

Poster Presentation

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The Integration and Use of a Shutterless CMOS Detector at ALS Beamline 4.2.2

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The Molecular Biology Consortium Beamline 4.2.2 at the Advanced Light Source has recently installed a new, high-speed, large surface-area CMOS detector for macromolecular crystallography by funds from NIH grant S10OD012073. The detector is 25 x 28 cm and has a readout speed greater than 25 frames per second. This allows shutterless operations and the collection of fine-sliced data. Presented is a description of the hardware and software integration of the detector into the controls system, and the implementation of a streamlined and intuitive collection interface. The interface is implemented in TCL/TK for integration into the beamline's custom Blu-Ice/EPICS environment and remote operations of the beamline with the new detector are routine. The increased sensitivity of the detector and shutterless operations allow for shorter exposure times per image, and up to 3X decrease in time per dataset. Optimum data collection and processing strategies to maximize the benefits of shutterless operations are discussed.

Keywords: CMOS Detector, Remote beamline, synchrotron beamline