


実験報告書様式(一般利用課題・成果公開利用)

(※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
課題番号 Project No. 2012B0210 実験課題名 Title of experiment Local structure of NiGa ₂ S ₄ 実験責任者名 Name of principal investigator Yusuke Nambu 所属 Affiliation Tohoku University	装置責任者 Name of responsible person Toshiya Otomo 装置名 Name of Instrument/(BL No.) BL21 実施日 Date of Experiment Feb 6 – 7, 2013 (0.5 day)

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.
Powder sample of NiGa ₂ S ₄

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>Neutron total scattering experiment on the triangular antiferromagnet NiGa₂S₄ were performed at BL12-NOVA. We prepared two batches of the powder sample. The measurements were carried out at room temperature.</p> <p>Frustrated magnets are known to be very sensitive to disorder. That is also the case for the measured compound, where deficiency or extra inclusion of sulfur of NiGa₂S₄ can easily change its physical properties. We have established the method to grow high-quality sample with stoichiometric sulfur amount. To elucidate the potential local structural change induced by sulfur deficiency or extra inclusion, the total scattering were performed. The quick look at the data provides there seems no broad features of the spectrum, suggesting our compound would be really clean within in the instrumental resolution. The detailed analyses are now under way.</p>

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

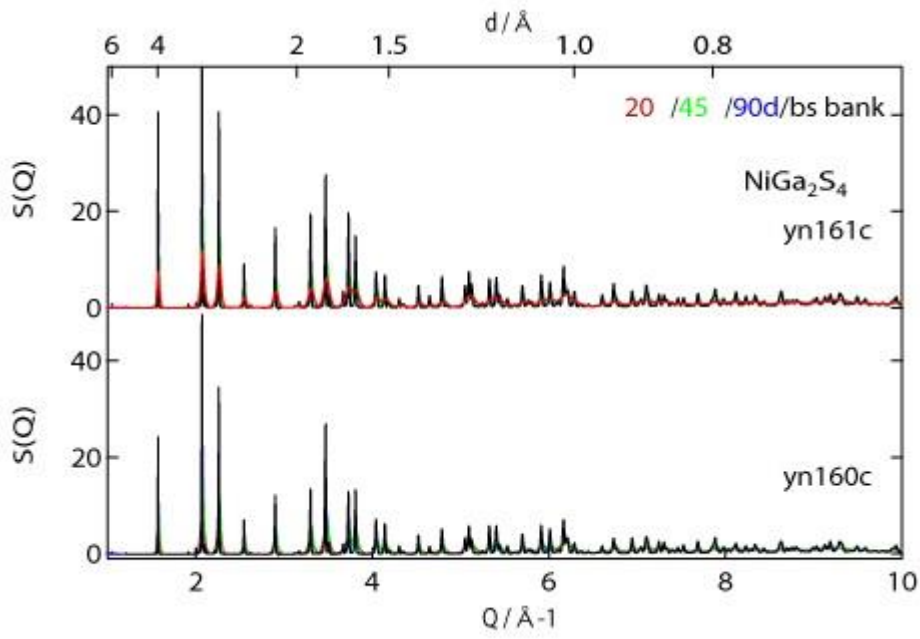


Fig.1: $S(Q)$ of NiGa_2S_4 at room temperature.