

海外支援プログラム実験終了報告書

年 月 日

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中性子散乱課題番号・装置名 : 16551・C1-2:SANS-U
実験課題名 ^(*2) Fe 系超伝導体の磁束研究
利用施設・装置 : ILL・D33
利用期間 : 2016 年 7 月 4 日～2016 年 7 月 12 日
実験の概要 ^(*3) : <p>In order to measure the vortex lattice (VL) in optimal doped $Ba_{0.5}K_{0.5}Fe_2As_2$ crystal, we performed a small angle neutron scattering experiment at D33 in ILL. For this experiment, we prepared a new single crystal and set it on an Al plate with [100] and [001] axes horizontal and applied a field along/near the <i>c</i>-axis.</p> <p>The results revealed that the system shows ring type diffusive diffraction patterns in a low field region but clear spots at higher fields. A figure below shows an example of the diffraction patterns measured with the field slightly rotated away from the <i>c</i>-axis. The six spots pattern indicates that the system has triangle flux line lattice. In this time of experiments, we could measure vortex reflection patterns at several fields but it is limited as being lower than 16 T. The upper critical field for this material is an order of 100T, so we expect to extend this measurement to higher field region. Then now we requested beamtime at EXED, HZB and plan to perform next experiment during summer of FY2017.</p> <p>Finally, we would like to thank financial support for this travel by ISSP since this experiment could not be done without it.</p>

(*1) 1 人のみ支援を受けた場合は空欄でお願いします。

(*2) 物性研中性子共同利用で採択された課題名です。

(*3) 簡単な記述で構いません。この報告書の提出をもって、旅費が支給されます。また、実験終了後 2 ヶ月以内に物性研 ISSP-NSL Database (<http://quasi.issp.u-tokyo.ac.jp/db/index.php>)から activity report の提出をお願い致します。