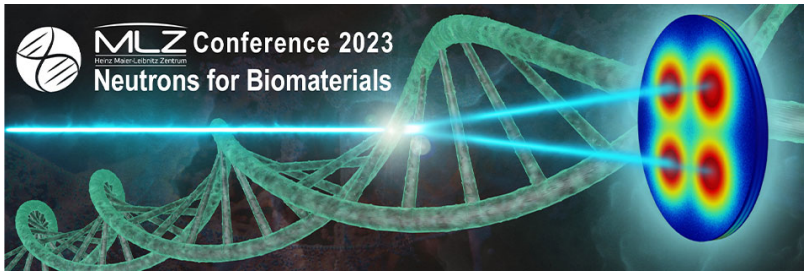

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Establishment of the SEC-SANS option at KWS-2 in MLZ

Tuesday, 23 May 2023 17:20 (1h 10m)

This contribution introduces the newly established sample environment at the small-angle neutron scattering (SANS) diffractometer KWS-2 at the neutron source Heinz Maier-Leibnitz (MLZ, Garching, Germany): the in-situ size exclusion chromatography (SEC) directly followed by SANS measurements, the SEC-SANS setup. The motivation is the growing demand from users interested in bio-molecular samples where the single-particle structure is the investigation target. However, many of such systems are prone to form aggregates, which then coexist with the interested single ones. Thus, an in-situ separation is necessary shortly before SANS data collection, for the sake of obtaining the scattering of individual particles.
The main features of the SEC-SANS setup at KWS-2 include: (1) Dual-pump that allows simultaneous elute and rinse of two columns (2) Auto-sampler that allows programmed injection of samples in desired series (3) Both UV and RI detectors (4) Switching valve installed before the purified sample flowing into the SANS cell (5) A second UV-vis setup installed to detect the purified samples flowing into the SANS cell, and (6) Possibility to perform SEC-SANS-MALS measurement, to determine molecular weight independently.

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