Contribution ID: **110**   Type: **Poster**

MARIA –The high-intensity polarized neutron reflectometer of JCNS

Friday, 9 December 2022 14:00 (1h 30m)

The high-intensity reflectometer MARIA of JCNS, is installed in the neutron guide hall of the FRM-II reactor and is using a velocity selector (4.5Å<λ<40Å) with a resolution of 10%. By using Fermi-Chopper the wavelength resolution can be increased to 1% or 3%. The beam is polarized by a double-reflecting super mirror (4.5Å<λ<12Å) and in the vertical direction the elliptically focusing neutron guide increases the flux at the sample position reducing the required sample size or measuring time. A flexible Hexapod, as sample table, can be equipped with an electromagnet (up to 1.1T) or a cryomagnet (up to 5T), low temperature sample environment, a UHV-chamber (10^{-10} mbar range) for the measurement of Oxide MBE samples, and various soft matter solid/liquid interface cells connected to a "sample robot"for automatic solvent contrast exchange and remote controlled heating/cooling. Together with the 400x400 mm² position sensitive detector and a time-stable ³He polarization spin filter based on SEOP technique, the instrument is well suited for investigating specular reflectivity (up to 7-8 orders of magnitude), off-specular scattering from structures down to the monolayer regime. The GISANS option can be used to investigate lateral correlations in the nm range. Due to the large detector even grazing incidence diffraction measurements are possible. Furthermore the high intensity allows for kinetic measurements down to a few seconds over a dynamic range of 3-4 orders.

Primary authors: IOFFE, Alexander (JCNS); KOUTSIOUMPAS, Alexandros (JCNS); BABCOCK, Earl; ZHERNENKOV, Kirill (Jülich Forschungszentrum GmbH); PÜTTER, Sabine (Jülich Centre for Neutron Science JCNS, Outstation at MLZ, Forschungszentrum Jülich GmbH); MATTAUCH, Stefan (FZ-Juelich); BRÜCKEL, Thomas (Forschungszentrum Jülich GmbH); SALHI, zahir (JCNS)

Presenter: ZHERNENKOV, Kirill (Jülich Forschungszentrum GmbH)

Session Classification: Poster Session

Track Classification: Neutron Methods