

 <b>MLF Experimental Report</b>	提出日 Date of Report 2 July, 2012
課題番号 Project No. 2011B0017 実験課題名 Title of experiment Magnetic structures in MnV2O4 実験責任者名 Name of principal investigator Taka-hisa Arima 所属 Affiliation Dept. Adv. Mat. Sci., Univ. Tokyo	装置責任者 Name of responsible person Toru Ishigaki 装置名 Name of Instrument/(BL No.) BL-20 実施日 Date of Experiment 11-12 March 2012

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.
Spinel-type MnV2O4

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.
<p>Powder diffraction measurement was performed at several temperatures below 70 K. As cooling the sample, some peaks were found to be split, which is completely consistent with the cubic-to-tetragonal structural transition. In the figure next page, we show the powder neutron diffraction patterns at 65, 36, and 6 K. Below the structural transition temperature (<math>T_s \sim 56</math> K), the intensity of the lowest-Q peak (111) at about 4.9 angstrom becomes larger. This increase in intensity can be attributed to the ferrimagnetic order with <math>Q=0</math>. In addition, a weak reflection appears at the (200) position, which is forbidden in the spinel-type compound, as shown in the inset. This result indicates the non-coplanar spin arrangements with <math>Q=0</math> below <math>T_s</math>. Although a previously reported Lorentz TEM measurement implies a long-wavelength modulation of spin alignment, no incommensurate magnetic peak was observed in the present experiment. Detailed analysis is not yet performed, partly because this was the very first time of the magnetic structure analysis using the diffractometer iMATERIA.</p>

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

