



The U.S. DEPARTMENT OF ENERGY'S ADVANCED PHOTON SOURCE

Research

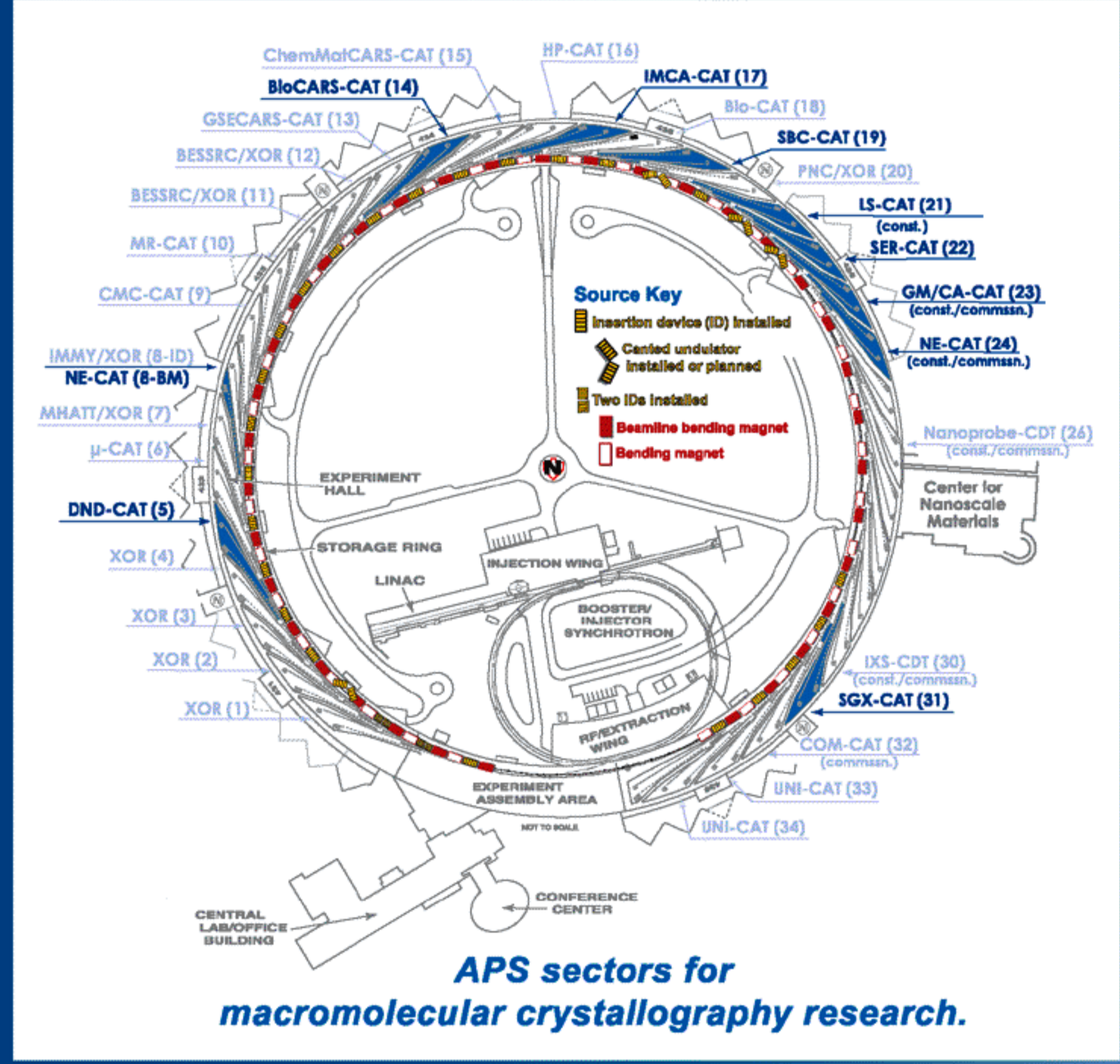
Advanced Photon Source
Bldg. 401/Rm A4128
Argonne National
Laboratory
9700 S. Cass Ave.
Argonne, IL 60439 USA
apsinfo@aps.anl.gov
www.aps.anl.gov

Macromolecular Research Capabilities at the APS

The General Medicine and Cancer Institutes Collaborative Access Team (GM/CA-CAT) has inaugurated the newest protein crystallography beamlines at the Advanced Photon Source (APS). The GM/CA-CAT, which is a part of the Argonne National Laboratory Biosciences Division, is a collaboration between the U.S. Department of Energy and the National Institutes of Health's National Institute for General Medical Sciences and the National Cancer Institute. GM/CA CAT beamlines represent the state of the art facility in protein crystallography. The facility is the first protein crystallography beamline to use a novel APS technology called dual-canted undulators, and uses the latest in robotics and user-friendly interfaces for speed and precision.

The GM/CA-CAT at sector 23 joins sectors 5, 14, 17, 19, 22, 24, 31, and beamline 8-BM on the roster of operating macromolecular crystallography beamlines at the APS. Taken together these beamlines offer a broad range of capabilities, some unique, all useful. They include:

- The BioCARS-CAT 14-ID beamline, which serves as a monochromatic and polychromatic x-ray source. The former is essential for conducting time-resolved x-ray diffraction experiments that utilize the Laue technique and result in molecular movies depicting biologically important macromolecules as they carry out their functions.
- Also at BioCARS, all three experimental stations are embedded in a Biosafety Level 3 containment (the only one of its kind in the world at a synchrotron facility) that permits safe research with materials classified as Biosafety Level 2 or 3 biohazardous agents, such as human, animal, or plant viruses and toxins.
- The Industrial Macromolecular Crystallography Association CAT (sector 17), the Argonne National Laboratory Structural Biology Center (sector 19), and the Northeastern CAT (sector 22) are increasing the productivity of their beamlines via the use of automated (robotic) sample-mounting-and-alignment systems.
- The Structural GenomiX CAT (sector 31) and the Southeast Regional CAT (sector 22) have initiated mail-in crystallography programs at the APS, with a number of slots scheduled for each run. This added capability will increase the productivity of (and reduce travel for) protein crystallographers using the APS.



APS sectors for macromolecular crystallography research.

Call for Proposals

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 2006-1 are due by November 4, 2005.
Information on access to beam time at the APS is at http://www.aps.anl.gov/user/beamtime/get_beam.html.
or contact Dr. Dennis Mills, DMM@aps.anl.gov, 630/252-5680.
Information on APS research techniques and beamline capabilities is also available at http://www.aps.anl.gov/user/beamtime/get_beam.html.

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