Oral Contributions

[MS43-03] Shutterless CMOS Detector Data Processing Using the Bruker APEX2 and PROTEUM2 Software Suites Martin Adam[1], Holger Ott[1], Severine Freisz[1], Joerg Kaercher[2], Greg Wachter[2], Leo Stephen [2]

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In mid-2011 Bruker AXS introduced the PHOTON 100 detector; the first CMOS active pixel sensor for laboratory crystallography. Since then, CMOS technology has been rapidly displacing CCD detectors and a large number of D8 QUEST and D8 VENTURE systems are now used in laboratories throughout the world.
CCD detectors and imaging plates operate in the conventional still-image mode involving numerous shutter-open/shutter-close, goniometer ramp¬up/ramp-down and detector readout steps. Next to overhead-time this process introduces mechanical jitter. CMOS detectors can be operated in this mode.
The PHOTON 100 detector can now operate in a completely shutterless read-out mode. This enables continuous data collection without the need to frequently open and close the X-ray shutter; only accelerating and decelerating the goniometer at the beginning and the end of the scan. The Bruker APEX2 Software Suite and in particular its integration engine SAINT now include the continuous scan, shutter-free integration for the D8 QUEST and D8 VENTURE systems. We will discuss the algorithms involved in the integration of continuous scan data and demonstrate the improvements to data quality achieved using the new shutterless data collection mode.

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