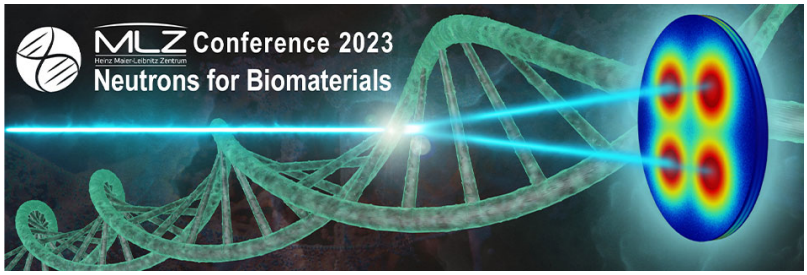

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Protein interactions with PEG

Wednesday, 24 May 2023 11:20 (40 minutes)

Protein-polymer interactions are a key point to understand and improve the activity of proteins and polymer in many bio related applications. Polyethylene glycol (PEG) is a widely used bio compatible polymer with applications reaching from antifouling, over crystallization helper to PEGylation of therapeutic drugs. Neutron scattering is an ideal method to examine protein PEG interactions because of the possibility to match PEG to D2O.
I present here examples how protein-PEG systems can be examined by SANS/SAXS combined with neutron spinecho spectroscopy (NSE) to determine interactions between PEG and proteins on nanometer length scale and a timescale up to hundred nanoseconds.
Matched hd-PEG can be used to examine the tracer diffusion of proteins in crowded environment. Matched maleimide-PEG allows to examine domain dynamics changes due to the bound maleimide-PEG. Combined SAXS/SANS analysis allows to examine hydration water and PEG protein interaction.

E-mail for corresponding author: ra.biehl@fz-juelich.de

Primary author: BIEHL, Ralf (Forschungszentrum Jülich)

Presenter: BIEHL, Ralf (Forschungszentrum Jülich)

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