

Present: (all board members present; SN, KK on phone)

**Hugh Montgomery:** Lab status (highlights, performance, budget, plans...)

Personnel changes:

- Allison Lung has taken position of assistant director, concentrating on resource management
- EIC leadership: Rik Yoshida to lead EIC physics group starting March 1, 2016
- COO – interviews scheduled for February
- Head of theory position has been advertised (Pennington retiring) – **input welcome**

Accelerator Advisory Committee formed: focus on operations, EIC, accelerator R&D:

- Norbert Holtkamp(chair), Oliver Bruning, Wolfram Fischer, Richard Milner, Yoshishige Yamasaki, Eric Prebys, Marion White

12 GeV upgrade: \$11M to completion (of \$338M total), 96% complete (Hall B/C upgrades remaining)

Accelerator performance:

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- 12 GeV to Hall D
- 70uA of 11 GeV to Hall A
- RF trip rate of ~5 per hour for 'spring 2016' conditions
- Beam emittance meets 'initial years' specifications
- 11 GeV separation demonstrated

Other Office of Science project efforts: LCLS II at SLAC, FRIB

S&T Review (July 2015):

- Strong positive statements on 12 GeV physics program, commended expanded role of Theory Center international outreach, good accelerator performance, strong cryogenic group, encouraged lab to find more collaborators for EIC efforts, science leadership of JLab staff, endorsement of management's plan to address early running, improved safety record.
- See slides for details, comments; no formal recommendations

NSAC long-range plan: summary of recommendations and initiatives

FY16 budget:

- FY16 ONP budget guidance supported ~16 weeks of running (based on president's request)
- Omnibus FY16 was \$7.5M below president's request (but better than Senate and House markups)
- JLab \$1.5M below president's request (still an increase from FY15); lab maintaining running weeks and holding critical staff by squeezing elsewhere
- Letter from 6 senators (VA, NY, MI) supporting NP at LRP level. 'Directors' to visit Cherry Murray, new head of Office of Science, on Jan 26.

3-year schedule will be updated in February, after DOE guidance budget received

Virginia funding:

- \$4.2M for FY15-16, mainly EIC site studies and small amount to attract leading scientist to VA
- \$2.4M request for accelerator next year

Land situation

- DOE sublease of land for VARC extended
- MOU with city to maintain 17 acres of land for future expansion

**Bob McKeown:** Lab plans [PAC issues, MOLLER/SOLID, EIC planning]

Near-term schedule

- Expect 2017 commissioning period changes, based on DOE budget guidance
- Overview of short-term hall schedules

PAC:

- Charge about to go out; proposals due June 6
- PAC43 had updated guidance on parallel run groups; expect new run groups to come in with complete suite of experiments
- S&T review and DOE recommending a jeopardy process
- Looking for user input on procedures. 6-GeV procedure as a potential starting point. Should timescale be different? Are run groups treated as a single entity, etc...
- Efforts to update PAC submissions page – help avoid submission with incomplete information on experimental requirements. **Author list must be submitted (CSV file only) (board members requested that the submission format be more flexible)**

Updated on Moller/SOLID progress

Update on EIC

- EIC meeting at Berkeley, next meeting summer 2016 (likely Argonne)
- National Academy of Sciences study commissioned – 18 month time frame
- SLAC taking responsibility for electron ring at JLEIC
- Rik Yoshida leading JLab physics/detector efforts

Updated timeline (most optimistic timeline)

- CD0 following NAS study, down-select 2018, start 2021.

**Rolf Ent:** Experimental readiness review (ERR) process, proposals with refurbished/upgraded scope

ERR process continues from 4/6-GeV era, but with more new equipment, trying to have earlier reviews, stricter timelines

- **ANY equipment not yet part of 12-GeV baseline equipment for the hall must have safety/readiness review before the experiment requests to be put on the schedule. Equipment must be reviewed and the design be frozen following the review.**
- Existing equipment may not be fully covered until they have their own readiness reviews, especially when running in new configurations (e.g. HMS above 6 GeV).
- The timeline is described in the Procedures for Experiments. Patrizia Rossi will present on this at the upcoming collaboration meetings to remind/refresh people
- If the proposal assumed certain equipment was 'existing equipment' (with no information provided on new equipment), the assumption is that no resources will be made available for things which are later determined to be experiment critical but not discussed clearly and explicitly in the proposal.
- While the technical advisory committee review will be specifically instructed to check for/verify equipment needs at the proposal submission stage for new proposals, there is no plan for the lab to look for 'hidden' assumptions or undeclared resources requirements for already approved proposals until scheduling is requested.

#### Discussion

- Jeopardy: when does it start, how does it start, how to handle rungroups, what is the timescale?
- Currently, don't feel that an time approved per PAC is required; growth has slowed significantly over past several PACs
- Start up: maybe start with oldest experiments, given how many there are. At one PAC/year, hard to do everything 3 years old.
- Bob will draft something

#### Area Reports:

##### **Elton Smith** (quality of life)

- Radiation review panel – Elton Smith taking Ed Brash's place.

##### **Nadia Fomin** (outreach)

- NP day on the hill – March 14<sup>th</sup>
- User concern – oversight on postdoc prizes (money doesn't always get spent, not always spent the way planned)

Postdoctoral research prize – should the nature be changed? Research award → straight award? Maybe 2 (theory/experiment)?

##### **Silvia Niccolai:** (foreign users)

- Still concern about MOUs (Italian MOUs stuck in state department)

Bob McKeown – received message last week that it would be signed today in Rome. During the meeting the news arrived that indeed the project annex concerning NP between INFN and DOE was signed. DOE moving ahead on the French project annex. These are broader agreements that should allow direct MOUs with individual labs. So progress is slow but is happening.

- Rolf Ent – believes that there are cooperative agreement with China and Japan, which allows for MOUs.

#### **Volker Crede** (computing)

- Talked to computing contacts persons in halls; no large issues, mainly communication issues
- Users requests/complaints should come to hall software coordinators first, rather than contacting computer center first
- Users who want to keep up to data should subscribe to software email list
- Mass computing jobs are running into memory limitations. There are real memory limitations, but there are also problems when jobs are submitted which request too much memory (or jobs are sequential and not making use of the multi-thread capacities). Some more memory is coming in, but real improvement requires more optimized use of the systems.
- DVCS has issues analyzing data, analysis jobs which failed. Had to transfer large amount of data to France to analyze – debugging was probably limited by communication problems between users and computer center.
- Ellie Long: effort to train students to use multi-threading tools, develop optimized code. Maybe part of HUGS or other training effort?
- Rolf Ent: Should add information about issues and best approaches to using computing center, pointing out the problems for people who don't know that there are better options.

#### **Misak Sargsian** (experiment/theory liaison)

- Interactions for collaboration between theory/experiment often occur through workshops.
- Support for students (in particular to Gordon Conference) important
- Hall collaboration meetings are also opportunities for theory students to learn about what's going on, but hard to support travel to collaboration meetings
- LDRDs just started, but have opened up opportunities for theory/experiment collaboration. Data mining effort also successful, but funding limited.
- Options to support mid-term theory visitors (of scale few weeks) to the lab.

#### **Ellie Long** (postdoc representative)

- Alumni group growing slowly. HUGS career mini-workshop reached out through group. Discussed options for keeping group more active, and finding potential speakers for career development meetings/talks
- APS as-hoc committee on LGBT issues will release report soon. Would like to see users publicize the effort, especially in light of the fact that this was initiated in large part by JLab users.

#### **DNP Satellite meeting**

- KK: question of afternoon vs. dinner meeting. Better as a lunch meeting since many people leave after end of talks.
- Attendance about 30 at last DNP

UGM Committee: 12 GeV/EIC "Reaching for the Horizon"

Larry W (chair), SN, JA, MS, GH, NF

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**Lung:** 12 GeV status

- Overall upgrade status (overall status discussed in Mont's presentation; see slides for detailed beamline/detector/magnet status updates). Some key points below:
- GlueX solenoid – quenches appear to be related to modifications to cooling system; hope that fix to cooling may raise current limit.
- Hall D has met CD-4B beam requirement: >2nA at >10 GeV (PEP date was Sep 2017). Halls B/C also have Sep 2017 date: >2nA at >6 GeV (3pass). Working out details of how to demonstrate KPP for Halls B/C (but currently looks like the criteria to demonstrate meeting KPP will be set at more modest level)
- Hall C: HB magnet has full current test planned for next week. Q1 in place. Other magnets had delays related to thermal shield QA problems (shields had to be reshaped and thinned, net 3 month delay). Dipole delivery planned April 2016. Issues for Q2, Q3 appear to be resolved, but final testing not yet complete. Anticipate May/June 2016 deliveries for Q2/Q3. Readiness for beam projected to be Dec 2016.
- CLAS12: All 6 torus coils installed. Solenoid causing delays (2 inner coils, 2 middle, one shielding coil). Inner/middle coils wound (3 or 4 potted, 4<sup>th</sup> in progress). Shield coil bobbin large but simple design, but delayed 3 months (so far) as machining large structure is causing deformations. Scheduled to arrive Sep 2016, detector ready for commissioning March 2017. Pushing to ensure all prep work is done ASAP, to avoid risk of further delay after solenoid arrives.

**Arne Freyberger** (accelerator status: commissioning, 3/4-hall operation, 12 GeV]

FY15 work:

- CHL2 upgraded heat exchanger installed, ARC tunnel air conditioning installed
- Repaired 2K cold box (using SNS spare compressor)
- Dogleg upgrade (allows control of pathlength) complete
- Test of 750 MHz separator
- Helium processing of most cavities completed (new C100 modules didn't work as well as desired; some not processed)
- Updated Hall D fast feedback, nA BPMs
- Upgraded cooling towers on site

Fall 2015 (shortened) run – accelerator commissioning:

- Systematic setup of machine at design energy, measured beam parameters at desired energy
- 11 GeV beam, emittance specification met for Halls A/D, all passes. Beam beta values close to expected values (some outliers in vertical direction at 5, 5.5 passes). Bunch length ~500fs (~0.25 degree phase length – small enough that energy spread not impacted (dominated by radiation))
- Fall run: trip rate typically at 200 trips/day (~10/hour ( ~5 RF trips per hour))

- Trips are <5min downtimes. 840 hours run period, 266 hours downtime (~30%), which includes 1/week planned downtime. Making plans for reducing downtime in the future; 5 weeks running provides only limited information to diagnose/improve.

#### Spring 2016

- Restore machine to configuration from fall. 8 days RF work (no beam)
- Set up for physics measurements

#### Summer 2016.

- Later table upgrade for 4-hall operation, install/commission new C50
- Repair magnet (no 3<sup>rd</sup> pass extraction until repaired)
- Can run some physics at 1.1 GeV during 'summer' period

#### **Michael Pennington:** Theory update [see slides for general overviews from theory and hall updates]

- ~25 members of theory group [staff, postdocs, including joint positions]

#### **Eugene Chudakov:** Hall D

- A few detectors not yet commissioned with beam. ~30% of tagger microscope fibers are low efficiency and will be replaced summer 2016
- Thin diamond radiators still need to be manufactured/installed (to minimize multiple scattering)
- Solenoid: 1500A nominal ~1350 optimal for GlueX, quenched at 1300A in May '15. Hope that modification to the cooling system will allow for higher current operation
- Fall 2015 run; 2 days, beamline instrumentation and some DAQ/trigger progress.
- 20 kHz readout rate achieved (GlueX-1 specification); progress on trigger – close to GlueX-1 requirements.

#### **Thia Keppel:** Hall A

- Fall 2015 run: high current (up to 55uA, though at high trip rate). New high-field Moller commissioning, parity beamline instrumentation tests, beam delivered through Compton chicane.
- Right arm Q1 has been replaced with SOS Q1. Left arm Q1 having problem, will limit current during spring 16, may/will(?) be replaced by new 'SOS' Q1.
- Tritium family experiments Fall 2016/Spring 2017.
- Beyond 2017: 3He target improvements under development, PREX/CREX (target/scattering chamber design, polarimetry), APEX (new septum in test lab, shielding design underway).
- SBS construction: overall, project on track (some concerns – ECAL annealing, 3He target timeline [not part of SBS project, but required for experiments])
- MOLLER: successful science review sept 2014. Expect director's review (cost/technical) 2016 in preparation for CDO
- SoLID: director's review Feb 2015, move solenoid to JLab fall 2016, looking towards science review 2017 (CDO 2018)

#### **Volker Burkert:** Hall B

- PRAD: Passed ERR Nov 2015, scheduled to run May 2016 (contingent on non-interference with CLAS12 construction). Target to be installed next week, detector/other installation starts in March.
- HPS: analysis of Spring 2015 running underway. Calibration work done with 10% of unblended data (analysis of benchmark reactions; resolutions consistent with expectations).

Plan for final processing of full data set in February and March. Spring running at 2.2 GeV planned (weekend data taking)

- CLAS12: Detectors complete except for central ToF (not fully assembled). Magnets, polarimeter, shielding no yet complete. Several upgrades to baseline underway (central neutron detector here, see slides for updates on the others)
- Significant work doing calibration for all of the completed detectors (typically cosmic ray calibration).

**Steve Wood:** Hall C

- Magnet status update (see presentation by Lung)
- All detectors complete. “rear detectors” (S1 and behind, including Aerogel)
- LAD detector being constructed (from CLAS6 TOF counters) - large angle spectator proton detection
- NPS construction underway (NSF/MRI): neutral particle detector for Compton, pi0 production.
- Beamline: upgrade Compton, repair Moller polarimeter, upgrade downstream beamline for 11 GeV. All on track for checkout without beam March 2016.
- HMS replacement chambers underway – board ordered (SHMS style chambers/geometry)
- Preparing for 3He target [have cut and reassemble pivot post, modifying platform design]

**Walt Akers:** Facilities

- Injector test facility being put together: outer shielding walls and much of the electronics are in place. Hope to be ready for commissioning end of this year.
- Counting house improvements: 2<sup>nd</sup> floor conference room complete. Women’s restroom now in the counting house, properly signed. Hall B console upgraded, Hall C planned, Hall A later.
- Ongoing construction for UIM (utilities infrastructure modernization): electrical upgrade complete, communications/cooling upgrades continue (lots of digging, road closures). Hope to finish early March.
- Automatic flood gates procured for Halls A, B, C – installed this year.
- Longer term: Space for hall techs in building adjacent to existing Chalet near counting house (concept stage only) – currently in TEDf building.

**Amber Boehnlein:** Computing

- IT Organization: 38 staff, 4 students. Computing/Network infrastructure, Management information systems, and scientific computing.
- UIM project includes data center upgrades, redundant networking. Data center consolidation (save space, reduce power)
- Looking at cloud services, esp. for sharing files.
- Upgrading/redesigning forms for users business processes [PAC submission, user registration, user reporting requirements]
- Cybersecurity and Public access to publications [areas lab is graded on, latter is new/updated requirement]. Cybersecurity subject of federal initiatives due to high-profile breaches.

- Multi-Factor Authentication (MFA) for business sensitive systems, sensitive S&T and for privileged administrators. Will be further separating research and operations functions in response to DOE mandates. Will extend MFA to some staff; should not affect researchers.
- Publications: OSTI (Office of Science and Technical Information) launched plan for public access in 2015, labs will be graded starting 2016. Currently, ~60% of pubs have publisher-accepted manuscripts (PAM) available.
  - Requirement: **For any work done at JLab or by JLab authors, the PAM must be uploaded. Final draft submitted to publisher (before publisher edits) must be submitted to JLab publications – not just the initially submitted draft.**
- SciComp updates: new workflow tool deployed, monitoring and other tools, systems, new hardware updates [see slides and/or sign up to computer center email updates]
- Science/Computing reviews part of preparation for 12 GeV. Halls doing self-assessment relative to Feb 2015 S&C review
- EIC computing – workshop last fall, workshop at JLab March 16-18, 2016
- HEP software foundation ([hepsoftwarefoundation.org](http://hepsoftwarefoundation.org)) –volunteer effort to build knowledge base. Stubs to populate JLab experiments.
- Exascale 2025: ASCR NP planning workshop in June, 2016.
- Amber is JLab point of contact for exascale projects

#### Elizabeth Lawson (JSA update)

- Overview of JSA activities, Initiative Fund programs, etc...
- Next call for JSA Outstanding Nuclear Physicist – 2017
- Initiative Fund proposals: EL will review submissions and send back proposals that are missing critical information.

#### Rusty Sprouse: Updates on JLab campus security

- More visibility/activity with shopping, housing, tech center.
- Dec 2015 trespass incident; individual accessed accelerator site.
- Led to guard force personnel change and retraining, more management oversight after hours. Access buildings secured after hours; permanent fencing/gate being installed at entrance, enhancing cameras [virtual boundary at entrance]. Arranging 3<sup>rd</sup> party audit of access control.
- Concerns about people ‘tailgating’ into buildings [entering buildings behind someone who uses badge for access]. Increase awareness about access, escort policies.
- Report of user concerns about sexual harassment [e.g. incidents at residence facility involving people who had been drinking] – For issues on site, HR deals with these issues, but there is an ‘employee concerns hotline’ program for reporting concerns/issues. McKeown suggests including non-harassment policy and procedures for reporting incidents (in person or anonymously) in annual training. Need to clarify that “employee concern” program is not limited to employees.

#### Further UGBOD discussion

- Student activities: interest in having further student activities, e.g. journal club.