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## Mirror focusing VSANS: Q-range extension option for an existing pinhole SANS and default configuration for a new VSANS instrument, based on experience the user operation of the focusing instrument KWS-3 operated by JCNS at MLZ

*Friday, 3 March 2023 11:00 (30 minutes)*

Since 2011, the mirror-focusing small-angle scattering diffractometer KWS-3 has been open for user operation in the standard configuration with Q-range between  $Q_{min}=0.0001$  and  $Q_{max}=0.003\text{\AA}^{-1}$ . Several options have been implemented over the past decade to extend the Q-range and functionality of the instrument. The implementation of the second (very high-resolution) detector with three times smaller pixel size (about 0.1 mm) allowed to achieve a minimum wavevector under  $Q_{min}=0.00003\text{\AA}^{-1}$  with a standard wavelength of 12.8Å and the sample-to-detector-distance SDD=9.5m. The second vacuum/air sample position at SDD = 1.5m extended the maximum Q value to  $Q_{max}=0.02\text{\AA}^{-1}$ , a wide Q-overlap with most of existing pinhole SANS diffractometers is available now. Polarized neutron and polarization-analysis options, the full suite of SANS sample environments can be used to analyze structures within the characteristic length scale of 30nm to 20µm.

This presentation will discuss the possibility of using a focusing mirror as a VSANS option for existing SANS instruments on a reactor or TOF source. Vertical and horizontal layouts of a dedicated VSANS diffractometer are compared.

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