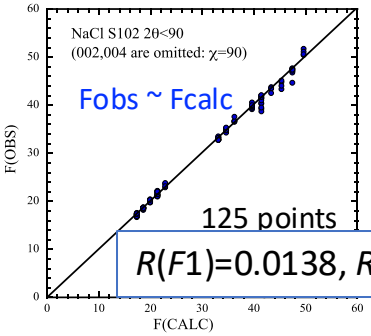
T2-2: FONDER
Four-circle Off-centered Neutron DiffractometER

Single crystal diffractometer to study crystal and magnetic structures under various sample environments

Structural Analysis :

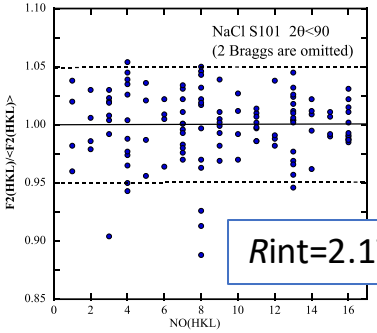
Standard sample NaCl 2.6x2.8x3.0mm³



High accuracy & high precision

$R(F1)=0.0138$, $R(F2)=0.0285$

Nearly equal intensities for equivalent reflections

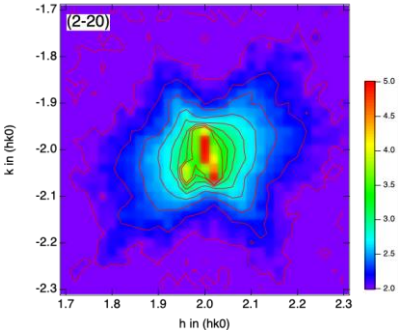


Rint=2.17%

M.Takahashi, Y. Noda, S. Kobayashi, T. J. Sato, K. Nawa, T. Sakakura, Y. Ishikawa, and H. Kimura: J. Phys. Soc. Jpn. **93** 091006(2024).

Diffuse Scattering:

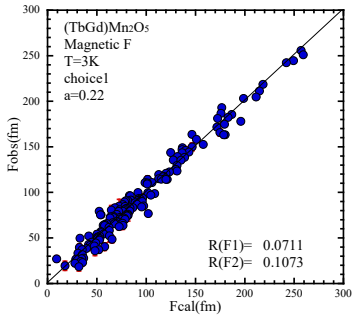
Measurement of detailed intensity distribution in 3D reciprocal space

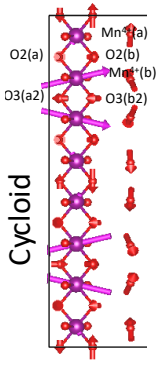


Diffuse scattering from lattice distortion in Fe-Ni Invar alloy.

Magnetic Scattering:

Uncertainty of the absorption coefficient can be compensated in scale-factor refinement





High-neutron-absorbent $(Tb^{160}_{1/2}Gd_{1/2})Mn_2O_5$

Specifications and Sample Environment

Wave length	1.24 Å (Ge311, vertical focusing)
Scattering angle (Q-range)	$-60^\circ < 2\theta < 160^\circ$ ($Q \leq 9.9$ Å^{-1})
Sample rotations	$-60^\circ < \omega < 80^\circ, -180^\circ < \chi < 180^\circ,$ $-180^\circ < \varphi < 180^\circ$
Beam size	H 20 x V 40 mm
Sample size (recommended)	8 mm³ < for structural analysis 100 mm³ < for diffuse scattering
Sample environment	2K < T < 400K, H_{ex}<0.7T, V_{ex}<10kV, uniaxial pressure and combination of these