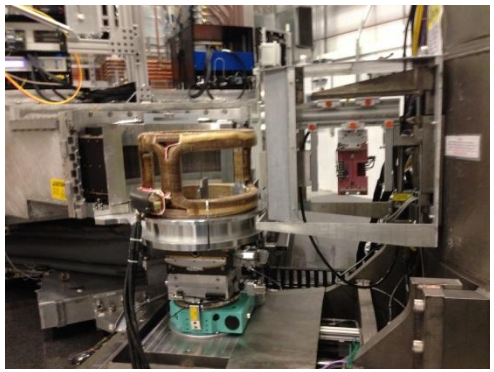
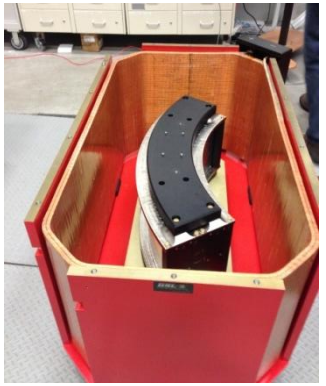
First results of the full polarized measurements at HYSPEC

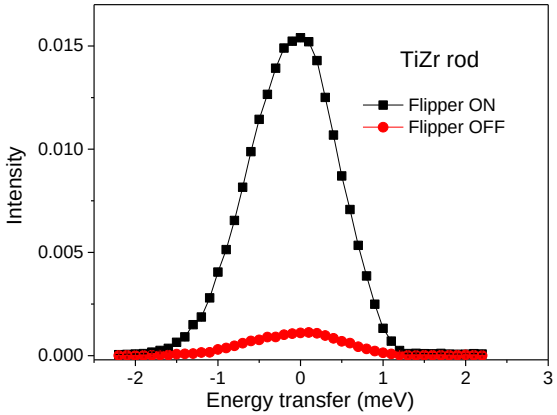
HYSPEC team has started the commissioning the PSI supermirror and preliminary results are very encouraging.

- The magnetizer has been successfully been used to reverse the magnetization of the supermirror assembly to match the direction of the instrument's guide-field.
- Measurements of the Flipping Ratio (FR = I^{++} / I^{-+}) performed using the direct beam and a Mezei flipper gave: FR = 16.8 (Ei = 15 meV), 14.7 (Ei=20meV), 12.3 (Ei =25 meV)
- The efficiency of the polarization analysis has been tested using various standards: Vanadium rod, TiZr, Quartz, NiO and MnO powders.

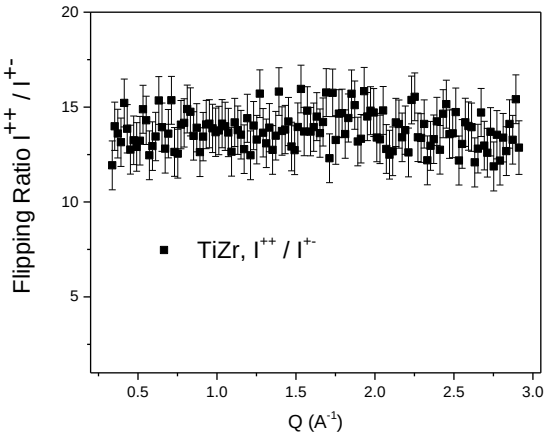




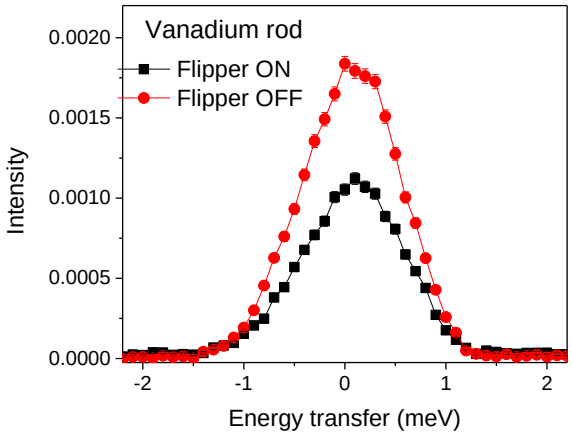
- **Isotopic incoherent scattering from TiZr –rod**



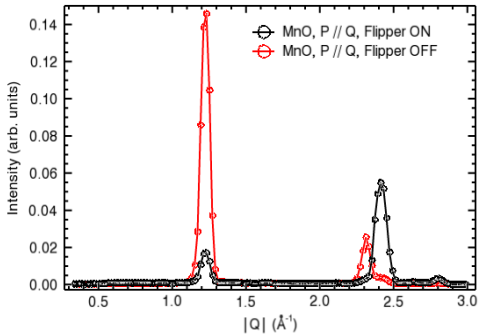
- **Flipping ratios across the detector array obtained using the TiZr**

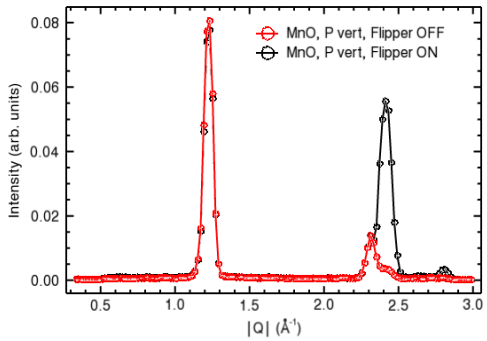


- **Nuclear spin incoherent scattering from Vanadium rod**



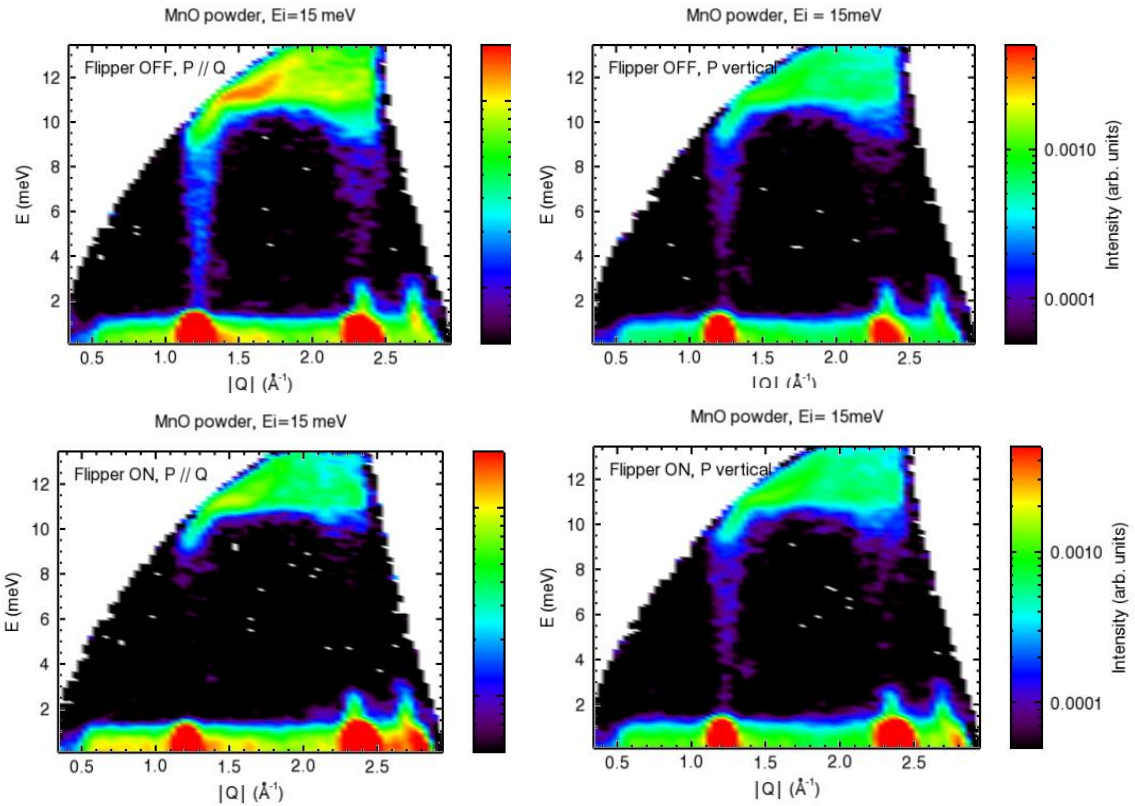
- **Separation of the magnetic and nuclear Bragg peaks of the MnO antiferromagnet by polarization analysis.**





Measurements with **P** // **Q** give the pure magnetic contribution (Sx+iSy) for Spin-Flip (= I^{+-}) and pure nuclear contribution for Spin-nonFlip (I^{++}) . Note that the Heusler monochromator and the supermirror filter the neutron spins in opposite ways, such that Flipper OFF gives Spin-Flip (= I^{+-})

- **Polarization analysis of spin-waves in MnO powder**



Spin –Flip (Flipper OFF) measurements give the pure magnetic scattering from fluctuations of various spin components, while the Spin –Flip (= Flipper ON) contains mixed magnetic and nuclear contribution.