LS-CAT: A New Life Sciences Facility at the APS

Each of the four stations is equipped with a MAATEL MD2 Microdiffractometer for high-throughput crystallography. The MD2 provides a beam-axis video view of the sample without parallax error.

LS-CAT manages user data using the Lustre file system, originally developed for supercomputer centers. This system allows for very fast access for data analysis.

The APS Experiment Safety Review System (ESAF) has been integrated into the data collection process. ESAF approval generates the user accounts required to use the LS-CAT systems elevating the ESAF into an engineered control that enhances user safety.

To automate sample manipulation, four Cryogenic Automated Transfer Systems (CATS), one for each experimental enclosure, are being installed. Each of the robots is equipped for both SPINE and Cryotong grippers to provide the greatest flexibility for users.

LS-CAT was formalized in 2003 with seed money from the State of Michigan through the Michigan Core Technology Alliance. Northwestern University was selected as the managing partner for the collaboration. Current LS-CAT members are Michigan State University, University of Michigan, Wayne State University, Van Andel Research Institute, Northwestern University, University Wisconsin-Madison, Vanderbilt University, and University of Illinois at Urbana-Champaign.