

# ADVANCED PHOTON SOURCE

## Nanoscience at the APS

**A**t Argonne, you can now not only characterize a nanomaterial, but also build it. That is the elegantly simple mission statement for nanoscience at the Argonne user facilities supported by the U.S. Department of Energy's Office of Basic Energy Sciences (DOS-BES). The Center for Nanoscale Materials (CNM, <http://nano.anl.gov/>)—one of five new BES Nanoscale Science Research Centers at DOE national laboratories—is the cornerstone for nanoscience at Argonne. The CNM, the Argonne Intense Pulsed Neutron Source, and the Electron Microscopy Center, as well as many researchers from Argonne divisions, are exploring the nano-realm. The CNM adjoins the APS experiment hall, where a new hard x-ray nanoprobe at APS sector 26 is coming on line, and a plethora of nanoscience capabilities are being developed at other sectors on the experiment hall floor (see diagram).

It all starts with the sample. The CNM will allow researchers to “build” any amount of nanomaterials, and then swiftly and efficiently move those samples to one or more of the superb Argonne characterization tools best suited to the purpose at hand—an integrated approach to nanocharacterization, which also applies to researchers bringing their samples to Argonne. APS x-rays will be a vital resource for nanoscience researchers. By dedicating certain X-ray Operations and Research (XOR) beamlines to different nanocharacterization techniques, the APS will enable rapid-access to beam time at those XOR sectors. All of these tools are nothing without the right people in place to make them work. Because they are engaged in a relatively new field of investigation, nanoscience users will come to the APS seeking answers to questions that may never have been asked before. A tried-and-true measurement technique may be right for a particular problem, but it is just as likely that something may need to be measured in some entirely new way. The beamline staff at the APS, because of their immersion in the science at hand, can create new methods of measurement that will allow users to leave with answers.

Taken together, the nanoscience capabilities at Argonne follow the “Centers of Excellence” model, where excellent machines, tools, and, most crucially, people are concentrated to create an intensely creative and productive resource for the advancement of science and the national interest. *For information on nanoscience at XOR sectors, contact Gabrielle Long (gglong@aps.anl.gov); for information on the Center for Nanoscale Materials, contact Eric Isaacs (isaacs@anl.gov).*

### CALL FOR APS GENERAL-USER PROPOSALS

The Advanced Photon Source is open to experimenters from all scientific disciplines. General-user proposals for beam time during Run 2008-2 are due by March 7, 2008.

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, 630/252-5680.

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