

Minutes of NSLS UEC Meeting February 14, 2008

Present: J. Dvorak, J. Sutherland, H. Robinson, C. Sanchez-Hanke, S. Bare, D. Fischer, J. Jordan-Sweet, J. Keister, M. Dudley, V. Stojanoff, Z. Zhong, P. Northrup, J. Parise (also G. Cisco and C.-C. Kao)

Call to order: 8:45 am

Nominating Committee: should have been formed in November. UEC needs calendar/do list to follow each year. Committee formed: H. Robinson, J. Keister, M. Dudley (motion, accepted unanimously). Look for committed people. Slate due March 14 for posting on line April 19.

Action Item: G. Cisco will get list of past nominees.

Community Service Award: nominations accepted through April 19. Will open ASAP. Winner chosen by UEC.

SpIG nominations: will open for nominations ASAP, through March 19. Election April 19. (motion: nominations open immediately for SpIG through March 19, election April 19; nominations for CSA through April 19, accepted unanimously)

Action Item: D. Fischer will email SpIG reps to encourage them.

Membership questions: 1) J. Dvorak now NSLS staff- can he still be a UEC member? To avoid conflict of interest, Joe declared that he would serve out term (May 2008) but not vote. 2) There are now 3 science dept heads (L. Miller, S. Hulbert, R. Pindak). Leave up to Chi-Chang who should attend *ex-officio*. (Charter says UEC should have 4 general, SpIGs, plus *ex-officio* User Admin, info/outreach head, and one rep from management)

Action Item: review charter next year, look for loopholes.

Director's report (C.-C. Kao):

Budget: \$36.6M continuing resolution. FY09 Pres. Request ~\$40M, but probably another CR. Lab guidance is to prepare for FY09 using FY08 number. FY07 final budget was \$36.9M, but now NSLS has more staff to pay and lower reserves.

MOU with NSLS-II: can send some people over there, but not much to spare.

Impact: 1) unable to add staff (for exptl systems or beamline support), students or post-docs. 2) reduce ops budget, 3) reduce travel 50%, 4) reduce overtime, 5) slow down major purchases, and 6) reduce ops hours by 10%. This will avoid staff reduction, provide reserve for rest of FY08 and FY09, and keep major projects going forward.

Schedule: 10% cut will come from second half of August until Labor Day. Expect 4603 hrs x-ray ops, 5547 hrs UV ops in FY08.

NSLS-II Planning Workshops reports

Beamline Transition Working Group report

Detectors for users (express interest to P. Siddons)- wants to build a bunch at one time for efficiency and low price.

Historically Black Colleges training program report

Beamline upgrade report: 1) X9 endstation due this month, beamline ready for fall cycle. 2) X13A soft-scattering endstation. 3) X7B collab with BNL Chemistry. 4) X18A Catalysis Consortium renewal. 5) Ultra-fast electron diffraction (LDRD funds). 6) Begin redesign of X17A (high-energy XRD/scattering) and X5 (long beamline for NSLS-II development R&D: Zhong- monochromator, Evans-Lutterodt- kinoform lenses).

Recent events: 2/25-3/7 beamline reviews
3/08 workshop reports
4/3-4 SAC
4/30-5/2 DOE review
5/19-21 NSLS/CFN Users Meeting

JPSI: received first \$10M from NY State, seeking jump-start funds from BNL. Will update in May.

NSLS-II Update (S. Dierker):

Timeline: 12/07- CD-2 approval
10/08- begin site prep
1/09- CD-3 (start of construction)
2/11- ring building pentant #1 beneficial occupancy, start installing accelerator
2/12- beneficial occupancy of expt'l floor, start installing beamlines
10/13- accelerator commissioning

Budget: FY08 expected \$45M project + \$20M R&D; lost \$15M from project Will delay procurements, staff buildup. Will keep CD-3 schedule by reprioritizing. Added \$15M to FY09 budget request. Total Project Cost: \$912M (no ops or MIE in this figure). MIE will start FY10, with 2-3 projects starting CD-0 this summer.

Logistics: Expect beam available for commissioning in FY14. Haven't specified NSLS turnoff date. No support from DOE for overlapping running. FAC meeting: 5/5-6; Conventional facility design review: 8/25; Internal design review: 9/2-4; DOE review: 9/30-10/3.

JPSI: preconceptual design stage. Will have 1-2 workshops in summer. Pataki committed \$30M to Brodman. Construction contract awarded in 2010, occupancy in 2012.

Floor space: Adding 1.5m to extend experimental floor. Use jigsaw approach to fit in beamlines, use BM space with ID side stations.

Current efforts: 1) Prepare to transition from design to construction, 2) finalize RFP for buildings, 3) establish BATs for project beamlines, 4) CD-0 for MIE, 5) prepare CD-3 reviews for DOE approval.

Discussion: 1) Reduced FY09 prospects? Further delay ~3 months, \$5M price increase, award contract Feb-March, start construction in May. 2) non-project beamline LOIs? EFAC is challenged to review more than project beamlines, but open to LOIs in other areas. Expecting 7 proposals for 6 project beamlines. If other LOIs planned, let EFAC know. If review is postponed, can revise. LOIs will not be public until reviews are over- then just abstracts of approved LOIs. 3) Likelihood of shutting down NSLS early if tight budget? Not likely- need to maintain user community.

Strategic Planning Workshops (L. Miller, R. Pindak):

Goals: Short-term planning for NSLS program and vision for NSLS-II programs. Deliverable is “white paper” due in March.

Life Sciences: 45% of user community (35% structural/molecular, 10% biomedical spectroscopy/imaging). 72 attendees. Presentation of preliminary plans, lab space and ancillary needs, synergy. Beamlines wanted: 5 MX, 1 SAXS/WAXS, 2 XAS, 1 FP, 1 CD, 3 XRF, 3 IR, 1 STXM/CDI, 1 TXM (full field), 1 DEI. 2 LOBs, one shared with environmental/soft matter, cryo sample prep facilities. Discussed partnering with other disciplines to fully utilize beamlines.

Environmental Sciences: 54 attendees. Want LOIs for hard and mid-x-ray microprobes, high pressure and energy beamlines. Labs for handling radioactive mat’ls, optical microscopes.

Soft and bio materials, scattering-based techniques: 33 attendees + 10 written entries. Community not used to forming teams for access- concerned about access model. Beamlines wanted: microfocus SAXS/WAXS, liquid-surface spectrometer, reflectometry/GISAXS, SAXS/WAXS, solution SAXS, buried interface spectroscopy, in-vacuum soft x-ray spectrometer w/ polarization control, STXM, high-q/high-res diffraction.

Powder/Materials Science: 95 attendees. 1) PING (Powder Instrument Next Generation) with $E > 35$ keV. 2) High pressure- hard x-ray (SCW with 4 endstations), IR, inelastic beamlines. 3) High-E XRS for engineering apps such as strain and time-space mapping- (SCW with 3-5 endstations, 20-200 keV). 4) Metrology- topography, reflectometry, soft x-rays, optics and detectors to preserve properties of ring like polarization. 5) Surface/interface- (ID with as many stations as possible, 50 nm beams, external endstation building)

Chemical/Engineering Science: 37 attendees. Spatial/temporal resolution, highly specialized suite: (1) XAFS/XRD/DAFS on DW, 2) XRD/PDF on DW, 3) XAS on DW, 4) nanoprobe on shared undulator, 5) time-res (msec) < 10 Torr XPS/NEXAFS)

Hard Condensed Matter/ Materials Physics: 50 attendees. Need structural and spectroscopic tools: (IXS, ARPES, Hard XRD, IR, XAFS/XPS/XRD combo, soft x-ray imaging, LEEM/PEEM, soft x-ray MCD).

Discussion: How to bring in big equipment with narrow aisles? What utilities in hutches? What is follow-up? Communities need to merge and identify beamlines to share-marriages made by community less scary and more appropriate than ones made by NSLS-II. Hold more targeted workshops, participate in NSLS 5 year plan.

Beamline Transfer Working Group (S. Hulbert):

Four elements: scientific program, hardware, access, staff.

Goals: 1) develop long-range white papers, 2) transition research resources, consortia, and PRTs, 3) ensure significant capacity at startup (for IR, soft bends, and TPWs). NSLS beamlines with proper upgrades will be state-of-the-art to save commissioning time. Most facility beamlines will be upgraded for transition.

Completed first round of discussions with PRTs: ~3 are interested in transferring entire beamlines. ~23 are interested in transferring endstations. Therefore a “beamline gap.”

Transition of optics: UV: new extraction and mono

VUV: new ID, optic and mono

Soft/tender: soft bends, new matching optics, move mono and

Endstation

Hard: 3-pole wiggler, move entire beamline/endstations

Very Hard: SCW, sagittal-focus Laue mono, move entire beamline

From all inputs so far ~48 beamlines from NSLS are wanted, as opposed to 24 proposed! This + 6 project beamlines would fill capacity of NSLS-II. \$1.5M estimated transfer cost/beamline.

Access Mode: Currently ~12 CU groups working with NSLS. Transition PRTs to CU, GU or PU. Need to get PRTs to partner with facility.

Second phase of process: develop specific list of beamlines/endstations/programs to be transitioned and work with all parties to plan, seek funding, etc. Transitioning money available 2012. Will be a big lineup for monos and mirrors. Need funding mechanism to upgrade the 23 beamlines and prepare for moving over. Need to connect BTWG with planning workshops to get people together, sort out white papers to put together groups and present to SAC, and to EFAC in August.

Minutes from last meeting adopted- none opposed

NSLS/CFN Users' Meeting (J. Parise):

Theme: Renewable energy- "Lighting Our Way to a Renewable/Sustainable Energy Future"

Agenda for Tuesday:

Aronson	BNL Update
Dehmer	DOE Update
Dierker	NSLS-II update
Mendez	CFN update
Kao	NSLS update
Fischer	NSLS UEC update
Frame	CFN UEC update
Crabtree	ANL-BES energy work
Kagan	Solar materials research
Robinson	nano energy, catalysis (coherent diffr. imaging)

Workshops: ½ day: 1) nanofluidics, 2) hard x-ray in-situ growth and surface processing, 3) environmental studies

Whole day: 4) electronic nanoprobe, 5) appl. of microprobe & imaging to human disease, 6) material dynamics, 7) future direction of high-pressure.

Networking sessions with vendors for BNLers, prize drawing

Machine update (E. Zeitvogel):

Staffing: 9.7 FTE accelerator physics transferred to NSLS-II, 3 hired, 0.7 reverse MOU. (-6 total). 0.7 FTE EE reverse MOU. Electrical technicians working on NSLS-II – minimum staffing levels. Reorganized to achieve goal of robust machine ops in view of severely limited hiring and ops budgets: Z. Yin made head of controls. NSLS has minimum staff to maintain ops. Everyone is needed now. NSLS-II demands will hit engineers and techs next...

Shutdown: vent and bakeout of 1.5 superperiods around injection stuff (4 ceramics, 2 bellows). X9 ID won't require vent, but front-end will.

Startup issues: x-ray kicker removed, reinstalled, reoptimized injection- good now. Need 50 more Amp-hours (have 80 so far) to improve vacuum. 4 sublimations have been done. Lifetime at top of fill ~6 hrs (normal). Couldn't get 300 mA, problem with RF3- fast

transient causing crowbar. Replaced tube and plate blocker. Now intermittent and dumps after 0-4 hours. Investigated RF3 transmitter and coax from transmitter to near cavity and both seem OK. Will try redistributing power, less current. Plan is to continue at 2.584 GeV with improved emittance. RF3 transmitter is disconnected for further offline testing. Will refine lattice for 2.584 GeV running, have peer review, studies, and implement suggestions during 3/11 maintenance and examine rest of coax.

Problem today was RF2 crowbar-ing. Replaced power supply. Maybe also effect of resymmetrized lattice. Try fat beam.

Electrical equipment inspections: lists maintained in EEI database. Two inspectors are adding missed equipment to list. Report new/changed equipment to EEI. All non-NRTL equipment needs bar code. Op-co can inspect user-brought stuff. Beamline equipment should be reported to Wayne Rasmussen. and put on blue sticker. Have until end of FY09 to complete.

Human Performance Management (A. Ackerman):

People make 5 mistakes/hour. Error-likely situations are predictable and manageable. Error precursors: time, scope change, stress, inexperience, confusing environment, confusing requirements, distractions, overconfidence. Three performance modes: skill-based (habit-low error rate), rule-based (procedures, checklists- medium error rate), knowledge-based (analysis, reasoning- high error rate). BNL going towards rule-based approach where possible.

Housing Survey Results (V. Stojanoff):

700 answers out of 4500-5000 users- very good return rate. Generally satisfied- suggestions for improvements. Water filters in apartments seem to have helped with water clarity. Shopping trip on Saturdays not working well, but good on Wednesdays. (note-taker had to leave at this point...)

Submitted by J. Jordan-Sweet