

W0392

Progress in the Robotic Sample Changer System Development for the SBC-CAT*. D. Shu¹, C. Preissner¹, D. Nocher¹, Y. Han¹, P. Lee¹, W-K. Lee¹, Z. Cai¹, S. Ginell², R. Alkire², K. Lazarski², R. Schuessler², and A. Joachimiak². ¹Experimental Facilities Division, Argonne National Laboratory, Argonne, IL 60439, ²Structural Biology Center, Argonne National Laboratory, Argonne, IL 60439, USA.

We are continuing developing the robotic sample changer system for the Argonne Structural Biology Center (SBC) beamlines 19-BM and 19-ID with improved cryo-sample temperature control and system integration. Unique to the SBC system is the ability to mount and retrieve samples from a kappa configuration goniostat. The option of loading samples by hand using cryo-tongs or liquid sample vials is always available to users by putting the robot in the park position. Key features of the automation system include: a direction sensitive, force detecting handset; crystal thermal protection; easy to load, open top storage dewar; the use of commercial sample magazines, and efficient beamline hardware/software integration. Recent tests confirm a storage dewar lifetime of over 24 hours and the ability to mount and dismount a sample up to 7 times without degradation in crystal quality.

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