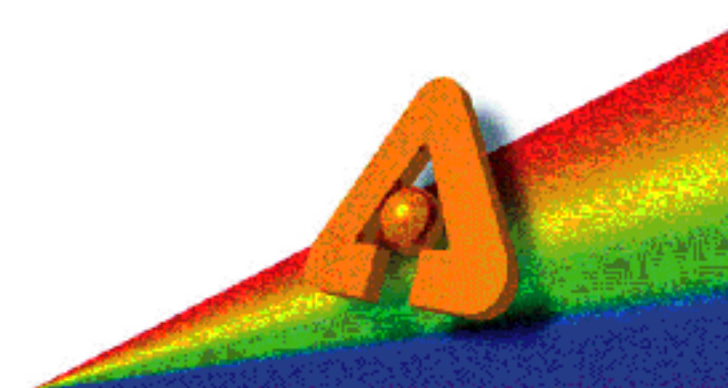


# The U.S. DEPARTMENT OF ENERGY'S ADVANCED PHOTON SOURCE ARGONNE NATIONAL LABORATORY



## Workshops on Future Scientific Directions for the Advanced Photon Source

A study on future scientific directions for the Advanced Photon Source (APS) and its users is being conducted via a series of workshops spread over dates in May, July, August, and September 2004. The objective is to identify future science directions for the facility that will expand the scientific leadership of APS users and expand the boundaries of scientific frontiers in the next decade.

Through an extensive survey of the national science community, an initial set of workshop topics were selected. Participants in these workshops include leaders from the scientific community who are both experts and newcomers to the use of x-ray techniques.

The general objectives for each of the workshops are to:

1. Identify new opportunities for continued scientific discovery and impact using synchrotron radiation sources during the next 5-10 years;
2. Explore the breadth of science covered by the workshop topics, not limited to synchrotron techniques alone;
3. Discuss how the existing community can be grown, by bringing scientific leaders to the workshops who will benefit from the addition of synchrotron techniques to their research arsenal;
4. Identify a few dozen new scientific programs that the participants will bring to the APS during the next 5-10 years and evaluate the new instrumentation and operational requirements needed for these programs;
5. Examine the existing beamline capabilities at the APS and define what future beamline capabilities would be desirable; and
6. Prepare a summary document for the archival literature to serve as a roadmap for the future of the APS.

Workshop topics include: future directions in synchrotron environmental science, emerging areas in biological crystallography, frontier science using soft x-rays, science with high-energy x-rays, membrane science, emerging scientific opportunities using x-ray imaging, time-domain science using x-ray techniques, mesoscopic and nanoscopic science, and nanomagnetism using x-ray techniques. As the workshops conclude, speakers' slides can be accessed on the Web at <http://www.future.aps.anl.gov/Future/future.htm>.

The study will be documented through a publicly-available report based on the summaries from each of the workshops.

**At the APS, our door is open to  
experimenters  
from all scientific disciplines,  
whose research requires  
the highest-brilliance  
hard x-ray beams in the  
Western Hemisphere.**

General-user proposals for beam time during Run 2005-1 are due by Friday, October 29, 2004.

Information on access to beam time at the APS is at:  
[http://www.aps.anl.gov/user/beamtime/get\\_beam.html](http://www.aps.anl.gov/user/beamtime/get_beam.html)  
or contact Dr. Dennis Mills, [DMM@aps.anl.gov](mailto:DMM@aps.anl.gov), 630/252-5680.

Information on APS research techniques and  
beamline capabilities is at:  
[http://www.aps.anl.gov/user/beamtime/get\\_beam.html](http://www.aps.anl.gov/user/beamtime/get_beam.html)

## Symposium on X-rays in Mechanical Engineering Applications

The APS is organizing a "Symposium on X-rays in Mechanical Engineering Applications" as part of the program for the 2004 ASME International Mechanical Engineering Congress and R&D Expo, to be held November 13-19, 2004, in Anaheim, California.

Applications of x-ray techniques cut across many mechanical engineering disciplines, from coating and lithography to fluidics and tribology. In several emerging areas such as MEMS and nanosciences, x-rays will become an indispensable and powerful tool, augmenting optical and other traditional tools. The goal of this symposium is to present mechanical engineers of all disciplines with a coherent overview of the field demonstrating how x-rays are being used in mechanical engineering applications, and, by vivid demonstration of a number of examples, encourage expanded use of x-ray and other radiation sources in new and existing mechanical engineering applications.



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