


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。)

 	承認日 Date of Approval 2017/12/27 承認者 Approver Ryoichi Kajimoto 提出日 Date of Report 2017/12/27
課題番号 Project No. 2017A0181 実験課題名 Title of experiment Magnetic excitation of high-quality single-crystals of FeSe system 実験責任者名 Name of principal investigator Shin-ichi Shamoto 所属 Affiliation Japan Atomic Energy Agency	装置責任者 Name of responsible person Ryoichi Kajimoto 装置名 Name of Instrument/(BL No.) 4SEASONS(BL-01) 実施日 Date of Experiment 2017/04/01 11:00-04/10 11:00

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.
Single crystals of FeSe

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>Single crystals of β-FeSe have been grown by the KCl/AlCl₃ chemical vapour transport method as a direct synthesis method described at ref. 1. The transition temperature, T_c, is about 9 K. Average weight of a single crystal is about 20 mg. In total, about 800 single crystals with the weight of about 3.0 g are aligned on 11 aluminum plates with 30x50x0.5 mm³.</p> <p>This experiment was the continuation of the previous experiment at 4SEASONS. In our previous measurement, incident energies were at 122 and 474.5 meV at 300 Hz chopper rotation. To check the observed spectrum, different incident energies were applied this time. They are 95 and 300 meV at 300 Hz. One of the results by (1,K)/(H,1) scan with $E_i=95$ meV at $T=5$ K is shown in Fig. 1. Magnetic excitations are observed at (0.5, 0)/(0, 0.5). The whole magnetic spectrum will be revealed for β-FeSe in a wide energy range.</p>

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

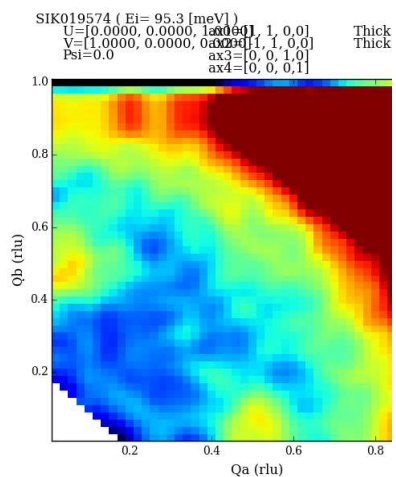


Fig. 1. $(1,K)/(H,1)$ scan at $E=40$ meV and $T=5$ K.

References

- [1] A.E. Bohmer, F. Hardy, F. Eilers, D. Ernst, P. Adelman, P. Schweiss, T. Wolf, C. Meingast, Phys. Rev. B 87, 180505(R) (2013).