



## CAT Communicator

Argonne National Laboratory, Argonne, Illinois 60439

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### Safety: Still a Top Priority

The APS has traditionally been considered an exemplary facility in the area of safety performance, perhaps the best in the DOE system. However, recent rigorous DOE safety inspections of the APS facility have led to some questions about our continued attention to safety, particularly in the area of housekeeping. General housekeeping

was cited as an area of concern throughout all APS areas, including the experiment floor and laboratory/office modules, based on observations made by the inspection team.

From a safety perspective, good housekeeping means more than just cleanliness and

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### Moncton to Lead SNS Project

APS Associate Laboratory Director (ALD) David Moncton recently agreed to take leadership of the \$1.36B Spallation Neutron Source (SNS) Project at Oak Ridge National Laboratory (ORNL). This project, a collaboration among five national laboratories, including Argonne, is a very high national priority. Under the terms of the agreement between Moncton and the directors of both ANL and ORNL, Moncton will remain an ANL employee and ALD for the APS, but will spend the majority of his time for the next two years on this assignment. Most of his APS management responsibilities are delegated to Gopal Shenoy (Experimental Facilities Division Director) and John Galayda (Accelerator Systems Division Director) until Moncton returns to the APS to assume full-time ALD responsibilities. Moncton will commute regularly between ORNL and ANL. ↴

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# USER2000: The First APS User Activity Report

Reports of work (both published and unpublished) conducted at the APS are now being collected for inclusion in the first-ever *Advanced Photon Source User Activity Report*. Submissions will be accepted through December 31, 1999, with this first report to be published in the year 2000.

Authors are being asked to coordinate submissions through their CAT(s). The activity report Web page, which can be found at <http://www.aps.anl.gov/xfd/communicator/user2000/home.html>, includes full report guidelines and submission instructions. Submissions will be accepted in either WordPerfect, Microsoft Word, pdf, or html formats, and reports will be posted as pdf files on the Web as they are accepted. An anonymous FTP site has been established as the preferred report collection method (instructions for use are provided in the author guidelines). Reports can also be submitted on 3 1/2" diskettes; no submissions will be accepted by hard copy or e-mail.

The activity report will be organized by scientific discipline as follows: Applied Science, Biological Science, Chemical Science, Geological Science, Instrumentation and Techniques, Materials Science, and Nuclear Science.

Plan to be a part of the first *Advanced Photon Source User Activity Report* and talk to your CAT management to organize your submissions! Please address any questions to Connie Pittroff at [pittroff@aps.anl.gov](mailto:pittroff@aps.anl.gov). ↴

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**CAT Communicator** is intended to provide timely information to Advanced Photon Source Collaborative Access Team members and associates.

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## The Meaning of Maintenance—A Primer

The Advanced Photon Source is a user facility designed for a single purpose: to provide an efficient source of x-ray beams for use in scientific and technological research. The traditional measure of performance at a synchrotron radiation facility is the x-ray beam availability, which is defined as the ratio of the time that the facility *provides* a usable beam for experiments divided by the time that the facility was *scheduled* to provide usable beam. Reliable machine operation (i.e., a minimum number of beam losses during user experiments) is also a critical performance parameter.

For a new facility, the most significant contributors to high reliability are a robust, reliable design; an effective construction, installation, and commissioning program; and a knowledgeable staff. But the only way reliability can be maintained or improved is through an efficient and sound maintenance program.

There are two types of maintenance: scheduled and unscheduled. As the name implies, unscheduled maintenance is not planned and occurs when a system or com-



*The 1104-meter circumference storage ring steers and focuses the beam using 1097 electromagnets.*

ponent fails and the facility can no longer provide acceptable beam (or any beam) to the users. This type of maintenance work has a direct impact on reliability; thus, the efficiency and effectiveness of the repairs are critical because the users are being directly affected. Although some system failures cannot be anticipated, a well-planned, scheduled maintenance program can reduce their frequency. To minimize the impact of unscheduled maintenance on user programs, a varied and well-trained staff is required. Since it is often not practical to schedule various system experts to work in shifts, the initial task of identifying and diagnosing unanticipated problems falls to the shift workers. These individuals are the general-purpose diagnosticians – knowledgeable to some extent in everything. They can perform minor repairs and have the experts to fall back on when necessary. The more thorough the diagnostic knowledge base is, the faster and more effective the recovery from a system or component failure, thus increasing operational reliability.

For scheduled maintenance, the focus falls on the system experts and on detailed maintenance planning. Implementation of scheduled maintenance varies depending on numerous factors such as the type of the system (e.g., building utilities, high-power pulsed magnets, intricate mechanical systems, etc.), the system complexity, the age of the facility, and the experience of the maintenance staff. Much of the maintenance activities falls into what is commonly referred to as routine maintenance. This type of maintenance is prescribed by manufacturers and system designers. It includes changing water and air filters, replacing/

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**Maintenance...***Continued from p. 3*

repairing mechanical systems (such as pumps after a certain number of operating hours), and conducting other generally time-based maintenance activities.

Although scheduled maintenance is often considered “preventive,” there is a category of preventive maintenance that goes beyond the description given above. The preventive maintenance program must be capable of anticipating equipment failures before they occur and repairing, replacing, or correcting system components before they fail during operation. Generally, this type of maintenance requires system experts to track indirect measures that help predict a component’s imminent failure. This tracking may include monitoring of a component’s temperature, water flow or pressure, vacuum pressure near the component’s location, and many other parameters. Documenting these parameters and applying trend analysis are both integral parts of preventive maintenance. Any deviation from what is considered “normal” could be indicative of an impending failure. Identifying important tracking parameters, determining the parameter “normal” ranges, collating information from previous failures, and developing the expertise of maintenance staff are all critical parts of a successful preventative maintenance program.

At the Advanced Photon Source, more than 5000 hours of user beam are scheduled during the current fiscal year. This repre-

sents approximately 57% of the total hours available in one year (365 days x 24 hours per day = 8760 hours per year). Scheduled maintenance has been planned for approximately 25% of the total hours, with the remaining hours dedicated to machine studies, post-maintenance start-up periods, and shielding verification of user experiment stations. At a large facility such as the APS, scheduling of maintenance requires considerable choreography so that the allotted maintenance time is used with maximum efficiency.

The physical layout of the machine has a large impact on the scheduling of maintenance activities. The accelerator systems at the APS comprise four separate accelerators interconnected with beam transports. Each one is unique, but they share similar systems (such as power supplies, accelerating systems, vacuum and beam diagnostics, etc.). Generally, maintenance



*Looking upstream on the APS electron linac.*

is performed by discipline-specific groups within the Accelerator Systems Division (ASD). The small spaces within the storage ring tunnel and the close proximity of the components to each other mean that frequent interference for the same physical space by various groups will occur.

In the storage ring, the potential for interference is further increased when additional systems are added to the mix. The front-end components, insertion devices, equipment protection systems, beamline personnel safety systems, and associated sub-

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## The APS Information Highway

(a.k.a. The Road to Good Reporting)

At the January 22, 1999, Research Directorate meeting, the APS described the types of information needed annually from CATs and their users. The collected information is used for three major purposes: reporting to the Department of Energy (DOE), reporting to the APS Program Evaluation Board (PEB), and reporting to the world at large. In all three cases, information about the scientific accomplishments of APS users helps the APS to obtain the appropriate operational support for CATs and the user community.

Information supplied annually to the DOE enables this major funding source to respond effectively to questions about scientific productivity from the Office of Management and Budget, as well as from congressional committees and others. Information supplied to the PEB during annual CAT progress reviews assists this high-level advisory group in making appropriate recommendations on the allocation of sectors (and tenure) at the APS, as well as on the kind of user support needed from APS staff. And information supplied by CATs for the first *APS User Activity Report* (see p. 2) should help the scientific community at large learn about current APS research.

The information supplied to the DOE includes statistical information about APS operations, users, and experiments, whereas the information prepared for the PEB and the user activity report focuses primarily on scientific accomplishments. One important measure of accomplishments is a publication record, and it has just become easier for APS users to manage their APS-related publication records. (See p. 10 for a related story on the new Web-based publications database.) ▽

### ***Maintenance...Continued from p. 4***

systems add more complexity. These systems are operated and maintained by the groups within the Experimental Facilities Division (XFD) and add another level to the planning required for storage ring maintenance. Not only must each division prioritize its own work, but also the combined workload must be prioritized to meet the space, time, and staff restrictions, as well as safety requirements.

The safety of coworkers is the highest priority in conducting maintenance activities and must always be carefully considered; in some cases, it may preclude any work in

adjacent work areas. For example, when the rf accelerating systems are being tested in the storage ring, one-sixth of the storage ring in the rf cavities' location must be clear of personnel due to the potential x-ray hazard from the rf power. Restrictions also exist for power supply testing, which may require all other maintenance activities to be suspended for part or all of the storage ring due to electrical hazards from the high-current power supplies. High-temperature bakeout of vacuum systems is another activity that can curtail all other activities in the area of the bakeout. Although access through the ratchet wall doors somewhat

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# Firewalls: Enforcing Network Security

Over the last several months, on-going hacker attacks have created a computer security situation at the APS. Currently, the APS experiences multiple scanning attacks per week. Recent attacks have compromised data and disrupted computing activities. CAT networks connected to the internet are vulnerable to attack unless they are protected by a firewall, which is a system (or group of systems) that enforces an access control policy between two networks, effectively allowing certain services to pass and others to be refused.

The APS has implemented a firewall between the APS and networks operated by the "outside world," which includes ANL networks and CATs who have chosen to remain outside the firewall. Firewalls can provide a single point at which to manage network security because they permit tracking of "traffic" through the wall, including break-in attempts. The APS firewall is intended to permit required and necessary access to APS computing systems while keeping out hackers and intruders.

The APS has a very flexible network security system that uses the Cisco router operating system, IOS, and its ACL features to provide protection by allowing only approved systems, computers, and services access inside the firewall. Outsiders are also only allowed access to designated Web sites and ftp servers. Computers inside the firewall are allowed full access to the WWW except for chat rooms and certain inappropriate sites. The APS uses a packet filter firewall that analyzes traffic at the transport layer. Filters, which are constructed using a variety of criteria, are applied to the network interface on a router. The firewall model for CATs involves a filter applied to the backbone interface on a laboratory/office

module router. Each CAT network includes four subnets, each allowing 255 hosts. All IP packets entering the router interface are denied individually for each subnet. The system will allow outgoing telnet, ftp, rlogin, Web, nntp, finger, real audio and video, secure http, ssh (secure shell), and gopher.

Although firewalls do provide considerable protection from unauthorized interactive access, they require constant maintenance and vigilance in keeping current with security patches. Firewalls are not effective tools against viruses, and virus-scanning software must be employed on vulnerable machines.

As a result of the seriousness of recent computer attacks, both the APS and the CATs are looking closely at the issues surrounding the use of firewalls. In order to effectively come behind the APS firewall, CATs must closely evaluate and communicate information about services needed for daily operation, (including Web servers, ftp and mail servers), and which machines are configured to allow Telnet access, remote POP server access, remote collaborator access, remote access from ISP, etc. For additional information about obtaining APS assistance, CATs can access the APS Computer Help Desk, information on CAT network upgrade paths, and more from the CAT WWW page at <http://aps.anl.gov/cats>.

Direct questions about firewalls to either Dave Leibfritz ([leibfritz@anl.gov](mailto:leibfritz@anl.gov)) or Bill McDowell ([wpm@aps.anl.gov](mailto:wpm@aps.anl.gov)).

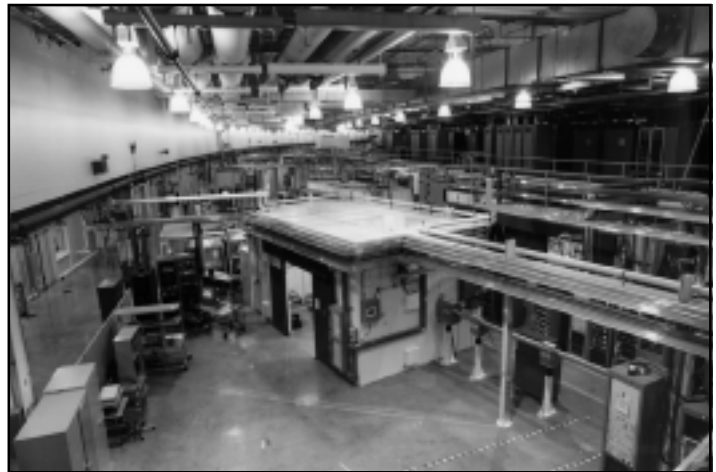


## The Good Host Guide: Bringing Your Visitors to the APS

Nearly 3000 people toured the Advanced Photon Source in 1998. Although ensuring that visiting students, researchers, university faculty, and industry personnel have the opportunity to grasp the excitement and depth of the science and engineering at the APS is important, it is equally critical that their visits be safe, educational, and run smoothly from start to finish.

*Entering the Argonne Campus:* Visitors to the APS must arrange in advance for a visitor gate pass for access to the Argonne National Laboratory campus. Gate passes can be arranged by APS User Office staff, badged CAT staff, or any Argonne employee. Non-U.S. visitors require additional paperwork that must be handled in advance through the APS User Office. Visitors arriving during normal business hours (8:00 a.m. to 5:00 p.m. Monday through Friday) can pick up their gate passes at the Argonne Information Center (just west of the Main Gate). If visitors must arrive after hours or on weekends, their names must be placed on an access list at the Main Gate before they arrive.

*Visiting the Experiment Hall Floor:* Visitors to the APS experiment hall floor must be escorted at all times. The host is responsible for ensuring that visitors observe all safety-related warnings. While out on the experiment hall floor, visitors must wear a temporary dosimeter or "film badge," which can be obtained from the User Office or a floor coordinator. At the conclusion of the visit, the film badge must be returned to the person/office where it was obtained.



*The visitor's gallery gives a bird's-eye view of the storage ring and the SRI-CAT beamlines.*

According to ANL policy, no one under the age of 18 is allowed to visit areas where electrical, chemical, physical, or radiological hazards may be present. At the APS, this policy limits the places in the 400 area where children can visit to the visitor's gallery (which looks out over the experiment hall floor) and to any office or public area of the central laboratory/office building and the laboratory/office modules around the ring.

*Touring the APS:* Tours of the APS facility can be arranged through the User Office, Argonne's Office of Public Affairs, the APS' Associate Laboratory Director's Office, or a CAT. When scheduling a tour, the User Office will inquire about the group's technical background and if foreign-language assistance is necessary in order to select an appropriate tour guide(s). Again, non-U.S. tour participants require additional paperwork. The User Office can assist in arranging for a visitor film badge (worn by one member of the tour group) to meet facility dosimetry monitoring requirements. Call Diane Sandberg or Isabella Krashak at 2-9090 for more information. ↴

**Safety...***Continued from p. 1*

simply maintaining eye-pleasing order. It increases productivity while decreasing risk of accidents. Better safety practices are achieved by keeping halls and floors free of slip and trip hazards; by removing waste materials (e.g., paper and cardboard), and removing other fire hazards from work areas. A well-maintained workplace can eliminate obstructions that might impede access for emergency personnel and equipment in the event of an accident, allowing them to take full advantage of the width of a corridor or an aisle. Good housekeeping practices can also draw attention to workplace ergonomic layout, signs and markings, the adequacy of storage facilities, and other maintenance issues that may require modification to maximize their benefits.

Some conclusions about the benefits of good housekeeping can be drawn.

- Effective housekeeping is an ongoing operation in which every person has a role. Regular cleanups done as part of the everyday routine of conducting research will help eliminate potential hazards and help work flow efficiently.
- An organized workplace creates an immediate positive impression on visitors and users that can help create a work atmosphere that will foster continued orderliness.
- Good science *might* take place in areas with poor housekeeping, but only in spite of it and never because of it. There is a marked correspondence between general housekeeping in R&D areas and the quality of the work done by those working in those areas.

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**Maintenance...***Continued from p. 5*

isolates the interference between the accelerator and front-end maintenance activities, there are still many activities where interference cannot be eliminated.

Planning for the maintenance periods begins weeks before the actual work period begins. Maintenance activities are identified for the various groups individually, based on routine and preventive maintenance data. The group activities within a division are prioritized on the basis of level of criticality to machine operation. The two divisions (ASD and XFD) meet to coordinate activities and to identify and resolve potential time and space conflicts. Maintenance schedules are developed to ensure that all necessary work is scheduled. As the maintenance period draws near, the schedules must be refined and the maintenance crews must be scheduled. A new twist may occur:

new priorities as a result of failures during the preceding operating period can force the schedule and all initial plans to change. This is one of the realities of maintaining an operating facility and one that keeps the operations personnel always on their toes.

At the APS, all of the facility personnel take pride that the APS was able to quickly achieve reliability near 95% during the past year. The challenge is, and will continue to be, to maintain this level and improve upon it as the facility continues to operate and, unfortunately, age. This is the challenge that the operational groups of both ASD and XFD understand and assume full responsibility for. This attitude will ensure the future of the APS as a reliable synchrotron radiation user facility for many years to come. ▲

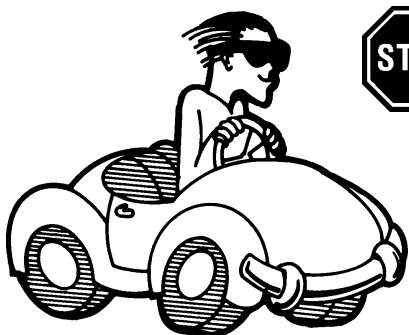
*Contributed by Tony Rauchas, XFD*



# 1999 CAT Calendar

Date	Event
March 20-26, 1999	The American Physical Society 1999 Centennial Meeting, Atlanta, GA
April 6-9, 1999	ICFA Beam Dynamics Panel Workshop on Future Light Sources, Argonne, IL
April 15, 1999	APSUO Steering Committee Meeting
April 16, 1999	Research Directorate Meeting
April 30 and May 1, 1999	Argonne National Laboratory Open House
May 14 and 17-20, 1999	XI International Conference on Small-angle Scattering, Upton, NY
July 7, 1999	Research Directorate Meeting
July 8, 1999	APSUO Steering Committee Meeting
August 16-27, 1999	National School on Neutron and X-ray Scattering, Argonne, IL
August 23-27, 1999	18 <sup>th</sup> International Conference on X-ray and Inner-Shell Processes, Chicago, IL
August 23-26, 1999	21 <sup>st</sup> International Free Electron Laser Conference and 6 <sup>th</sup> FEL Applications Workshop, Hamburg, Germany
October 13-15, 1999	11 <sup>th</sup> National Conference on Synchrotron Radiation Instrumentation, Stanford, CA
October 28, 1999	APSUO Steering Committee Meeting
October 29, 1999	Research Directorate Meeting

## A Reminder about Traffic Safety



The Illinois Motor Vehicle code governs the operation of all automobiles on the Argonne site. For the 12-month period between February 1998 and February 1999, APS user traffic violations accounted for a large percentage of the citations issued to APS-related personnel. The most common infractions of the vehicle code committed by APS-related personnel are failure to obey posted speed limits and improper stops at stop signs. A few of the citations were for parking violations. Adherence to ANL traffic policy helps protect fellow drivers, pedestrians, and the wildlife at Argonne. ▽

## Web-based Publications Database Introduced

A new Web-based (Oracle) database for collecting and searching citations of APS technical and user publications has been developed. Clear and thorough instructions are provided to assist users with the search and data-entry functions. A helpful list of shorthand conventions for institution names (which currently includes more than 180 universities, research institutions, and companies) and various pull-down menus are available to make search and entry activities quick and convenient.

The database offers a variety of search options to make searches as broad or specific as desired. The database is publicly available to anyone looking for information about the APS and the research conducted here. Citation search results are reported on a page listing the titles of publications that matched search criteria. Detailed information about each publication can be viewed by simply clicking on the title. Records retrieved in a search can be previewed (Acrobat Reader 3.0 is required), printed, e-mailed, or displayed in a specific report format (either American Institute of Physics or Department of Energy field work proposal formats are available).

The entry function allows submission of citations, which are currently categorized by 29 different scientific disciplines. CAT members will be responsible for entering their own citations for published work conducted at the APS. A secure login screen ensures each entry's integrity. All entries made will go into a holding area pending review by APS editors prior to formal entry into the database. The database, in addition to being an excellent research tool, will be used to generate publication listings for various types of reviews.

The database Web site can be found at [http://isis.aps1.anl.gov:9001/pubctx/owa/pub0001.open\\_entry](http://isis.aps1.anl.gov:9001/pubctx/owa/pub0001.open_entry) (the site can also be accessed from the User Information page under "Publications and Graphics"). Any questions or comments about the database can be sent to [pub\\_data@aps.anl.gov](mailto:pub_data@aps.anl.gov). ↴

## Mark Your Calendar for the Argonne National Laboratory Open House

Friday, April 30, 1999

**Education Day  
for High School and College Students**

10:00 a.m. - 2:00 p.m.

Saturday, May 1, 1999

**Discovery 2000: Illinois Science  
and Technology Expo**

9:30 a.m. - 4:30 p.m.

**Important note:** APS user operations will *not* be affected by the Open House activities.

## SAFETY NOTE: Crane Inspection Requirements at the APS

The Argonne National Laboratory-East *Hoisting and Rigging Manual* defines the requirements for use, maintenance, inspection, and testing of the hoisting devices used in enclosures on the APS experiment hall floor.

Following the American Society of Mechanical Engineering guidance, the *Hoisting and Rigging Manual* requires initial inspections and load testing prior to use of new, reinstalled, altered, repaired, and modified cranes. Although these hoists are CAT-owned, the Experimental Facilities Division (XFD) pays for and arranges these inspection and load test services. Documentation of such inspections is posted within the experiment enclosure where the subject hoist is located.

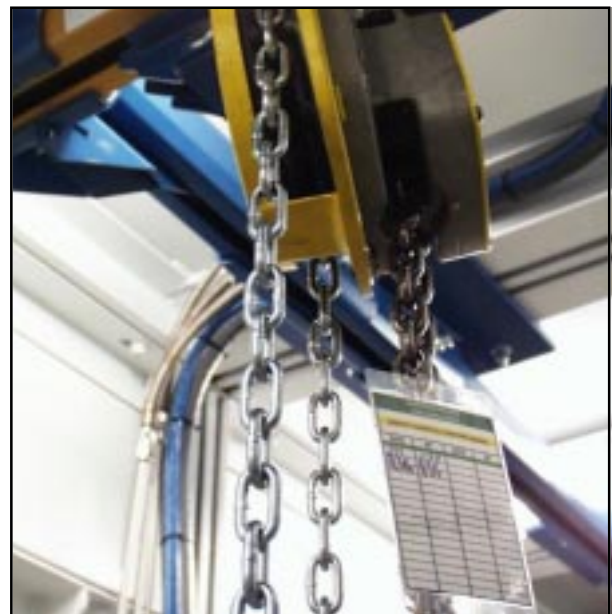
The *Hoisting and Rigging Manual* defines two general classifications of required inspections—“frequent” and “periodic.” The “frequent” inspection interval for APS hoists is monthly and the inspection must be documented. The monthly inspections are the responsibility of the CAT that owns the hoists (see “Guidelines for Hoisting and Rigging Operations” in the APS model safety plan, available from floor coordinators or Bruce Glagola at [glagola@aps.anl.gov](mailto:glagola@aps.anl.gov)). XFD has provided instructions for hoist inspection, devices for checking chain stretch and hook deformation, and tags (near the hook of each hoist) for convenient documentation. If the CAT member responsible for monthly inspections does not have these aids, he/she should contact a floor coordinator.

The “periodic” inspection for APS hoists is to be performed yearly. This annual inspection service (and related expense) is provided by XFD, which contracts the services of an outside certified inspector. Documentation

of these inspections is also required and must be posted within the experimental enclosure where the subject hoist is located.

Additionally, an “at time of use” or daily inspection is required for cranes at the APS. These inspections are not required to have documentation, but they could be recorded on the same documentation tag used for the monthly inspections.

It is critical that hoisting equipment be properly maintained and tested and operated safely by personnel trained in the correct use of the equipment. Each CAT that owns a chain-fall hoist(s) must have one member who has successfully completed the Incidental Crane Operator training. That CAT member can then train and authorize fellow CAT members (and independent investigators) to use the equipment. For assistance or questions regarding crane inspections, contact Bill Wesolowski, floor coordinator, at extension 2-0300 or pager 4-0300. ▽



*Convenient tags near the hoist's hook are used to document inspections.*



## Meet Cindy Chaffee

Cindy Chaffee joined the Experimental Facilities Division on December 21, 1998, as a floor coordinator. She is currently providing technical support to sectors 32 - 34, and her office is located in building 438. Cindy has a BS in engineering from Northern Illinois University. Cindy joined Argonne in 1990, with the Electronics and Computing Technologies Division/Central Shops as a manufacturing engineer. She worked as a planner/estimator, building manager, safety coordinator, and network

administrator for seven and a half years, then worked for a year in Reactor Analysis as a network administrator.

Cindy enjoys spending time with her family and working at their horse farm, on which she keeps five horses. ↴

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## Start of Spring Brings with it Tornado Season

Each year more than 1000 tornados touch down in the U.S. Illinois is ranked among the top 10 states for total numbers of tornados. As the spring season draws closer, the possibility of tornados increases. Tornados are most likely to occur in the months of March, April, May, and June. At Argonne National Laboratory, severe weather warnings, including those about tornado activity, are given over the site-wide public address system. If a tornado **watch** is issued, it means that tornado activity is likely in the area. If a tornado **warning** is issued, it means that a tornado has been spotted or is strongly indicated on radar—YOU MUST IMMEDIATELY TAKE SHELTER.

Designated shelter areas are marked with signs (see examples below) and can be found in interior rooms of each laboratory/office module's central pentagon, restrooms, and other marked areas. All users, *especially* non-U.S. users who may not be familiar with tornados, should know where the closest tornado shelter is located and the fastest route to reach it. Contact your CAT safety coordinator if you have any questions about tornado safety at the APS.

Tornados are rated according on the Fujita scale, which measures the intensity of a tornado on the basis of wind speed. The scale ranges from F0 (winds of 40 - 70 miles per hour) to F6, a tornado of inconceivable intensity.

A census of Illinois tornados in Cook, DuPage, Kane, and Will counties (the counties surrounding ANL) counted more than 120 tornados between the years 1950 and 1995. Of those tornados, most were F0 to F2 in intensity. Only 8 tornados in that 45-year period were rated with intensities of F3, F4, or F5. ↴



## Waste Handling Guidance Now Available On Line

Argonne National Laboratory's *Waste Handling Procedures Manual* is now available on line at <http://www.ipd.anl.gov/whpm/>. The procedures in the manual define responsibilities and provide waste handling instructions for identifying and segregating wastes,

minimizing waste quantities, and reducing storage space and disposal costs. This manual is an excellent reference for the proper handling and disposal of hazardous and radioactive waste materials, and for the recycling and management of recoverable materials. ↴

**Waste Handling Procedures Manual**  
Argonne National Laboratory • Waste Management Operations

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## Laboratory/Office Module Emergency Plans Now on Web

All resident users at the APS are required to take an annual building orientation course. The courses, now available on the Web (must be taken at an on-site computer), highlight important building safety contact personnel (including CAT and APS staff), information about hazards in the building area, emergency procedures, tornado shelter locations, and other safety-related information.

The Web-based courses, designated as ES&H 108/LOM #, offer users a convenient way to meet the building orientation training requirement. The courses can be found

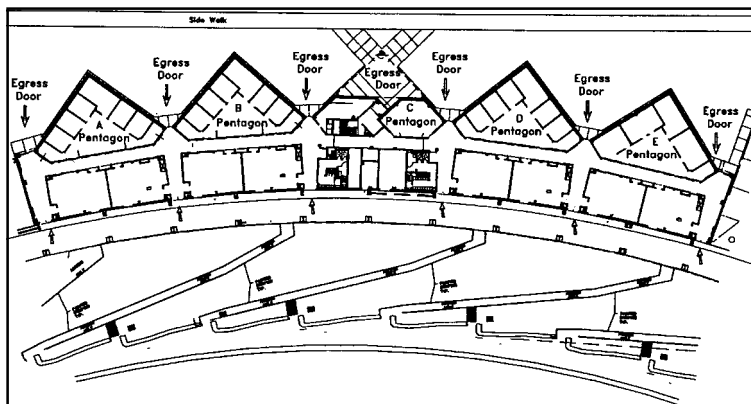
on the Web page at <http://www.aps.anl.gov/xfcd/communicator/useroffice/training.html>. Plans have been made to implement an e-mail

notification system that will remind users each year well before their building orientation is expired.

Emergency plans for each laboratory/office module are available as part of these courses on the Web. A pdf version of the plan can be

printed out from the Web for quick reference.

Users can submit any questions or comments about the content of the on-line emergency plans by means of a hyperlink form at the end of the course. ↴



*Emergency plans, including layouts showing egress routes from the LOMs, can be printed from the on-line courses.*

# National School on Neutron and X-ray Scattering

The National School on Neutron and X-ray Scattering will be held at Argonne National Laboratory (ANL) on August 16-27, 1999. The school is being jointly run by the Intense Pulsed Neutron Source, the Advanced Photon Source, and the ANL Division of Educational Programs.

Supported by the U.S. Department of Energy, the school will educate young graduate students majoring in physics, chemistry, and materials science in the use of neutron and x-ray facilities.

This year's course will focus specifically on materials science and condensed matter physics. The proposed curriculum includes a week of tutorial lectures on source characteristics and the principles of scattering

theory. The second week will focus on the application of scattering methods to condensed matter using seminars and hands-on experiments. Two experimental groups will be formed; one will explore techniques typically used to study "hard" matter, the other techniques for the study of "soft" matter (polymers, organic films, etc.).

A limited number of postdoctoral appointees and junior scientists from U.S. universities, national laboratories, and industrial research facilities may be selected to attend the school depending on available resources.

More information can be found at <http://www.dep.anl.gov/nx/index.html> ↴

National School on Neutron and X-ray Scattering PROGRAM	
Week 1 TOPICS	Week 2 LECTURES/EXPERIMENTS
Interaction of x-rays and neutrons with matter	Four topical lectures in materials science
Elastic scattering	
Inelastic scattering and thermal diffuse scattering	
Reflectivity	
EXAFS	Laboratory experiments Group 1: "Hard" matter Group 2: "Soft" matter
Synchrotron radiation sources and instrumentation	
Neutron sources and instrumentation	
X-ray and neutron detectors	

**Deadline for application: April 30, 1999**

*Safety...Continued from p. 8*

It is very important for all APS personnel and users to refocus their attention on safety and to correct poor housekeeping practices. Good general housekeeping practices must be re-established and maintained in each sector. Staff and researchers

are being asked to set a new standard in orderliness. The seriousness of this matter to all staff and users cannot be understated. Regaining the APS' reputation as a safety-conscious facility is as important as continuing to produce world-class scientific results. ↴

## Safe Use of Heater Tapes

These guidelines for safe use of ungrounded heater tapes should be followed when baking out equipment at APS beamlines or labs.



*A correctly grounded heater tape in use to dry a section of beam pipe.*

- Ensure that the heater tape and line cord are not damaged (i.e., no cracks, frays, unraveling, etc.).
- The item being baked out must be tied to a positive ground. In many labs and enclosures at the APS, a copper ground bus is provided to ensure proper grounding.
- Power for heater tapes must be supplied by a ground fault circuit interrupter (GFCI)-protected receptacle. Many enclosures and labs have GFCI circuit breakers providing power to receptacles. If these are unavailable, a “pig-tail” extension cord with GFCI must be used. Test the GFCI prior to each use.
- The item being baked out must be clearly identified using signs stating that the item is HOT and that burns are possible (e.g., Bake out in Progress - HOT Surface Temperature - Do NOT Touch).

Contact your floor coordinator with any questions about safe use of heater tapes. ↴

## Update: Liquid N<sub>2</sub> System

The centralized liquid-nitrogen system project is progressing on schedule. On January 6, vendors came to the APS for a pre-bid inspection of the facility. Bids were opened on February 2, and the technical review was completed by February 4. The projected timeline includes the following milestones:

<u>MILESTONE</u>	<u>PROJECTED DATE</u>
Contract award	3/1/99
Initial design submitted	4/1/99
Design review	4/15/99
Construction start	4/20/99
Completion and acceptance	10/15/99

Experiment Floor Manager Bob Ferry will be collecting CAT-specific information to help determine liquid nitrogen requirements and how best to interface each CAT to the system. Ferry indicated that system piping will be compatible with any adaptation method selected to bring liquid nitrogen to the beamlines. Each sector can expect to receive a point-of-delivery bayonet with liquid delivered at 45-pounds-per-square-inch pressure.

Any questions about the liquid-nitrogen distribution system should be directed to Bob Ferry, extension 2-9495, e-mail at [bferry@aps.anl.gov](mailto:bferry@aps.anl.gov). ↴

## Third-party Contractors at the APS

Hands-on work conducted at the APS by non-Argonne, non-user personnel is considered “third-party” work. The recently revised Technical Update 22, which can be found on the Web at <http://www.aps.anl.gov/xfd/tech/TB14www/TUDbaseframe.html>, fully explains the third-party contractor process. All third-party work must be reviewed using an “APS Work/Project Checklist” (also known as form UO-38). The user, floor coordinator, other APS facility and safety personnel contribute to completing the form. A Job Safety Analysis form (also known as UO-47), used to investigate and identify all potential hazards, may also have to be completed, depending on the hazard class the task is categorized under. A minimum lead time of 24 hours should be allowed to complete the necessary paperwork.

Safety training for third-party contractors is determined by an APS safety coordinator based on an assessment of the potential hazards. Training requirements can range from “none,” in which case the contractor must be escorted at all times, to the full contractor training course (which is offered by Argonne on specific days during the week) and general employee radiation training. The user is ultimately responsible for ensuring that the third-party contractor(s) complies with the CAT safety plan. Contact your floor coordinator for assistance with arranging third-party work at the APS. ↴

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### Lunch Bus to Argonne Cafeteria Available

BLDG. #	Bus Departure Time from Building					
360	11:30 a.m.	11:50 a.m.	12:10 p.m.	12:30 p.m.	12:50 p.m.	1:10 p.m.
340	11:32 a.m.	11:52 a.m.	12:12 p.m.	12:32 p.m.	12:52 p.m.	1:12 p.m.
315	11:34 a.m.	11:54 a.m.	12:14 p.m.	12:34 p.m.	12:54 p.m.	1:14 p.m.
<b>401 and 431</b>	<b>11:35 a.m.</b>	<b>11:55 a.m.</b>	<b>12:15 p.m.</b>	<b>12:35 p.m.</b>	<b>12:55 p.m.</b>	<b>1:15 p.m.</b>
<b>460 Argonne Guest House</b>	<b>11:37 a.m.</b>	<b>11:57 a.m.</b>	<b>12:17 p.m.</b>	<b>12:37 p.m.</b>	<b>12:57 p.m.</b>	<b>1:17 p.m.</b>
213	11:40 a.m.	12:00 noon	12:20 p.m.	12:40 p.m.	1:00 p.m.	1:20 p.m.
208	11:42 a.m.	12:02 p.m.	12:22 p.m.	12:42 p.m.	1:02 p.m.	1:22 p.m.
200	11:43 a.m.	12:03 p.m.	12:23 p.m.	12:43 p.m.	1:03 p.m.	1:23 p.m.
205	11:44 a.m.	12:04 p.m.	12:24 p.m.	12:44 p.m.	1:04 p.m.	1:24 p.m.
<b>213 Cafeteria</b>	<b>11:45 a.m.</b>	<b>12:05 p.m.</b>	<b>12:25 p.m.</b>	<b>12:45 p.m.</b>	<b>1:05 p.m.</b>	<b>1:30 p.m.</b>

Through April 30, 1999, the Argonne Cafeteria is providing lunch-hour bus service between various buildings on the campus and the cafeteria (see schedule at left) on a trial basis. The bus makes stops at the front of building 401, outside the central pentagon of building 431, and at the Argonne Guest House.

Lunch is served at Monday through Friday, from 11:15 a.m. to 1:30 p.m. The cafeteria offers a great selection of lunch foods from soup, salads, and sandwiches to the Chef’s specials, grill selections, Weight Watchers, and vegetarian entrees. Breakfast is served at the cafeteria Monday through Friday, from 7:00 a.m. to 8:30 a.m. The Argonne Guest House also offers very nice breakfast and lunch selections.

Bus pick-up times may vary due to weather or mechanical failure. Continuance of the service will be based on the number of riders. ↴





# The APS USER INFORMATION WEB MENU

What You Can Find On The User Office WWW Home Page

## HOW TO BECOME A USER

### APS User Orientation Process

Review the steps in the User orientation process. Before doing *any* hands-on work at the APS, all users must complete orientation.

### User Registration Form

Register on-line for user orientation or obtain a postscript form to mail or fax in.

### Independent Investigator Access

Learn about the Independent Investigator program at the APS; find out how to apply and what CATs are currently accepting proposals.

### Proprietary Use of the APS

Review guidelines for conducting proprietary research at the APS.

### User Agreements

Check the current list of institutions with signed user agreements.

### User Training

Find the APS On-line Orientation course (arrange through User Office), on-line APS Building Safety orientations, and a link to additional APS-related safety courses.

## GENERAL

**New!**

### APS User Activity Report

Review instructions and guidelines for submitting reports to the first-ever *APS User Activity Report*. Reports will be posted here as they are received.

### People and Directories

Find quick links to user support staff contact information for, APS and ANL personnel directories, the APS user database, and lists of current APSUO and RD committee members.

### ANL and APS Services

Examine a list of groups and services available to support and assist users.

### Travel, On-site Lodging, and Food

Find information about the Argonne Guest House accommodations and restaurant. Peruse a list of more than 80 local restaurants organized by cuisine type. Check the weekly ANL Cafeteria breakfast and lunch menu. (Also includes ANL's site access policy, gate hours for the laboratory, and useful maps.)

### CAT Home Pages

Find links to home pages for each CAT at the APS, the experiment hall floor plan showing locations of each CAT's sector(s), and more.

### Meetings and Conferences

Check a schedule of important APS user-related meetings. Find many links to upcoming and past conferences sponsored by or of interest to the APS user community, many with links to meeting proceedings, etc.

### User Policies & Procedures

Use this resource to locate information about user policies and procedures.

### Publications and Graphics

Choose from a diverse list of links to technical bulletins, conference proceedings, and more. Includes a link to the APS Graphics Gallery, where you can order APS videos and preview a collection of images available as prints or transparencies.

### Safety

Find links to on-line versions of the *ANL ES&H Manual* and the *APS User Safety Guide*. Access the APS safety envelopes and obtain experiment safety approval forms.

*Continued on p. 18*



## Web Menu...Continued from p. 17

### Employment Bulletin Board

Check out or post synchrotron-related employment opportunities both at the APS and other locations. (Sponsored by the APSUO)

### APS Users Organization

Obtain contact information for current Steering Committee members; view bylaws, APS Compton Award information, and more.

### APS Research Directorate

Find a list of members and their contact information.

## TECHNICAL INFORMATION

### Facility Description

*Under Construction*

### APS Parameters

Find key parameters for the APS storage ring, source parameters (undulator A and wiggler A), and accelerator parameters.

**New!**

### Beamline Directory

Check out the most current APS beamline information available.

### Design Exchange

Access on-line Auto-CAD drawings for APS CATs. (Provided by the Experimental Facilities Division)

### Operations, Schedules, & Ring Status

Locate a variety of operational schedules (including the on-duty floor coordinator and PSS validation schedules), real-time storage ring operating status screens, and many other important operational documents, lists, and forms.

### CAT Chat Minutes

Examine the archives of meeting minutes from the weekly CAT Chats.

### CAT Communicator

Read on-line versions of past issues of the APS user newsletter.

### APS Computer Support Help Desk

Enter requests for computer support or search the database for information about the status of your case.

**New!**

### Technical Publications

Access links to technical bulletins, updates, and memos (workshop reports and conference proceedings).

## USER FORMS

### User Registration

Sign up for and schedule user orientation sessions (for new users).

### Experiment Safety Approval

Complete this form, available in several Microsoft Word formats and as a PDF document, for all experiments conducted on APS beamlines.

### Independent Investigator Proposal

Obtain a proposal form to apply for beamtime at the APS as an Independent Investigator.

### Operational and Commissioning

Find commissioning activity approval forms, work request forms, and more.

The Advanced Photon Source home page can be found at

<http://www.aps.anl.gov/welcome.html>

The APS User Office home page can be found at

<http://www.aps.anl.gov/ui>

# APS 1999 Operations Schedule

The Beamline Operations Information page on the WWW maintains up-to-date calendars and schedules for APS operations. The home page at <http://www.aps.anl.gov/xfd/operations/welcome.html> provides links to useful information including the beamline operations schedule for the current operating cycle, the long-range operating calendar, the on-shift floor coordinator schedule, schedule archives, and more.

This schedule represents the most up-to-date information available at printing time. ↴

March						
M	T	W	Th	F	Sat.	Sun.
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

April						
M	T	W	Th	F	Sat.	Sun.
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30**		

May						
M	T	W	Th	F	Sat.	Sun.
					1**	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31*						

June						
M	T	W	Th	F	Sat.	Sun.
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July						
M	T	W	Th	F	Sat.	Sun.
			1	2	3	4*
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August						
M	T	W	Th	F	Sat.	Sun.
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September						
M	T	W	Th	F	Sat.	Sun.
		1	2	3	4	5
6*	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Key	
	Start Up/Machine Studies
	Scheduled Maintenance
	User Operations
*	Laboratory Holiday
**	ANL Open House

To find out the latest schedule for the Argonne National Laboratory Open House Event, please contact the APS User Office at extension 2-9090. ↴

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