

A Direct-conversion Se-based 2D-detector for Protein Crystallography

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A solid-state detector based on the direct conversion of the absorbed X-rays into charges is described. The conversion takes place in a layer of Selenium as the photoconductor. This concept does not use phosphors and optical elements (e.g. fibre optic tapers), thus avoiding the broadening of reflection spots.

The excellent spatial resolution has two advantages: an excellent spot separation and a significant improvement in signal-to-noise ratio. In addition, the new detector has a low read-out noise level and a high dynamic range.

Although it is intended for synchrotron radiation applications (not only protein crystallography!), it has also been tested successfully on a rotating anode source at 8keV.

Keywords: protein crystallography, x-ray detector, flat panel detector