

Detectors at the European XFEL

January 24, 2021, 14:00 CET

Virtual Meeting (Zoom)

The European XFEL specific time structure poses challenges to the development of detectors, which are able to cope with it. These challenges, the burst mode in particular, are at the moment unique to the EuXFEL facility. The detectors for the European XFEL have on one hand to satisfy stringent requirements similar to those of detectors used at other facilities, like the low noise and the high dynamic range, and in addition, be able to collect frames at a maximum frame rate of 4.5 MHz, in a burst lasting maximum 0.6 ms. Detectors with these features did not exist when the European XFEL was founded and do not exist now, with the exception of those in use at the EuXFEL. The large MHz detectors, the AGIPD, DSSC and LPD, have been developed specifically for the European XFEL and are the results of a development effort that lasted many years.

After four years of operation, relevant progress has been made on the understanding of the MHz detectors, resulting in significant improvements in the quality of the produced data. In addition to the MHz detectors, other detectors running at a lower frame rate have been installed at the instruments, allowing the investigation of other scientific cases. Among those, especially the Jungfrau is widely used and is providing good scientific data.

The workshop aims to illustrate which detectors are in use at the different beamlines, their specifications, how they are operated, the achieved performances and the scientific cases for which they are used. The input of the users is highly welcome, especially in illustrating how a specific detector feature is improving the scientific data quality, or if it now constitutes a limitation for science, as this will help address future detector developments for the next generation of detectors to be used at the European XFEL.

Organiser: Monica Turcato

Contact: monica.turcato@xfel.eu

Date			
time	What	(who)	(From Institution)
14:00	Welcome, introduction and aim of the workshop	M. Turcato	European XFEL
14:05	Soft X-ray detectors for the EuXFEL, specs, implementation and performances	M. Porro	European XFEL
14:25	Performance, results and forecast from SCS	L. Le Guyader	European XFEL
14:35	Performance, results and forecast from SQS	S. Usenko	European XFEL
14:45	Break		European XFEL
15:00	Hard X-ray detectors for the EuXFEL, specs, implementation and performances	J. Sztuk-Dambietz	European XFEL
15:20	Performance, results and forecast from SPB/SFX	M. Sikorski	European XFEL
15:30	Performance, results and forecast from FXE	H. Yousef	European XFEL
15:40	Performance, results and forecast from HED	T. Preston	European XFEL
15:50	Performance, results and forecast from MID	R. Shayduk	European XFEL
16:00	Calibration services	C. Danilevski	European XFEL
16:20	Discussion and conclusions	All	