

**MS08-1-4 ID29, a versatile beamline for time-resolved serial crystallography at the EBS-ESRF
#MS08-1-4**

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Abstract

With its recent upgrade to the fourth-generation synchrotron called “Extremely Brilliant Source” (EBS), the ESRF is developing a new sub-microfocus beamline for the time-resolved study of serial synchrotron crystallography (TR-SSX) at room temperature with extremely high photon flux (up to 10^{16} ph/sec). The combination of two choppers generates a pulsed beam allowing the data collection from tens of microsecond to millisecond time delays; the double multilayer mirror monochromator (DMM) allows tuning ID29 beam on a wide energy range (from 10 to 20 keV) with variable bandwidth. A new developed diffractometer for fixed-target¹⁻⁴ experiments is adapted to accommodate different other sample delivery devices such as high viscosity injector⁵⁻⁷, microfluidic⁸, and tape-drive⁹⁻¹¹. This high versatility will make possible to perform mixing experiments but also pump-probe experiments with the support of a high repetition rate nanosecond laser, which runs synchronously with the pulsed beam. In addition to the beamline, users have access to a laboratory in order to prepare their sample and characterise them offline before their beamtime.

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ID29 Experimental Hutch

