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Cyrogenic Automounters at the NSLS Facilitate Efficient Use of Undulator Beam Lines for Macromolecular Crystallography. A.M. Saxena, D.K. Schneider, A. Soares, H. Robinson, M. Carlucci-Dayton, J. Skinner, R. Buono, G. Shea-McCarthy, W. Nolan, R. M Sweet, Biology Dept., Brookhaven National Laboratory, Upton, NY 11973 USA.

Cryogenic automounters, in combination with semi-automated data collection software, greatly enhance the efficiency of screening the crystals of macromolecular assemblies to identify the best specimens for final data collection. This time consuming search is carried out at bending magnet beam lines of the Macromolecular Crystallography Research Resource at the NSLS (PXRR) where the automounter can collect data for a few frames and index them to determine their characteristics in a few minutes. The screening procedure then supplies the crystals for final data collection on a high intensity insertion device beamline, such as X29, where a window of a few hours is provided each day to collect high resolution data on such crystals that show promise of yielding the structure. This report summarizes key elements of the PXRR automounter program, including design features of our ALS type robots, its attendant software components, integrated scheduling methods, staff support commitments, and development plans.

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