

The Upgrade of the Neutron Spin-Echo Spectrometer at the FRM-II (Poster)

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A Neutron Spin-Echo Spectrometer (NSE) measures small velocity changes at a sample of the neutrons encoded by the neutrons spin clock while the neutron spin precesses in large magnetic fields following Bloch's equation. In order to reach this ambitious goal, a high precision of the magnetic field integral before and after the sample, which directly relates to the resolution of the instrument, is required.

FZJ has decided to upgrade the water-cooled copper coils of the J-NSE installed at the research reactor FRM II in Munich with two optimized and stray-field compensated superconducting magnetic precession coils with minimal intrinsic field integral inhomogeneity. The new design will reduce the necessary corrector strength, which limits the resolution, by a factor of about 2.5 compared to previous cylindrical coil designs and provide field integrals up to 1.5 Tm. We present the layout and properties of these coils and major technical improvements. The subsequent design modifications of other components and the new power supply system should also improve the reliability of the upgraded J-NSE.

Formal Invitation Letter Required

Yes

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