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KWS2 - small angle neutron diffractometer

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KWS-2 is a classical small angle neutron diffractometer using a combination of pinholes with different neutron-wavelengths and detector distances as well as a focusing mode with MgF2 lenses to reach a large Q-range between 1×10^{-4} and 0.5 Å^{-1}.

The instrument is designed for high intensity studies with a broad q-range, covering mesoscopic structures and their changes due to kinetic processes in the fields of soft condensed matter, chemistry, and biology.

The high neutron flux, comparable with leading SANS instruments worldwide, and the possibility to measure samples with large diameter (up to 5 cm), employing the MGF2 lenses, allow for high intensity and time-resolved studies.

In special cases, the resolution can be improved by using a double-disc chopper with adjustable openings. This allows for a relative change of the wavelength spread between 2 and 20 %. In this way, the instrument can be flexibly adjusted to the needs of different experiments. Structural details can be characterized better and the beam characteristic can be adjusted. Furthermore, the effects of chromatic aberration of the lenses and gravitation effects can be minimized.

A broad range of side-instruments including rheometer, stopped-flow, high-pressure cells, and a newly developed size exclusion chromatography device with in-situ UV-Vis spectroscopy, specially designed for studying aggregation prone proteins, allow for highly individualized studies of soft matter samples.

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