Contribution ID: **171** Type: **Talk**

【704】Serial femtosecond crystallography of two-dimensional protein crystals on solid supports: state of the art and perspectives

Wednesday 23 August 2017 15:30 (15 minutes)

Ultra-short, ultra-bright X-ray pulses from Free Electron Lasers are a viable tool for observing diffraction from two-dimensional (2D) crystals, unlike synchrotron-based data collection, extending the possibilities of structural determinations in membrane proteins.
Using serial diffraction frames from bacteriorhodopsin 2D crystals we extended the resolution limit of zero-tilt data to 4 A (detector-limited) by summing equivalent portions of images, and developed a method to reconstruct diffraction intensities along Bragg lines, from which structural information can be gained.
Using these methods a data collection strategy (100'000 - 200'000 images at high tilt angles) allowing to detect structural changes in the length-scale of a few A in a pump-probe configuration can be envisaged.

Authors: Dr BARTY, Anton (DESY / CFEL); Dr PEDRINI, Bill (Paul Scherrer Institut); CASADEI, Cecilia (Paul Scherrer Institute); Dr PADESTE, Celestino (Paul Scherrer Institut); Dr CAPITANI, Guido (Paul Scherrer Institut); Dr NASS, Karol (Paul Scherrer Institut); Dr SALA, Leonardo (Paul Scherrer Institut); Dr HUNTER, Mark (LCLS); Dr COLEMAN, Matt (LLNL / UC Davis); Dr FRANK, Matthias (LLNL / UC Davis); Dr LI, Xiao-Dan (Paul Scherrer Institut)

Presenter: CASADEI, Cecilia (Paul Scherrer Institute)

Session Classification: Scientific Opportunities with SwissFEL

Track Classification: Scientific Opportunities with SwissFEL