実験報告書様式(トライアルユース)

(※本報告書は英語で記述してください。ただし、産業利用課題として採択されている方は日本語で記述していただいても結構です。)

CROSS TOKAI **Experimental Report** J-PARC	承認日 Date of Approval 2015/2/24 承認者 Approver RyoichiKajimoto 提出日 Date of Report 2015/2/19
課題番号 Project No. 2014B0003 実験課題名 Title of experiment Study on precursor phenomena of displacive phase transformation in beta-Ti alloys 実験責任者名 Name of principal investigator Masaki Tahara 所属 Affiliation Tokyo Institute of Technology	装置責任者 Name of Instrument scientist Ryoichi Kajimoto 装置名 Name of Instrument/(BL No.) Siki BL01 実施日 Date of Experiment 17-22 December 2014

試料、実験方法、利用の結果得られた主なデータ、考察、結論等を、記述して下さい。(適宜、図表添付のこと)
Please report your samples, experimental method and results, discussion and conclusions. Please add figures and tables for better explanation.

1. 試料 Name of sample(s) and chemical formula, or compositions including physical form.

73%Ti-27%Nb (mol%) single crystal (solid)
10mm*10mm*40mm

2. 実験方法及び結果 (実験がうまくいかなかった場合、その理由を記述してください。)
Experimental method and results. If you failed to conduct experiment as planned, please describe reasons.

To obtain the phonon dispersion curve of the sample at 360K and 270K, inelastic neutron scattering measurements were conducted by using BL01 (4D Space Access Neutron Spectrometer, 4SEASONS).

Figure 1 shows obtained phonon dispersion at 270K. Unfortunately, clear phonon dispersion curves were not obtained owing to following two reasons.

(1) Almost "zero" total coherent scattering length
The total coherent scattering length of the sample (73Ti-27Nb) was almost zero like a null alloy (Ti-Zr), thus the clear phonon dispersion curves were not obtained.

(2) Presence of diffuse scattering
In this sample, diffuse scattering due to the precursor phenomena of displacive phase transformation was expected at wide temperature range (< 400K), this also became the obstacle for the measurements.

2. 実験方法及び結果（つづき） Experimental method and results (continued)

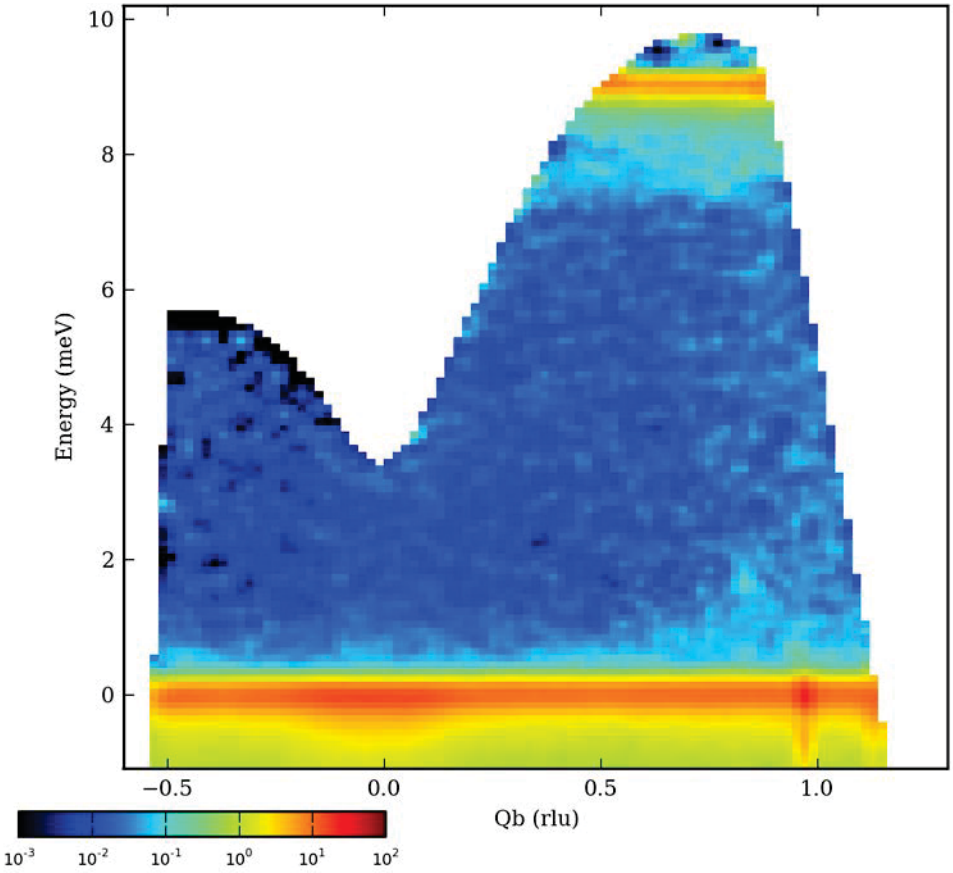

Figure 1 Result of inelastic neutron scattering measurement at 270K.