

Structural Biology at the diffraction limited synchrotron source MAX IV

Marjolein Thunnissen¹

¹MAX IV Laboratory Lund University, Lund, Sweden

E-mail: marjolein.thunnissen@maxiv.lu.se

The MAX IV 3 GeV storage ring is the first with a multi-bend achromat design providing higher photon beam brilliance. The MAX IV Laboratory operates two storage rings and a short-pulse facility.

BioMAX is the first beamline at MAX IV dedicated to macromolecular crystallography. The beamline is designed to be a stable and reliable micro-focus beamline offering excellent facilities for most of the demands of the structural biology community. Thanks to the unique properties of the source the beamline offers a high flux ($>10^{13}$ ph/s) in the wavelength range 0.5 – 2.5 Å with beam divergence of 0.1×0.1 mrad² and beam size down to 20×5 μm², with the option of a practically parallel beam in an unfocused configuration for extremely large unit cells.

The experiment setup includes an MD3 diffractometer with on-axis viewing, sub-micron sphere of confusion and a high-precision crystallization plate holder for in-situ measurements. The beamline is equipped with an EIGER 16M hybrid pixel detector and an ISARA sample changer initially accommodating 400 samples. Experiments will be controlled with MXCuBE v3, the next generation web-based MXCuBE being developed with the other partners in the MXCuBE consortium.

An overview of other structural biology beamlines at MAX IV will also be given.

The storage ring commissioning started in summer 2015. Commissioning of BioMAX started in the spring 2016 and the beamline opened for users in 2017. The progress and present status will be presented.

Keywords: [Storage ring](#), [Structural Biology](#), [Diffraction limited](#)