July. There has been interest in a journal club, but people are too busy to work on it so far.

The poster competition went smoothly this year; 16 entries is much easier to handle than the 30 entries last year. Last year the judging went late and everyone was tired. The judging criteria were the same as last year. Graduate student lunches had a good turnout last year, with postdocs one day, professors another, and staff a third. Katherine however has been kind of overloaded this year with the startup of Qweak and things fell apart a little.

Aidan is thinking we should have a career fair, probably in conjunction with local universities. Los Alamos does it for postdocs and students, bringing in outside employers. He has talked to human resources at the lab. Lots of students and postdocs do not get faculty / staff jobs, and what path is taken for other jobs is not well understood. Larry reminds us that over a long time nuclear physics graduate students have gone about 1/3 into academics, 1/3 into national labs, and 1/3 into industry. Also there are a broad range of potential recruiters at APS spring meetings that the students can meet. Consider trying there. Betsy Beise gave a nice talk here to the graduate students a few years ago. Kawtar thinks we should not bring recruiters here. Zein-Eddine thinks we should facilitate the choices of the students. Even if there are not job fairs at the DNP fall meetings, we could try to arrange one when the lab next hosts the DNP meeting in fall 2013.

*Phil Cole, Quality of Life:*

Phil was not asked to give a report. The board discusses what the quality of life person does – often office space issues in the past. An issue now is the Hall D bathrooms planned. It is believed 12-GeV management insisted on men's and women's bathrooms being shared for Hall D. The UGBoD believes they should be separate. Men on the board appear to generally feel men's bathrooms are unsanitary. Rolf thought the bathrooms were separated, and will look into it. Ron suggests bringing it up with Mont if they are not.

*New area assignments:*

Zein-Eddine asks Karl Slifer to take over computing from Paul Eugenio, Kawtar Hafidi to take over running experiments from Nilanga, Phil Cole to take over foreign visitors from Franck Sabatie, and Dan Carman to take over Quality of Life from Phil Cole. Aidan Kelleher takes over the postdoc position on the board from Patricia Solvignon. Sucheta Jawalkar takes over the graduate student position from Katherine Myers. Ron Gilman retires as Past Chair while Sebastian Kuhn becomes Vice Chair.

The topic of nominating people for APS DNP Executive Committee is discussed. Nominations require support of 2% of the membership, or 52 members, to automatically be put on the ballot.

Zein-Eddine thinks summer students can have specific EIC projects under guidance. It is important to have draft white papers by the end of the summer. By February we should have something to send to the arXiv and to a journal like EPJA. He and Haiyan Gao are on the EPJA editorial board, and it accepts feasibility studies. He has been concerned about the upcoming 5 week INT program, but is less concerned now. Our work has influenced the BNL design. We should continue on our way, we do not need to meet their deadlines. But we should finish our work and publish it.

User office space issues are discussed. Kawtar thinks she would prefer a tent outside to some of the internal office space.

Paul Eugenio thinks a number of users are unfamiliar with the Users Group activities, and it would be good to put together a 2 slide presentation for collaboration meetings. Karl Slifer is volunteered for the Hall A meeting.

Zein-Eddine thinks we need to adjust the users web pages and wonders how to do this. Patricia had permissions to edit the feedback page in the past. Karl will look into this.

There is a discussion of the procedures for the thesis prize. We have had 3 ties in the ~10 years we have been awarding the prize, 2 in the last 3 years. We need to think again about our evaluation procedures and whether we want to change them. For the Postdoc Prize, the applications are short enough that everyone reads everything and does a preliminary evaluation, then we have a meeting to decide on the winner. For the thesis prize, there is too much to read for everyone to read everything. There is some desire for the board to not be involved in these evaluations, but the alternatives appear to be worse.