

W0349

GM/CA: An NIH-Funded Dual Canted Undulator Sector for Protein Crystallography at the APS. W.W. Smith^a, R.F. Fischetti^a, J.L. Smith^b, D. Yoder^a, R. Benn^a, S. Stepanov^a, S. Xu^a, A. Urakhchin^a, O. Makarov^a, S. Devarapalli^a, S. Corcoran^a, M. Becker^a, R. Sanishvili^a, ^aBiosciences Div., Argonne National Laboratory, Argonne, IL 60439, ^bLife Sciences Inst., Univ. of Michigan, Ann Arbor, MI 48109/

The National Institute of General Medical Sciences and National Cancer Institute have established the GM/CA-CAT at the Argonne National Laboratory to build and operate a national user facility for crystallographic structure determination of biological macromolecules at the APS. The scientific and technical goals of the CAT address problems at the cutting edge of structural biology research, as well as targeted programs of the sponsoring institutes in structural genomics and structure-based drug design, with an emphasis on streamlined, efficient throughput for a variety of sample types, sizes and qualities.

We are completing construction of a facility at Sector 23 consisting of three beamlines; two on independently-tunable canted-undulator sources and one on a tunable bending magnet. The undulator lines are equipped with focusing mirrors and are capable of producing a focused beam 25 microns in the vertical by 60 microns in the horizontal at the sample or at the detector surface. The energy range of one undulator line spans 3.5 KeV to 35 KeV. Beamline controls have been developed based on EPICS, and Blu-Ice provides the user interface to the experiment. User experiments are now being carried out on the first undulator line. Commissioning of the second undulator beam line is in progress. Development of an automounter for all 3 beamlines is well under way. The results of our experiences with the first undulator line will be described.

GM/CA-CAT has been funded in whole or in part with Federal funds from the National Cancer Institute (Y1-CO-1020) and the National Institute of General Medical Science (Y1-GM-1104).