InterCAT Technical Working Group Meeting
November 16, 2000

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

APS Update

(Steve Davey)
Steve reported that a briefing session has been scheduled (11/17/00 at 7:45 a.m. in B4100) to review the scope of construction plans for LOM 436. The APS hopes to break ground on the project in two weeks.

The issue of low humidity in the LOMs was raised. Steve said he would pursue further information about humidity levels.

CAT Reports

The Mu-CAT undulator high-energy side station: (Dirk Hupfield, Mu-CAT)

Dirk reported that three crystals (Si 111, 311, and 331) are used in the first monochromator to achieve a nominal energy range of 30–130 keV (undulator A). A second, moveable monochromator chamber is set up on a rail system. Dirk showed many photographs and reviewed a diagram of the sector, describing the layout of the monochromators, masks, and carbon filter/filter changer assembly. He also described a modified Huber psi diffractometer with both horizontal and vertical scattering geometries mounted in the hutch, ~ 3 m tall. Dirk briefly reviewed the operating parameters of the Huber and noted that a future report will discuss the actual performance of the diffractometer.

Monochromators and analyzers for high photon energies: (Uta Ruett, BESSRC-CAT)

Uta concentrated her talk on the monochromators in 11-ID-C. She described the beam parameters needed for diffraction experiments. She used a DuMond diagram to explain the acceptance of the sample crystal and to graphically explain the difference between a perfect crystal and a mosaic crystal.

The floor plan for wiggler beamline and its three stations (Compton, high-energy photons, and hard x-rays) was reviewed. A pre-monochromator is used to scatter horizontally and a diffractometer to scatter vertically.

Uta described the annealing process for their crystals in detail and talked about the advantages of a bent Bragg crystal and an asymmetric cut. Together, these characteristics can really focus the beam. The bent monochromator on 11-ID-C has a bending radius of approximately 840 m; Uta reviewed other key parameters of the monochromator and the crystals. She also discussed their tantalum-silicon matrix crystals, which seem to be very reliable, and presented some data. She also showed results from magnetic diffraction experiments on FeF_2.

Next Meeting
The meeting will be held Thursday, January 18, 2001, in Building 401, room B4100.