InterCAT Technical Working Group Meeting
November 21, 2002

Agenda Review and TWG Activity Summary: (Reinhard Pahl)
Reinhard called the meeting to order and reviewed the agenda.

APS Updates/News

(Roger Klaffky)
The APS Future Operating Modes Workshop on Nov-6 was well attended by accelerator personnel and APS users. Machine capabilities and various experimental requirements were discussed. A multi-bunch mode, suggested some time ago, was found to be incompatible with several time-resolved experiments but also found to be an agreeable mode for non-topup operation. This mode will be tested during the machine maintenance period on Dec-9. The workshop agenda and individual presentations are available at http://www.aps.anl.gov/aod/06_nov_2002_fom_workshop.html.
It was suggested to organize a follow-up workshop in spring 2003 – the exact date has not been determined yet.

Roger also presented a task list for the experimental hall floor during the Dec-Jan maintenance period:

1. There will be no scheduled interruption of the LN2 system. Cryo-pump services during the shut-down period need to be scheduled with the local floor coordinator.
2. There will be no scheduled power interruption.
3. There are plans to relocate transducers located in the FOEs to prevent radiation damage. The schedule will be worked out with the individual CATs.
4. Necessary work on some front-end exit valves (FEV) and beamline isolation valves (BIV) within the FOEs will also be coordinated with the individual CATs.
5. Several insertion devices will be removed for service: 3-ID, 13-ID and 24-ID.
6. PSS revalidations are scheduled for 31-ID, 22-ID, 19-BM, 11-ID, 14-BM, 19-ID, 9-ID and 17-BM.
7. Decker distortion will be implemented in sectors 9, 10 and 21.
8. Oxygen monitors are going to be installed nearby LN2 distribution systems. CATs will be contacted prior to installation.

Remarks: Work requests for items 3 – 6 have been approved; Rod Salazar is coordinating the efforts.

Announcement: There will be a workshop on novel insertion devices at the APS on Thursday, Dec-5. The agenda is available at http://www.aps.anl.gov/conferences/novel_ids/agenda.html.

(Dennis Mills)
Dennis provided an update on the DetectorSync initiative. This organization was formed to coordinate a national initiative in research and development for advanced detectors for synchrotron radiation (SR) science. More information on the organization can be found at http://www-esg.lbl.gov/esg/meetings/detectorsync/index.html.
Members of DetectorSync have spent significant efforts in lobbying for funding of advanced detector systems. The DOE has now indicated that it is willing to fund several projects of detector research and development provided they would benefit the whole SR community and result into working, fully functional detector systems to be used at the SR facilities.
Dennis, the local representative of the DetectorSync Organizing Committee, is asking the APS

community for input to refine demands and technical specifications. Petr Ilinski compiled a questionnaire and distributed it at the meeting and through the CAT-net mailing system. Timely response is requested in order to coordinate efforts at a DetectorSync meeting to be held next week.

Presentations

Toys & Tools: Detectors
This month's meeting focused solely on detectors and detector electronics.

Silicon PIN diodes (Thomas Gog, CMC-CAT)
Thomas started off with the demonstration of PIN diode detectors mounted on small aluminum frames and standard optical mounts – a useful tool in cases where space is limited and a qualitative intensity measurement is sufficient. Standard electronics for this detector is a current amplifier (e.g. Keithly or SRS570).
Question: Is there a difference between the diodes from various vendors?
Many vendors offer equivalent components, but some manufacturers are able to provide specialized components, e.g. high-speed PIN or APD (Hamamatsu), vacuum compatible (Advanced Photonix Inc., IRD) or multi-element diodes (IRD, Silicon Sensors).

X-ray detector development at APS/ASD (Steve Ross, AOD)
Steve described the development efforts at APS regarding PIN diode detectors and electrometer amplifiers, APD detectors for fast photon counting and fast CCD cameras. His presentation is available in the Minutes section of the TWG website http://www.aps.anl.gov/cats/twg/ (*ref.* Ross_021121.pdf)
A quad PIN array detector and the associated electronic, initially developed for Sector-32 to enable quick EXAFS experiments, has been modified for fast and accurate beam position monitors (*ref.* J.Sync.Rad.7 (2000) p.61). The complete system will be available from APS/ASD within a few months for 2 – 3 k$.
Work on APD array detector electronics has begun only recently: In collaboration with the SRI-CAT fast systems will be developed for counting or integrating applications in time-resolved experiments.
Various specialized hardware has been developed for the ASD/AOD control groups, e.g. timing module, 2-wire link, amplifier, etc. These devices are available for CATs and could be modified as required.
For the future Steve is interested in the development of a fast CCD detector system. A low cost CMOS device is available but (user) input is necessary at this time to give the project direction and application oriented specifications.
For more detailed information on any of the above mentioned issues please contact Steve at skross@aps.anl.gov.

APS Detector Pool (Petr Ilinski, XFD)
Petr presented the idea of a detector pool which was previously discussed at the APS/User Strategic Planning Meeting and has now been awarded funds of approx. 650k$ for FY2003. In order to determine the general and immediate needs of the APS user community Petr created a questionnaire. It is anticipated that initial purchases will include several counting detectors, e.g. PIN diode, APD and SSD, and one/two area detectors. The collaboration of DP, ASD, AOD and CATs should develop components (hard- and software) and specifications for these systems. In the future the detector pool should also be able to maintain APS-wide services or arrange for

global service contracts. Although the membership would be free at the beginning, a “fee” could be become necessary at a later time. Terms and conditions need to be worked out based on experience.
Comments: A test-stand for detectors is useful – DND or CARS could offer help in obtaining an X-ray generator.
Question: How is the priority of a request for a particular detector determined?
This could be done on a first come – first serve basis.
Comment: The distribution should be guided by scientific merit! A mechanism for resolving multiple requests is absolutely necessary.
Question: Who will be responsible for maintenance or repairs?
APS Detector Pool would carry the service, damage by miss-use will certainly be charged to the user.
Feedback is necessary to evaluate the general needs at the APS and to coordinate efforts – so please fill out the questionnaires and return them to Petr!
The viewgraphs from his presentation are available in the Minutes section of the TWG website http://www.aps.anl.gov/cats/twg/ (*ref.* Ilinski_021121.pdf).

Next TWG meeting:
The next meeting will be held at 10h30 on Thursday December 19, 2002 in Bldg.401, Room A1100.