MS3-P5 **PHOTON 100 CMOS Detector for Crystallography.** Holger Ott,[a] Bruce C. Noll,[b] Michael Ruf,[b] [a]*Bruker AXS GmbH, Karlsruhe, Germany,* [b]*Bruker AXS Inc., Madison, USA*
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CCD based detectors are well established in chemical crystallography ever since the pioneering introduction of the SMART 1K by Bruker. There is, however, little space for significant performance improvements of this mature technology. On the other hand, rapid advances in CMOS sensor technology enabled the development of the first CMOS active pixel sensor for X-ray crystallography, the PHOTON 100. This revolutionary detector is now available on Bruker D8 QUEST and D8 VENTURE solutions. The PHOTON 100 offers a number of features, including a large sensor size, 1:1 imaging, high sensitivity, fast read-out, zero blooming, and air-cooling, making it superior to any commercially available CCD detector.

Several example data sets will show the great performance of the PHOTON 100 for various chemical crystallography applications, including weakly diffracting crystals, tiny samples, high resolution data, and rapid data collections.

Keywords: CMOS detector; chemical crystallography; scientific instruments

MS3-P6 **G-Rob: a flexible, multitask 6-axis robotic-arm based systems for crystallography.** Xavier Vernède[a], Michel Pirocchi[a], Yoann Sallaz-Damaz[a], Christophe Berzin[a], Maxime Terrien[a], Mohammad Yaser Heidari Khajepour[a], Jean-Luc Ferrer[a] [a]*Institut de Biologie Structurale 41 Rue Jules Horowitz 38027 Grenoble, France*, [b]*NatX-ray 9 rue Marcel-Chabloz, 38400 Saint Martin d'Hčres, France*
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For many years, we explore, on beamline FIP-BM30A (ESRF Grenoble, France), the possibilities offered by robotic arm for crystallography experiments automation. After the success of the CATS system [1], G-Rob [2], the last generation 6-axis robotic arm based system we developed, is a fully integrated robotized device for crystallography beamlines and laboratories. G-Rob is an "all in one" system, that includes sample changer / goniometer / *in situ* screening capabilities (movies are available on). G-Rob provides unique features: thanks to its tool changer, it goes automatically from one application to another. G-Rob is also highly flexible: if a new application or a new sample format emerges in the community, a new tool can be designed to implement it. The crystallization plates screening capability for example appears to be a precious tool in several cases (crystals too small to be fished, or too fragile, or when there is no good cryoprotectant), allowing *in situ* screening of membrane proteins, ribosome, high pressure protein diffraction, etc. Recent experiments demonstrated also the possibility of the automated structural screening for a Fragment Based Drug Design strategy: the same crystal was reproduced in presence of a library of fragments. Systematic *in situ* data collection has shown some of the fragments present in the active site, without having to manipulate the crystals individually. *In situ* data collection was also used recently to solve the structure of entire viruses (D. Axford *et al*. [3]). Also, automated crystal harvesting using G-Rob is under development (Y. Heidari *et al* [4]). All these experiments take advantage of a new sitting drop plate specially designed for *in situ* X-ray analysis. This plate was developed in collaboration between beamline FIP-BM30A at the ESRF (Grenoble, France) and Greiner BioOne.

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Keywords: automated *in situ* diffraction, X-ray screening automation, robot goniometer