


(※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。)

 MLF Experimental Report	提出日 Date of Report 2017/3/22
課題番号 Project No. 2016A0175 実験課題名 Title of experiment High temperature and high resolution neutron diffraction study of A2A'3B3O14 and ABCO4-type new oxide-ion conductors 実験責任者名 Name of principal investigator Kotaro Fujii 所属 Affiliation Tokyo Institute of Technology	装置責任者 Name of responsible person Kotaro Fujii 装置名 Name of Instrument/(BL No.) SuperHRPD BL08 実施日 Date of Experiment 2017/1/20-27

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. Sintered pellets of $A_3B_2O_7$ (A: La and/or Sr; B: Al, Ga, or Ti) and NdBaScO ₄ -based materials were used for the experiments.
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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. Experimental methods Time-of-flight (TOF) neutron powder diffraction data of $A_3B_2O_7$ (A: La and/or Sr; B: Al, Ga, or Ti) and NdBaScO ₄ -based materials were measured at room temperature and high temperature by a high-resolution neutron powder diffractometer SuperHRPD installed at the beam line BL08 of J-PARC facility, Japan. The sintered samples were put into 10 mm ϕ vanadium sample holders and were used for the diffraction measurements. The diffraction measurements were carried out with five frame mode. Experimental results TOF-neutron data of NdBaScO ₄ measured at 23 °C were analyzed using the program Z-Code. As shown in Figure 1, it gave good quality of fitting by space group <i>Cmcm</i> . The structure analysis of the high-temperature data are in progress. Also, the structure analyses of the diffraction data of the other materials are also on-going.

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

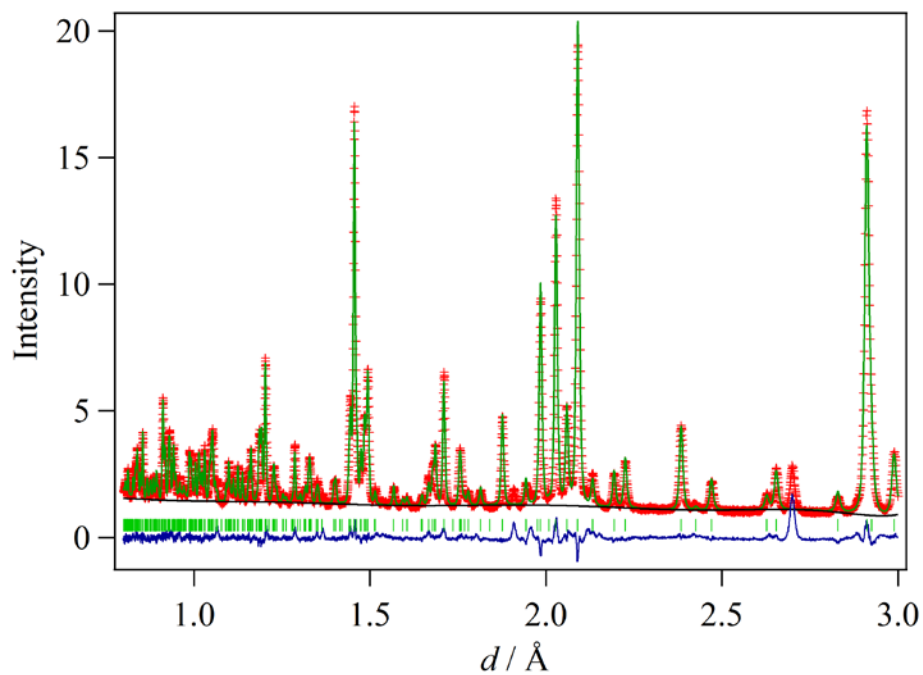


Figure 1 : Rietveld plot of NdBaScO₄ measured at 23 °C.