BioRef will be a time-of-flight reflectometer complementing the monochromator based V6 reflectometer at Hahn-Meitner Institute. Combined with an in-situ infrared spectrometer it will be optimised for soft matter applications at solid-liquid interfaces. A flexible double-chopper set-up together with a wavelength band changer will enable the selection of well defined wavelength bands at different wavelength resolutions in order to optimize measurements with regard to the given application. The selection of different distances between the first choppers allow for choosing constant resolutions of Δλ/λ between 1% and 5%, while different frequencies of the choppers are intended to alter the used bandwidth. A width of the band of 4 Å up to 12 Å can be selected between a minimum wavelength of approx. 3 Å and a maximum of 15 Å. Lower wavelength resolutions than 5% can be realised when giving up the constant resolution. A state-of-the-art 2D position sensitive 1He detector will be used for the reflectivity measurements in horizontal scattering geometry. The time-of-flight mode is also chosen to realise the investigation of dynamic interface processes under shear and flow conditions. A q-range spanning 3 orders of magnitude and reflectivity measurements over 7 orders of magnitude are envisaged and their feasibility is supported by Monte Carlo simulations.

Keywords: neutron time-of-flight, neutron reflectivity, infrared spectroscopy

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**The new polarised hot neutron single crystal diffractometer POLI-HEiDi at FRM II**

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Polarised neutron diffraction is one of the most important tools to determine magnetic structures. One-dimensional neutron polarisation analysis is used to determine the directions of magnetic moments. In addition, the recently developed spherical neutron polarimetry (SNP) is very useful to investigate complex magnetic structures in near geometry. The time-of-flight mode is also chosen to realise the investigation of dynamic interface processes under shear and flow conditions. A q-range spanning 3 orders of magnitude and reflectivity measurements over 7 orders of magnitude are envisaged and their feasibility is supported by Monte Carlo simulations.

Keywords: neutron time-of-flight, neutron reflectivity, infrared spectroscopy

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**Polarimetric neutron spin echo spectroscopy**

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Neutron Spin Echo spectroscopy (NSE) uses polarized neutrons and in turn polarization analysis is an intrinsic feature of NSE. However, the multifaceted dynamics of antiferromagnets and helimagnets ask for more than the classical Neutron Spin Echo set-up (NSE). In these systems the magnetic interaction vector is complex and the neutron beam polarization is not necessarily flipped upon scattering but can rotate at any angle around or towards a specific direction. The only way to access the components of the scattered polarization that are transverse to the incoming polarization is to implement a zero-field area around the sample position. Here we present the feasibility test and first results of the Polarimetric NSE, a powerful technique which combines a variant of the Intensity Modulated NSE (IMNSE) and the Cryopad. The Cryopad is a zero-field polarimeter based on Meissner shields and mu-metal screens able to do the most generalized polarization analysis experiments measuring all theoretically possible pair-correlation functions at any point of the reciprocal space. On the other side, IMNSE is a powerful variant of NSE that disconnects completely the sample area from the precession area at the price of some intensity losses due to the addition of polarizer and analyzer devices. This new technique was successfully developed on the wide angle NSE spectrometer SPAN at the HMI and then implemented on IN15 at the ILL, where new results on the magnetic relaxation in MnSi, a reference helimagnet were obtained.

Keywords: neutron spin echo, neutron polarization analysis, chirality

**P01.08.61**


**The study of thermal diffuse scattering measured by pulsed neutron diffraction**

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In this presentation, we will report the experimental results of the thermal diffuse scattering (TDS) around strong Bragg peaks in some analyser crystals measured by pulsed neutron diffraction technique at near back scattering conditions and discuss the comparison of those experimental results with theoretical predictions. We measured the thermal diffuse scatterings around some analyzer crystals Bragg peaks; pyrolitic graphite PG(002),