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KWS-3 Very Small Angle Neutron Scattering Diffractometer: current status

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KWS-3 “VerySANS” is a very-small-angle-neutron-scattering diffractometer using a focusing mirror to achieve a high Q-resolution $3{\cdot}10^{-5}\ ^{-1}$. In “standard mode”with Q-range between 10^{-4} and $2.5{\cdot}10^{-3}$ $Å^{-1}$ KWS-3 demonstrates worldwide best performance: intensity much higher than any pinhole SANS instrument and measurement time much shorter than any Bonse-Hart camera. Over the last years, we have finalized a multi-sample-position instrument concept: we have been able to propose to users optimal configurations with high flux and low background covering three decades within Q-range $3{\cdot}10^{-5}$ and $3{\cdot}10^{-2}$ $Å^{-1}$. We can also offer a “SANS” configuration for strongly scattering samples with sample-to-detector distance (D) between 5 and 40 cm covering the Q-range of a classical SANS instrument between $2.5{\cdot}10^{-3}$ and 0.35 $Å^{-1}$. Tilt stages/rotation table for the sample environment (SE) up to 500 kg have been commissioned as a mobile device and could be used across the whole instrument Q-range. Polarized neutrons and a supermirror analyser represent a novel option now available. The operation of the instrument without a cold source will also be discussed.

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