The ID29 upgrade project: a new serial crystallography beamline for time resolved studies at ESRF-EBS

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The upgrade of the ESRF storage ring and the advent of the Extremely Brilliant Source has paved the way to fourth generation storage rings for hard X-ray experiments. As part of the upgrade the ESRF has initiated the design and the construction of four new flagship beamlines that are designed to fully exploit the characteristics of the new source. The project EBSL8 aims to the construction of a new beamline entirely dedicated to room temperature serial crystallography. The new beamline is built on the ID29 straight session, and replaces the previous MAD beamlines that has served the macromolecular crystallography user community for almost twenty years.

In order to fully expand the possibilities of serial crystallography experiments and to open new perspectives in time-resolved studies in structural biology, the new ID29 shares an innovative layout, composed of latest generation technical and scientific solutions. The optical layout is designed to deliver an extremely high flux at a submicron sample size and produce pulsed X-ray beam of a few microseconds, that is synchronised with a newly developed fixed target diffractometer and the latest generation integrating detector. In this talk the beamline layout and the description of the newly developed components will be presented along with the results of the initial commissioning and the future scientific applications.