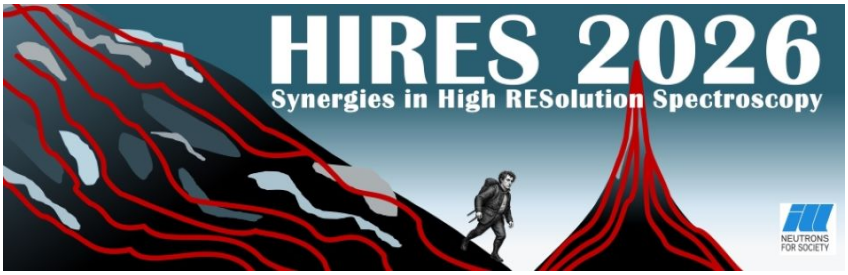

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Upgrade of the Neutron Spin Echo Spectrometer at NIST Center for Neutron Research

The National Institute of Standards and Technology (NIST) Center for Neutron Research (NCNR) has been operating a neutron spin echo spectrometer since the later ‘90s. Recently, through a collaboration among the University of Delaware, the University of Maryland and the NCNR with a strong support from the Jülich Center for Neutron Science, the instrument was significantly upgraded using funding from the Midscale Research Instrumentation-1 program of the National Science Foundation (NSF Proposal 1935956). This project supported the installation of a new neutron velocity selector, a new single V cavity polarizer, the replacement of the old precession coils with super conducting precession coils of optimized shape, Pythagoras coils, and a new detector. The upgrade aims for a 2.5x increase of the magnetic field integral, which translates in a dynamic range extension to Fourier times up to 250 ns for routine operations and the possibility to reach 700 ns in particular cases. Data acquisition rates are expected to increase by a factor 5 for a given dynamic range. All new components were delivered and installed, and cold commissioning has been performed. When the NCNR reactor resumes operation (anticipated spring 2026), the instrument hot commissioning will commence.

Session

Instrumentation

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