

Operations and scheduling

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For much of 1993, the CHESS West Area was involved in a large construction project to replace the A-line and the experimental stations A1 and A2. The new A1 station has been in use since fall of '93 (except for during the dedicated undulator run) and has proven to be quite successful. The A2 station is just coming into full operation. With the reintroduction of these improved experimental facilities, we hope to start alleviating the backlog in scheduling due to construction. Although there will continue to be further upgrades of CHESS and MacCHESS equipment throughout the year, we see this time period as an opportunity to concentrate more on user assistance and we expect this will be reflected in a more efficient use of upcoming beam time.

In an effort to calibrate our own efficiency, the bar graph on the opposite page compares the beam time provided to users on each experimental station to the time which was originally scheduled. The overall delivery rate is 75%; the 25% loss was due to unscheduled equipment failures. Although we try to minimize problems, they do occasionally arise, either within CESR or our own station equipment.

Over the past two years, the majority of CESR failures were related to problems encountered with the old 14-cell RF cavity systems that power the stored particle beams. At the beginning of last year there was an extended down period due to the failure of one of those two cavities. Since then CESR has replaced all the old cavities with upgraded 5-cell cavities, and they even have the luxury of having one as a spare. Accelerator personnel have also been working hard on replacing the old style horizontal separators which caused frequent beam dumps during voltage sparkovers. The immediate benefit of these two upgrade programs is that CESR is now running with high-

er starting beam currents, typically 120 mA per particle beam, and better reliability. Further current increases are soon to come.

On the CHESS side, one of the ongoing problems with the experimental stations is the problem of x-ray beam position stability. During the October undulator run, a prototype feedback scheme was installed, which stabilized the x-ray beam position in the A2 hutch to better than 10

microns over the 3-4 hour fills. We are currently developing a feedback system that can be used during normal operations, which we hope to have in place in the near future. We are confident that the ongoing information exchange between CESR staff, CHESS staff and the CHESS users will lead to an improvement in the x-ray delivery statistics.

Below we show a Tentative 1994 CHESS Operations Schedule. Note

Tentative 1994 CHESS Operations Schedule

January	Normal Operations
February	Normal Operations
March	Two week shutdown for general CESR maintenance
April	Normal Operations Proposal Submission Deadline (end of month)
May	Shutdown for Superconducting Radio-Frequency Cavity Test ¹ Symposium May 2-3 "New Frontiers in Synchrotron Radiation Research and Structural Biology" Workshop May 3-6 "Workshop on Synchrotron Radiation and Structural Biology: Measuring and Processing X-ray Crystallographic Data"
June	Normal Operations following Machine Start-up CHESS Users' Meeting June 21-22
July	Normal Operations SRI Satellite Meeting July 24-25 "X-ray Science with Polarized Radiation"
August	Normal Operations
September	Shutdown for Silicon Vertex Detector in CLEO ²
October	Shutdown for Silicon Vertex Detector in CLEO ² Proposal Submission Deadline
November	Shutdown for Silicon Vertex Detector in CLEO ²
December	Normal Operations following Machine Start-up

¹The shutdown for the SRF test may be slightly delayed

²The shutdown of the SVX detector is *very* tentative

the long shutdown at the end of the year for the installation of a Silicon vertex detector in CLEO. This project is part of an overall plan to upgrade the high-energy physics program. During that time, and prior to the shutdown, CHESS will also be working on methods to further accommodate higher beam currents and to provide higher x-ray fluxes into the experimental stations.

In order to see that the needs of the incoming user are met, we have promoted Park Doing to Assistant Operations Manager.

A comparison of the number of days that CHESS users were scheduled for beam versus the number of days received, by beam-line. The loss of time was due to unscheduled equipment failures. Note that the A-line was down for construction for most of the year, and that the east beam-lines (D and F) were not scheduled during the October dedicated undulator run. (data compiled by Lana Walsh.)

