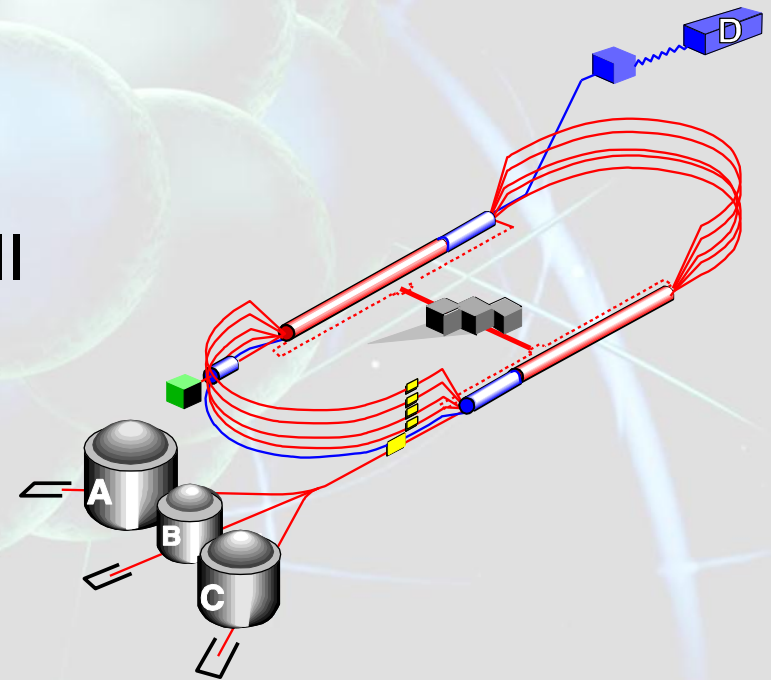


Scheduling and PAC

Rolf Ent

- Approved 12 GeV Experiments
- Scheduling
- Prioritization PAC41 & PAC42
- A year+ of Reviews
- Experiment Readiness Review & Accelerator Readiness Review - II
- MEIC Status
- Physics Division Restructuring



12 GeV Approved Experiments by Physics Topics

Topic	Hall A	Hall B	Hall C	Hall D	Other	Total
The Hadron spectra as probes of QCD (GluEx and heavy baryon and meson spectroscopy)		1		2		3
The transverse structure of the hadrons (Elastic and transition Form Factors)	4	3	2	1		10
The longitudinal structure of the hadrons (Unpolarized and polarized parton distribution functions)	2	2	6			10
The 3D structure of the hadrons (Generalized Parton Distributions and Transverse Momentum Distributions)	5	10	4			19
Hadrons and cold nuclear matter (Medium modification of the nucleons, quark hadronization, N-N correlations, hypernuclear spectroscopy, few-body experiments)	4	2	6		1	13
Low-energy tests of the Standard Model and Fundamental Symmetries	2			1	1	4
Total	17	18	18	4	2	59

E12-11-105 has not been counted with the experiments since it was considered a test

12 GeV Approved Experiments by PAC Days

Topic	Hall A	Hall B	Hall C	Hall D	Other	Total
The Hadron spectra as probes of QCD (GluEx and heavy baryon and meson spectroscopy)		119		320		439
The transverse structure of the hadrons (Elastic and transition Form Factors)	144	85	102	25		356
The longitudinal structure of the hadrons (Unpolarized and polarized parton distribution functions)	65	120	165			350
The 3D structure of the hadrons (Generalized Parton Distributions and Transverse Momentum Distributions)	409	982	161			1552
Hadrons and cold nuclear matter (Medium modification of the nucleons, quark hadronization, N-N correlations, hypernuclear spectroscopy, few-body experiments)	159	120	179		14	472
Low-energy tests of the Standard Model and Fundamental Symmetries	513			79	60	652
Total	1290	1426	607	424	74	3821

More than 7 years of approved experiments

Experiment Scheduling Process

(from JLab Users Group Meeting talk, 05/29/13)

- Accelerator commissioning under Accelerator Operations Directive (Arne Freyberger).
- Plan to have 1 scheduling request per year, starting with a draft scheduling request for Hall A only (January 2014?).
01/22/14 note: now more likely January 2015?
Likely output: fixed schedule for 6 months, tentative schedule for 12 more months.
- Likely will replace “Fall Cycle” for beam time requests with process to release next 6 months as fixed schedule.
- Experiment scheduling process refresher, see http://www.jlab.org/exp_prog/experiment_schedule/beamreq.html

Prioritization PAC41 & PAC42

PAC41 will be the prioritization PAC held during the week of May 19, 2014.

PAC42 will be held during the week of July 28, 2014, and will evaluate new proposals.

PAC41 – prioritization PAC

We have held discussions at the last 2 PAC meetings on this issue, and have agreed with the PAC that a special meeting of the PAC should be devoted to consideration of the priority for scheduling the already approved set of experiments. **We have decided to schedule a special PAC meeting, PAC41 dedicated to this process.**

This PAC meeting will discuss the priority of already approved proposals for scheduling during the first 3-5 years of production running (beyond commissioning) in the 12 GeV era of CEBAF. **The goal of this meeting is to provide input to the Lab scheduling process from the PAC in order to realize the highest impact program early in the 12 GeV running period.**

Prioritization PAC 41 – planning

What do we plan to prepare for this prioritization PAC:

- 1) A filled-in two-page document *for each approved experiment* with info, equipment and beam requirements, concerns or equipment conflicts, and specific experiment requests.

Documents were generated by the Hall Leaders,

Documents were bounced off the experiment contact persons

(we are at the moment checking which ones we are missing)

From this, we will generate a large matrix for the PAC with when experiments are anticipated to be ready for physics data taking

- 2) We will also generate a one-page document for each run group (and bounce off the experiment contact persons)
- 3) We plan to assign PAC members as readers for the various science subcategories (with the 3D category split in 4-GPDs and 4-TMDs).

A year+ of reviews (not counting 12 GeV...)

- NSAC Subcommittee Review on Implementation of LRP
 - Reaffirmed the LRP vision of the field
 - Argued for modest growth scenario
- NSAC Subcommittee Review on Future Facilities
 - 12 GeV Upgrade Project science A (*absolutely central*)
 - EIC science A (see excerpt later), readiness B
- Medium Energy Physics Comparative Research Review
- DOE/HEP Heavy Photon Search Review – July 11
 - Successful review July 11
 - HEP funds for FY14 arrived (although...)
- RICH review (both Hall B-led and Physics Division-led)
 - With DOE/NP Observers
 - Homework on the Project Management Plan
 - But were allowed to start RICH project in FY13
- Annual SBS Progress Review - successful
- Accelerator Readiness Review Phase I – Arne's talk

A year+ of reviews – continued...

- 2nd Software and Computing Review
Purpose: To ensure that detector software will be ready for science, facilitating timely reporting of physics results for the 12 GeV program.
 - First meeting held June 7-8, 2012
 - Good feedback, positive experience
 - Second meeting Nov. 25-26, 2013
 - Overall, words of praise (but still much feedback)
- Experimental Readiness Review Hall A – December 9 + 10
- Experimental Readiness Review Hall D Tagger Dump
- Accelerator Readiness Review Phase II
 - CW beam to Hall A and tune beam to Hall D tagger dump
 - Scheduled for last week of January
- Discussing Hall B/HPS dates for ERR too (tentatively July)

Ancillary Apparatus – Active User Community

- Hall A DVCS (France - Orsay) **near-complete**
- Hall A SBS GEMs (Italy – INFN), Hadron Calorim. (CMU) **ongoing**
- Hall A pre-R&D toward PV (magnet concept, with MIT) **ongoing**
- Hall A SOLID (China, Temple, Duke, ANL, ...) **ongoing**
- Hall A APEX septum magnet (Canada, UCLA) **ongoing**
- Hall B longitudinally polarized target (NSF/MRI) **ongoing**
- Hall B forward tagger (Italy INFN & NSF/MRI) **ongoing**
- Hall B RICH sector(s) (Italy INFN, Chile, S Korea) **ongoing**
- Hall B Micromegas (France - Saclay) **ongoing**
- Hall B Central Neutron Detector (France - Orsay) **near-complete**
- Hall B Heavy Photon Search (HPS) (DOE HEP) **ongoing**
- Hall B Gas Target for Proton Charge Radius (NSF/MRI) **ongoing**
- Hall C Kaon Detection System (NSF/MRI) **near-complete**
- Hall C Backward nucleon detector (Tel Aviv/ODU) **ongoing**
- Hall C neutral-particle spectrometer (US/France) **planning/MRI**
- Hall D PID systems (US) **planning**
- Hall D Discussions with China on calorimeter upgrades **planning**

Experiment Readiness Review Process

- The [Experiment Systems Readiness Process](#) has been used effectively for all JLab experiments since the start of experiments in 1995
- The existing model seems to work well, with very good communication, coordination, and cooperation amongst multiple divisions, and roles and responsibilities well defined (work coordinator, physics liaison, accelerator liaison, engineering coordinator)
- Nonetheless, **the process was not well known and not always followed**
- [Revisited experiment systems readiness process](#) to
 - [Clarify review process from the start – communicated to users](#)
 - Update web pages for consistency – in progress
 - Update safety documentation and Hall safety walkthrough to become as generic as possible for all Halls (A-D)

COO	generic document
ESAD	generic format
RSAD	generic format
Safety checklists	
Experimental procedures for users (wiki or “how-to’s”)	
Operations Manual for experts	
Safety Walkthroughs	generic format (draft)
HIERD (emergency response document)	

- Include decommissioning in reviews

Readiness Review Process – Web Pages

http://www.jlab.org/user_resources/PFX/NP-PFX/

Or as text only version:

http://www.jlab.org/user_resources/PFX/NP-PFX/text.html

Note: we did also make the Hall Safety Walkthroughs more generic-format, and had a successful start during the Hall A collaboration meeting mid-December!

See http://hallaweb.jlab.org/news/minutes/20131213_SAF110draft.pdf

and <http://hallaweb.jlab.org/news/minutes/walkthrough-list.html>

EIC Scientific Assessment

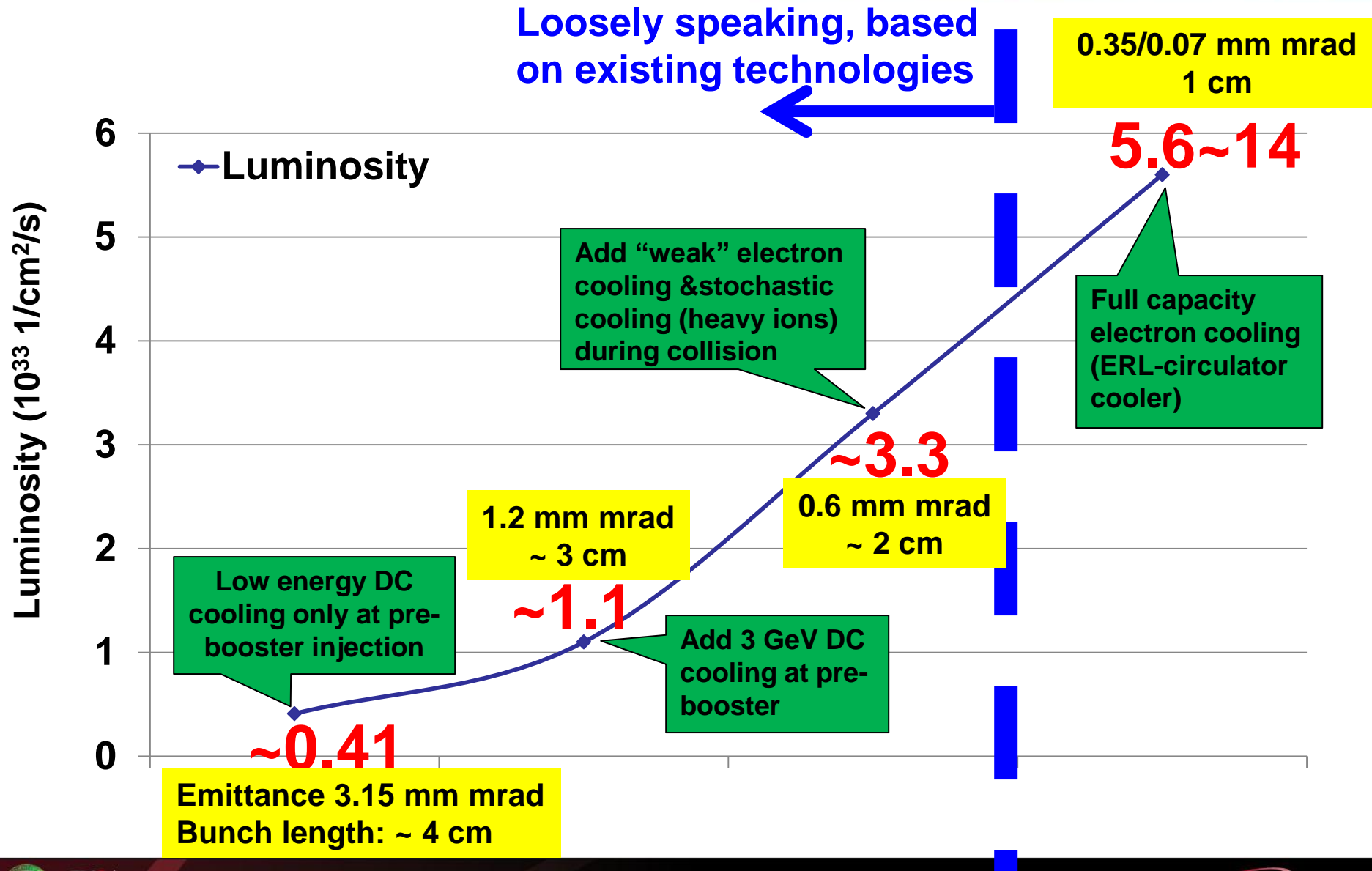
From NSAC Subcommittee of Facilities, chaired by Bob Redwine (MIT):

“ The EIC would be a unique and powerful microscope to provide a **dynamical mapping of gluons in the nucleon and in nuclei**. It is an ideal tool to investigate the mechanism of how **quarks and gluons propagate in nuclear matter and join together to form hadrons**. The EIC is our portal to an in-depth and fundamental understanding of gluonic matter and of QCD.

As stated in the 2007 Long Range Plan, "An EIC with **polarized** beams has been embraced by the U.S. nuclear science community as embodying the vision for reaching the next QCD frontier."

The Subcommittee ranks an EIC as **Absolutely Central** in its ability to contribute to world-leading science in the next decade.”

MEIC Phased Cooling Scheme



EIC: Physics and Experiment – User Involvement

- The global IR (Interaction Region) design is now ready
- Now under development: [detailed layout of detector and full simulation using realistic event generators for forward process](#)
- Steps for user involvement:
 - Detector implementation using standard JLab simulation tools
 - Unified central detector and IR concepts can streamline development
 - Detector will be implemented in GEMC 2.0 (12 GeV simulation package)
 - Fast Monte Carlo simulation capability will be added to GEMC
 - Incorporate tracking in collaboration with Saclay
 - Allow easier access for users to MEIC detector development
 - JLab will provide a baseline detector concept to help users
 - Started series of weekly simulation meetings with remote access
 - Encourage Proposals for Generic EIC Detector R&D program
 - User community has familiarity with GEMC
 - JLab can provide support for users planning to submit proposals
 - Implementation in GEMC would benefit from collaboration

Restructuring within the Physics Division

The ground rules for restructuring of the Physics Division:

- Assume a Hall multiplicity of 3.5, i.e., keep the 4-Hall capabilities, but merge functions
- Assume an operational multiplicity of 2.3, i.e. less throughput of new experiments
- Assume (at most...) 30 weeks of operations in the out-years
- Assume we keep the 12 GeV project going and get to research as soon as we reasonably can
- Maintain EIC efforts

One other ground rule in general to keep in mind: Senior management has the goal of retaining our ability to operate the FEL as the need arises

The Process within Physics Division

- we have to maintain a proper combination of skill sets to keep the Hall capabilities (technical and research), while we still downsize
- one additional complication for the Physics Division is that we are still in the “peak” of 12-GeV construction efforts.
- We defined for all Halls and technical support groups a limited set of core skills, and the number of people with such core skills, we needed, *regardless of specific group sizes or structures*.
- We had multiple late night discussions amongst Physics Division Management going in detail over every single person and how they would fit. Where appropriate, we had to collect input from the Hall Leaders.
- The final plan was bounced off laboratory leadership for approval. Decisions are final.

Organizational changes in a nutshell...

See http://www.jlab.org/div_dept/physics_division/admin/Physicsorgchart.pdf

Data Acquisition and Target Group remain essentially as is

Halls A and C: A and C scientific staff will be merged
there will be a small spectrometer support group
A and C engineering and technical groups will remain

Halls B and D: Remain mostly as is, but we will create one joint Halls B/D
detector support group, reporting to Patrizia, that is
responsible for the detectors in Halls B and D.

Fast Electronics Group: will assign one person to both Halls B and D
to be responsible for the new pipelined systems,
and provide further support of the fast electronics.

Radiation Detector and Imaging group: will more formally provide
assistance to Halls for PMT-based detectors

New Policies started with PAC40

- Parallel running procedure
 - Intent is to encourage proposal of “run groups”
 - Summary only of additions to existing run group (PAC to comment)
 - one addition was processed at PAC40
- New categories for resource availability:
 - Stage I: resources need to be identified/obtained
 - Stage II: resources are essentially available
 - This will be considered a Laboratory issue (not for PAC).

Prioritization PAC - process

Prior to the meeting, the Associate Director for Experimental Nuclear Physics, the Deputy Associate Director for Experimental Nuclear Physics, and the 4 Hall Leaders will **select approved proposals that are expected to be ready for production running during the period 2015-2020. Approved proposals that require additional equipment that will not complete construction, installation and commissioning before 2020 will not be considered.**

The PAC will **consider all such approved proposals in each of the six physics categories, and discuss the relative priority of the proposals in each category.** The PAC should identify a subset of these proposals that it considers to be “Highest Priority” for scheduling during this time frame.

Prioritization PAC 41 – process cont.

Please note that the present status (grades and approved running time) of all previously approved proposals will not be changed by this procedure. It is not anticipated that the PAC will need additional input from the proposal collaborations **during** this meeting. Hall Leaders and JLab management may be consulted by the PAC during their deliberations if necessary.