Poster Presentation

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SER-CAT Light When YOU Need It via automation & remote access

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For the past 15 years, SER-CAT has been striving to provide its members with access to a "virtual beamline" which could be integrated into their daily workflow much like the X-ray lab down the hall. Working with Oceaneering Space Systems a conceptual design for automated data collection robot (ASTRO) was developed in 2000. In 2003, using funds from the Georgia Research Alliance, automation of the SER-CAT beamlines began with the installation of a highly modified Berkeley/ALS automounter (6 pucks) on beamline 22BM followed by a higher capacity system (15 pucks) installed on 22ID. SER-CAT automation also includes seamless integration with the SERGUI beamline control system, SER-CAT/UGA production of the tools (pucks, etc.) users need to ship crystals to the beamline and automated crystal screening and data reduction systems. Today over 95% of SER-CAT members routinely collect data remotely. Efficient and reliable automation has also allowed SER-CAT to offer two 12-hour data collection shifts per day with extended 16-hour/day on-site user support. An overview of SER-CAT beamline automation including robotics, beamline/experiment control, and automated data processing and structure determination will be described. Work supported by NIH NCRR (S10RR025528 & S10RR028976), SER-CAT Member Institutions, University of Georgia Research Foundation and the Georgia Research Alliance.

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