

Imaging detectors at MAX IV

The MAX IV Synchrotron facility in Lund, Sweden, relies on a diverse array of over 30 specialized X-ray detectors and cameras that are essential for the operation of its experimental beamlines.

We will provide an overview of the detection technologies employed at the MAX IV Synchrotron, covering both the operational aspects and the supporting systems that enable their effective use.

We use a range of detector technologies depending on the required spatial and temporal resolution, as well as the beamline energy range. We employ both photon counting and charge integration, to meet the diverse experimental requirements.

While the facility procures the majority of its detectors from commercial partners, it also collaborates with other research laboratories to obtain some of the most cutting-edge detection solutions. In both cases, we take care and effort to thoroughly understand and properly calibrate the detectors acquired.

We will also present the streaming based software infrastructure we have developed to store the data produced by these detectors. Finally we show the map-reduce like data processing pipeline that enables fast feedback on experimental results by running the most common analysis tasks on the fly.

Workshop topics

Applications

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