



Contribution ID: 57

Type: **Poster**

KWS-1: High-flux SANS instrument with polarization analysis

Wednesday, 11 December 2019 15:40 (20 minutes)

The KWS-1 small-angle neutron scattering instrument is operated by JCNS at MLZ. The instrument covers a q -range from 0.0007 to 0.5 \AA^{-1} , with a selectable wavelength span from 4.7 to 20 \AA and a high resolution owing to its neutron selector with an optional double-disc chopper to reduce the wavelength spread down to $\Delta\lambda/\lambda = 1\%$ [1]. This allows study of feature sizes from 10 to 9000 \AA . The maximum neutron flux on the sample is $1 \times 10^8 \text{ cm}^{-2} \text{ s}^{-1}$, making it one of the most intense SANS instruments in the world. This is a highly flexible instrument with many possibilities and options available for users.

A suite of sample environments is available to allow users to study magnetic systems down to cryogenic temperatures and in horizontal or vertical fields up to 5 T. A custom-designed, non-magnetic hexapod at the sample position can carry up to 550 kg of useful load, and can allow flexible positioning and orientation of heavy sample environments for measurements either in transmission or grazing-incidence small-angle neutron scattering (GISANS) geometries. Polarization analysis option can be used to clearly separate the magnetic and nuclear scattering contributions. Recent upgrades to the instrument, in particular, a new option for in-situ polarization of a ^3He neutron spin filter, allowing for time-independent analyzing efficiency of post-scattered neutrons will be presented.

[1] A. Feoktystov, H. Frielinghaus, Z. Di, et al., *J. Appl. Cryst.*, 48, 61 (2015).

Primary authors: Dr BARNSELY, Lester (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ); FEOKTYSTOV, Artem (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ); APPAVOU, Marie-Sousai (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ); SALHI, Zahir (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ); BABCOCK, Earl (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ); FRIELINGHAUS, Henrich (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ)

Presenter: FEOKTYSTOV, Artem (Forschungszentrum Jülich GmbH, Jülich Centre for Neutron Science JCNS at Heinz Maier-Leibnitz Zentrum MLZ)

Session Classification: Poster session

Track Classification: Neutron Methods