



Contribution ID: 8

Type: **not specified**

Single-particle imaging using DSSC at SQS

Wednesday 26 January 2022 14:00 (30 minutes)

The dream of imaging single molecules was instrumental to the construction of X-ray free-electron lasers (XFELs). The extremely bright and short pulses provided by XFELs make it possible to collect the diffraction pattern of a particle before its destruction (Neutze et al. 2000) which was successfully proved at FLASH more than a decade ago (Chapman et al. 2006). Since then, the method of flash X-ray imaging (FXI) has been used to image live cells (van der Schot et al. 2015), cell organelles (Hantke et al. 2014) and in particular the giant Mimivirus in both two dimensions (Seibert et al. 2011) and three dimensions (Ekeberg et al. 2015). The inauguration of the European XFEL marked the beginning of the high-intensity, high-repetition-rate and high data-rate era of XFELs, and it has been shown that FXI can take full advantage of those rates (Sobolev et al. 2020).

Yet, FXI has not yet fulfilled its promise of high-resolution sub-nanometer imaging. In this talk I will present our latest results from single-particle imaging experiments at the SQS beamline at the European XFEL. I will also discuss the future of single-particle imaging, how we are tantalizingly close to our goals and how several new technologies can help us get there.

Presenter: MAIA, F. (Laboratory of Molecular Biophysics, Dept. of Cell and Molecular Biology, Uppsala University and NERSC, Lawrence Berkeley National Laboratory)

Session Classification: European XFEL Users' Meeting 2022