InterCAT Technical Working Group Meeting
October 17, 2002

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

APS Updates

(Steve Davey, AOD)
An upcoming issue of Synchrotron Radiation News will focus on the topic of X-ray microscopy. Anyone who would like to contribute to this special issue should contact Steve.

(Glenn Decker, AOD)
Glenn described the start-up activities for the current APS run. The new lattice with an effective horizontal emittance of 3nm-rad and 3% coupling has been implemented. Detailed information on the changed source characteristics was given (*ref.* http://www.aps.anl.gov/cats/twg/minutes.html).
Glenn also reminded on the installation schedule for the lattice distortions connected with the efforts to improve the Xbpm operation on insertion device beamlines (see TWG minutes Sep-2002).

(Mohan Ramanathan, AOD)
APS is in the process of updating the facility WebPages while implementing the General User Access mode. Among other changes a directory of beamlines and techniques has been created (*ref*. http://www.aps.anl.gov/aps/frame_beamtime.html). A new technical description of each beamline is also provided. Mohan requested from all CATs to verify the information given on these pages and to contact him regarding corrections or updates.

Presentations

The ongoing discussion of the APS operation parameters (*ref*. TWG Meeting Sep-19, 2002) was continued by presentations emphasizing the users' perspective and a report on current efforts and machine capabilities by the accelerator group.
The user interest and needs for future operation modes of the APS will be discussed at a workshop on Nov-6, 2002.

(Jim Viccaro, CARS)
Jim reviewed the phase-space ellipse of the storage ring in view of the user experiment. He described the different radiation properties for bending magnet and insertion device beamlines and clarified definitions such as brightness and coherence fraction. Pointing out that increased coherence can affect the performance of state-of-the-art optical components, i.e. producing speckle, he also pointed out various possible alternatives to the current operation, e.g. different coupling constants and flexible beta-functions

optimized for the user experiments: Jim's own experiments would benefit from reducing the horizontal emittance.
Jim highly recommended reading Kwang-Je Kim's paper on “Characteristics of Synchrotron Radiation” (AIP Proc.184, p.565) and further suggested the APS Technical Bulletin TB-45 as an up to date summary of Undulator-A properties (*ref.* http://www.aps.anl.gov/xfd/tech_bulletins/tb45.pdf).

(Petr Ilinski, XFD)
Petr continued the discussion on the APS beam properties by emphasizing the importance of the beta-function. Referring to a matrix of various experimental techniques and fundamental accelerator parameters (low or high beta-function and emittance) he raised questions addressed to the machine physicists such as: Where are the limits for emittance and coupling parameters? How flexible is the beta-function? But he also recommended that each beamline should assess their requirements for future machine operation.

(Glenn Decker, AOD)
In response to the previous contributions Glenn presented a summary of the current operation modes and improvements to the accelerator in the near future. Glenn and other machine physicists present at the meeting tried to provide answers and explanations to the questions raised beforehand. They unanimously pointed out that significant amount of machine studies would be required to explore some of the issues, e.g. variable beta-functions. (Glenn’s viewgraphs as well as those presented by Louis Emery at the APS/Users Strategic Planning Meeting are available at the TWG WebPages http://www.aps.anl.gov/cats/twg/minutes.html).

Next TWG meeting:
The next meeting will be held at 10h30 on Thursday November 21, 2002 in Bldg.401, Room A1100.