

海外支援プログラム実験終了報告書

2017年09月01日

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中性子散乱課題番号・装置名 : 17568 HQR [T1-1]
実験課題名 (*2) : Switching the magnetic order in CaBaCo ₂ Fe ₂ O ₇ using magnetic field
利用施設・装置 : MIRA, MLZ, Germany
利用期間 : 2017年08月09日 ~ 2017年08月22日
実験の概要 (*3) : I arrived the evening before the start of the experiment bringing with the samples, which were already prealigned using in-house X-Ray scattering. Since MIRA is a multi purpose beam line, on the first day we have installed the necessary components and optimized the setup to our specific needs. Following the proposed experiment we focused on the influence of the external magnetic field (vertical 5.5T magnet) on the magnetic structure. With the prepared sample holder, this was performed on three samples simultaneously allowing us to study the influence along two symmetrically inequivalent axes. Thanks to the additional beam time provided by the instrument responsible, we were also able to do a first quick check of the influence of external electric field on the magnetic structure. Here, an electric field up to 0.5kV/mm was applied along a high symmetry axis of a single sample. Both experiments have been successful and granted us new insight in the unusual behavior of the magnetic structure. Based on these results and with further analysis we aim to reveal the stabilization mechanism leading to long periodic splitting at low temperatures and the relation to the mixed state at intermediate temperatures. After the experiment came to a conclusion on the morning of the 21 st I returned to Sendai. Furthermore, this business trip allowed me to discuss with collaboration partners as well as instrument responsables about possible future experiments.

(*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。