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## The Neutron Resonance Spin Echo Spectrometers at J-PARC MLF “BL06 VIN ROSE”

Neutron spin echo (NSE) is a variation of neutron spectrometry for high-resolution inelastic and quasi-elastic neutron scattering methods [1]. Two types of NSE spectrometers, that is, a neutron resonance spin echo (NRSE) instrument and a modulated intensity by zero effort (MIEZE) instrument, have been installing into BL06 at Materials and Life Science Experimental Facility (MLF), Japan Proton Accelerator Research Complex (J-PARC), in collaboration with Kyoto University and KEK [2]. In both the instruments, neutron resonance spin flippers have been used to cause the neutron Larmor precession.

While the MIEZE spectrometer has been aimed to study slow dynamics in magnetism with magnetic field application at the sample position and polarization analysis up to a few nanoseconds, the NRSE spectrometer is designed to achieve better energy resolution (~ 100 nanoseconds).

The commissioning of the MIEZE spectrometer has been started prior to the development of NRSE spectrometer since 2014, and the characterizations between time-of-flight neutron spectroscopy and MIEZE was verified quantitatively [3]. Since the 2017B proposal round, the user program with the MIEZE instrument has been partially started. At the NRSE spectrometer, the two-dimensional ellipsoidal neutron-focusing supermirrors, which are essential for the achievement of high-energy resolution by correcting the neutron path difference [4], are now under development in close collaboration with the RIKEN center for advanced photonics [4], and the spin echo signals at the spectrometer with the ellipsoidal supermirrors (5Qc) have been successfully observed [5].

The current status of BL06 “VIN ROSE” will be given at the presentation in detail.

### References

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