



Czech Society for Structural Biology

16th Structural Biology Club of the Czech Society for Structural Biology

online on

28 June 2023, 13:00

with the following scientific talks kindly delivered by our guests

Serial macromolecular crystallography - nice to meet you!

Presented by **Martin Malý, Biological Sciences, Institute for Life Sciences, University of Southampton, United Kingdom**

The development of X-ray radiation sources - mainly availability of the X-ray free electron lasers - leads to increased interest in serial macromolecular crystallography (serial MX). This method allows us to perform e.g. time-resolved studies, collection of data not affected by radiation damage, and pump and probe experiments - all at room temperature. In my talk, I will point out the main differences of serial MX in sample preparation, diffraction experiment and data processing in comparison with the conventional rotational cryo-MX. Moreover, the application of the method will be shown on the iron-binding protein FutA from marine cyanobacterium *Prochlorococcus* and other examples.

Optimizing electron diffraction sample preparation and data acquisition for reducing radiation damage and increasing data completeness from 3D protein crystals

Presented by **Alaa Shaikhqasem, Institute for Biochemistry und Biotechnology, Martin Luther University Halle-Wittenberg, Halle (Saale), Germany**

3D electron diffraction (MicroED) has shown strong potential for collecting diffraction data from protein crystals that are too small to be studied by conventional X-Ray crystallography. MicroED poses two opposing challenges: the minimization of radiation damage during data acquisition and the attainment of complete data. Here we present a multi-position acquisition strategy for reducing electron-induced radiation damage. We also present several optimizations to sample preparation and data processing which altogether lead to the successful determination of a novel protein complex structure to a merged completeness of 90% using data collected from only two crystals.

Moderator: **Petr Kolenko**, Czech Technical University in Prague

Please, join us on this Zoom link (join 5-10 minutes before the beginning)

<https://cesnet.zoom.us/j/98867419047?pwd=WEF6THZuU01YQVpmMmxsV1hFaWZiQT09>

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Passcode: 726237

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on behalf of the Czech Society for Structural Biology

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