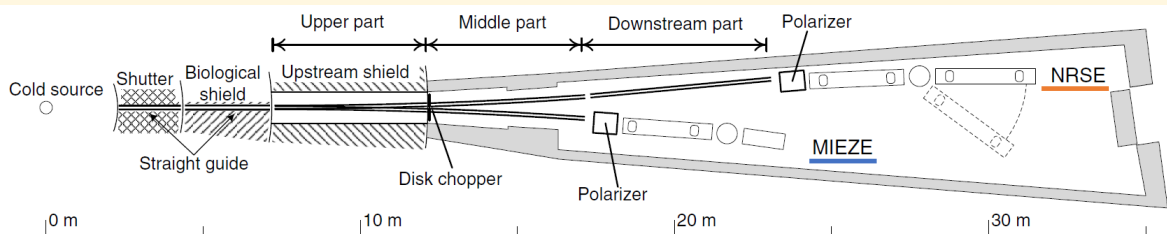


Introduction of the TOF-MIEZE spectrometer at J-PARC MLF BL06

Tatsuro Oda*, Masahiro Hino, Fumiaki Funama, (Kyoto University)

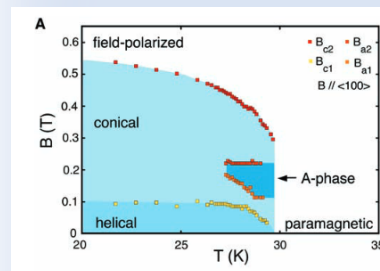
* t_oda@rri.kyoto-u.ac.jp

Hitoshi Endo, Hidetoshi Ohshita, Tomohiro Seya, Yoshiji Yasu (High Energy Accelerator Research Organization (KEK))

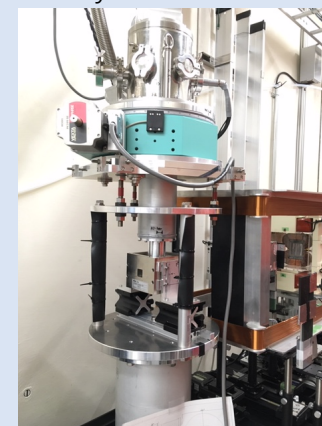


Hino et al., J. Nucl. Sci. Technol. 54, 1223 (2017)

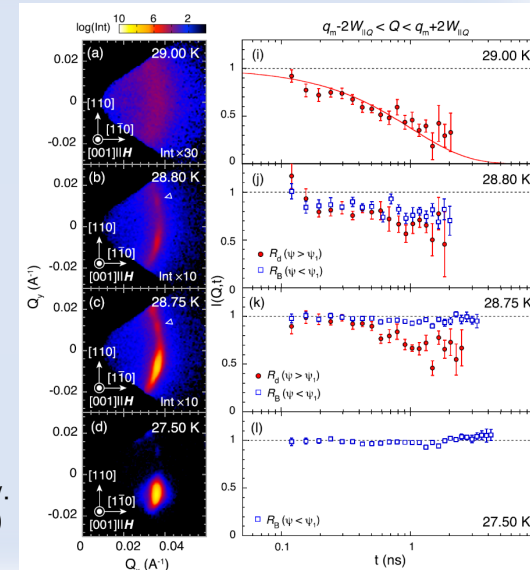
MIEZE-type neutron spin-echo spectroscopy with a magnetic field and cryostat



Skymion in MnSi



Nakajima, et al., Phys. Rev. Research 2, 043393 (2020)

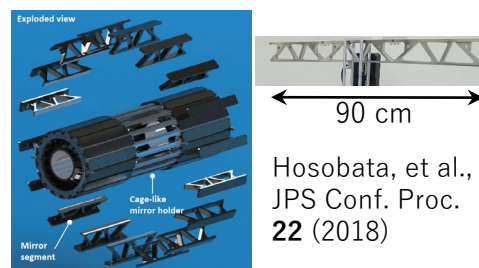


Mühlbauer et al., Science 323, 915 (2009)

BL06 VIN ROSE at J-PARC MLF has two types of neutron spin echo instruments:

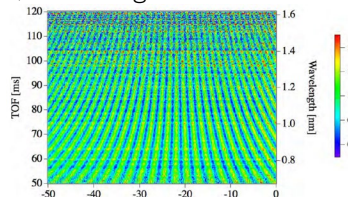
► NRSE (Neutron resonance spin echo)

Aiming for a high energy resolution and high S/N ratio by focusing mirror optics



Hosobata, et al., JPS Conf. Proc. 22 (2018)

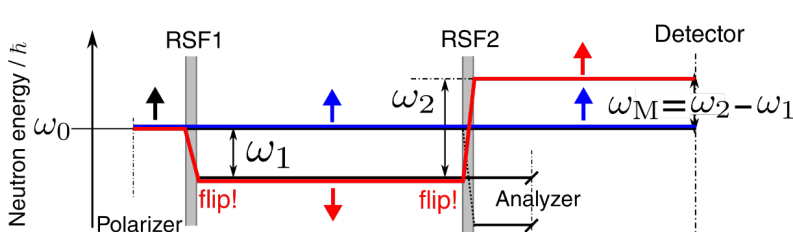
↓ NRSE signal in TOF mode



Endo, et al., Physica B 564 (2019)

► MIEZE (Modulation of intensity with zero effort) For the study of spin dynamics under magnetic fields ($ps < \tau < 10 ns$)

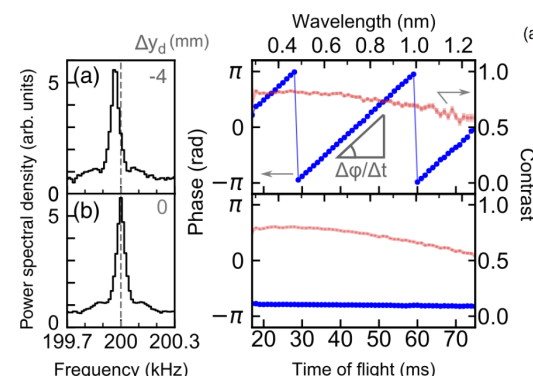
Principle of MIEZE technique



Coherent states with an energy difference \Rightarrow Time beat!

MIEZE: Golub, Gähler and Keller, Physica B 180, 899 (1992)

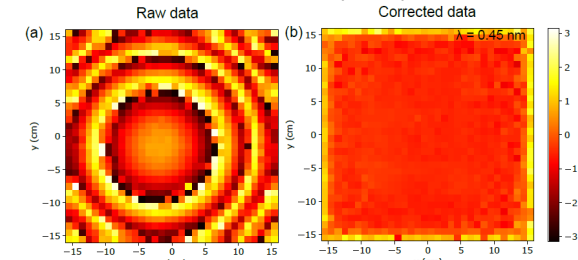
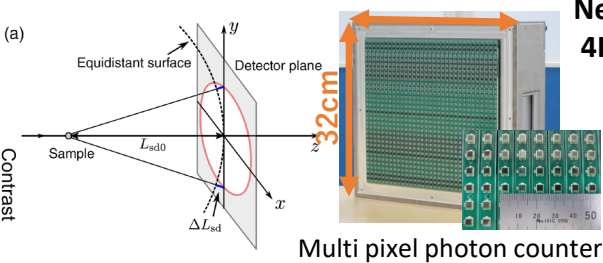
Phase/Frequency shift of TOF-MIEZE



A large neutron path length difference from the spin-echo condition \Rightarrow Frequency shift of TOF-MIEZE signal

Oda, et al., Phys. Rev. Applied, 14, 054032 (2020)

Wide area detector



New magnet & 4K GM cryostat

$H < 0.5T$

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- K. Ohishi (CROSS)
- T. Hosobata (RIKEN)
- Y. Yamagata (RIKEN)
- S. Satoh (KEK)

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