

	<h1>MLF Experimental Report</h1>	提出日 Date of report 2013/4/26
実験装置名/BL番号 Name of Instrument/BL		
PLANET/BL11		
実験装置責任者 Name of the person responsible for the instrument:		
Takanori Hattori		
所属 Affiliation: Japan Atomic Energy Agency		

1. 研究成果概要 (a) 装置グループ内の成果、(b) ユーザー課題実装時における特筆すべきサポート、(c) ユーザー課題の執行状況について、まとめてください。A4 サイズ用紙使用のこと。

Outline of your activities. Following results at your instrument should be reported in A4 size papers: (a) results of your instrument group, (b) significant user support works, and (c) statistical summary of user experiments.

(a) Results of your instrument group

We started the beamline commissioning at April. In the commissioning, we evaluated the performance of the beamline, as well as starting up all the beamline devices. As for the evaluation, we revealed following parameters that typically characterize the powder diffraction beamlines.

- Resolution: $\Delta d/d \sim 0.6\%$ (it can be reduced into 0.4% by confining the beam convergence angle)
- Precision of the absolute d-value: 1/5000 in $\Delta d/d$
- Accessible d-range: 0.2~4.2Å
- Detection efficiency of a powder pattern: 100 cps for 220 reflection for silicon powder in 6ϕ vanadium capillary with the beam size of 6mm X15mm.
- Selectivity of sample information

Severe incident slits and fine receiving radial collimator realized the gauge volume of 3mmX3mmX3mm, which enables us to obtain the information only from the sample without contamination of the Bragg peaks from sample surrounding materials, such as graphite heater or pressure transmitting medium (Fig. 1).

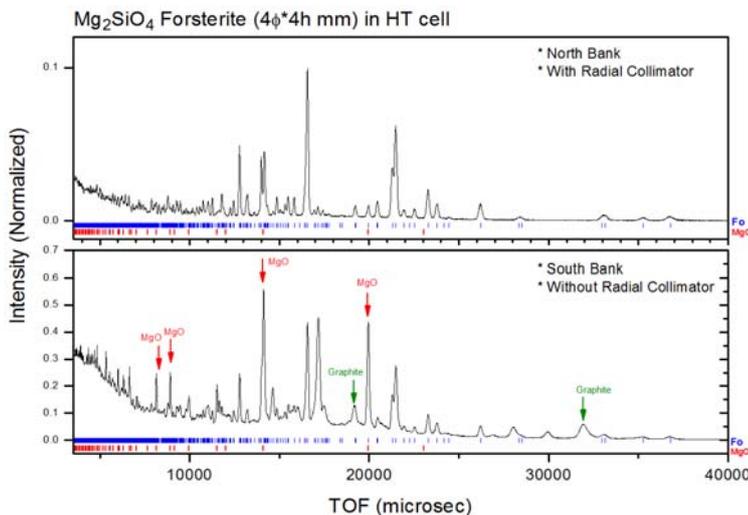


Fig. 1 Diffraction pattern of forsterite with (upper) and without (lower) radial collimators.

1. 研究成果概要(つづき) Outline of experimental results (continued).

(b) significant user support works

In the user experiments, we did the following user supports.

- Test for checking the safety in “blowing out” of high-pressure press, and the evaluation of the safety with safety control persons.
- Set up for experiments
- Assist of the data collection
- Assist of the data reduction

(c) statistical summary of user experiments.

We did the high-pressure neutron experiments with KAKENHI project members since October. The detailed samples in each project group are as follows:

- Hydrus-minerals group: $\text{Ca}(\text{OD})_2$ (See Fig.2), $\text{Mg}(\text{OD})_2$, lawsonite, serpentine
- Grant-in-Aid for Creative Scientific Research group: ice VII (at low-T and high-P condition), salt incorporated ice, N_2 -hydrate, $\text{Ca}(\text{OD})_2$
- Liquid group: Silica glass, heavy water
- Magma group: anhydrous albite glass, hydrous albite glass, anhydrous feldspar glass, hydrous feldspar glass
- Hydrate group: BD3ND3

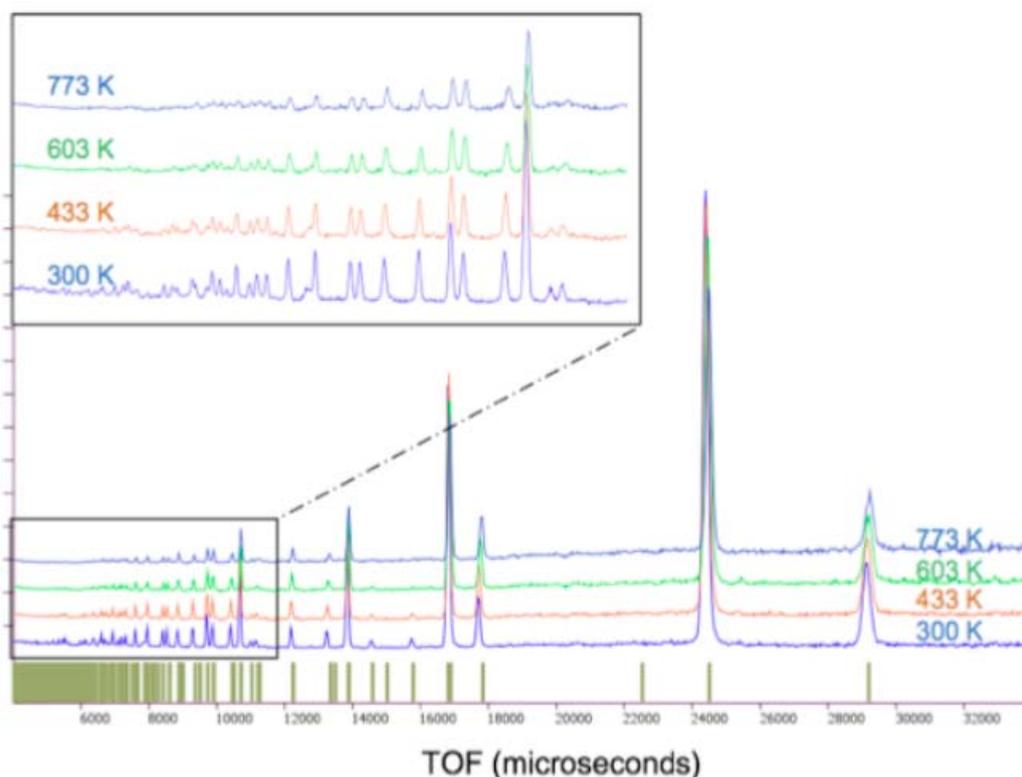


Fig. 2 High-PT evolution of the neutron powder pattern of $\text{Ca}(\text{OD})_2$

必要に応じて、A4 サイズの用紙に続きを記入して下さい。

Please use A4-size papers for further reporting, if necessary.