

Development of Spherical Neutron Polarimetry devices at CSNS

Spherical Neutron Polarimetry (SNP) is a powerful technique which can measure the variation of polarization directions between incident and scattered neutron. Using this technique, the directional and phase information of the magnetic structure factor can be determined. This technique has been achieved by Meissner effect or high permeability alloys to produce zero-field environment.

We are developing a set of SNP devices at CSNS using combined method to produce zero-field environment, which intends to achieve high performance and low cost of operation. In this presentation, we present an overview on the process of the development, including the design and performance of a superconducting neutron spin flipper and the study on zero-field chamber. The spin flipper has achieved a flipping efficiency of 99% at 4Å with a miniaturized size. We will introduce the study on the shape of zero-field chamber and show the rotatable design for triple-axis spectrometer.

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