 MLF Experimental Report	提出日 Date of Report
課題番号 Project No. 2013B0099 実験課題名 Title of experiment Neutron Diffraction imaging of an ammonite nodule in Devonian period 実験責任者名 Name of principal investigator 社本真一 所属 Affiliation 日本原子力研究開発機構	装置責任者 Name of responsible person 大友季哉 装置名 Name of Instrument/(BL No.) NOVA/BL21 実施日 Date of Experiment 2014/3/2-5

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.
<p>an ammonite nodule in Devonian period (mostly SiO₂)</p>

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>Original goniometer designed by our group was used for scanning an ammonite nodule. Scanning sequence commands (x-axis, y-axis, θ and RX-axis) developed by our group for tomography measurement were used at NOVA. Slit window size was set by 3*3 mm². The ammonite nodule was scanned continuously along x axis (horizontal scan). Even recording system enables us to divide the data as we like afterward. By changing the scan from stopped to continuous ones, the measuring time was reduced to about a quarter of the previous time. This is because it takes about 1.5 minutes to set the sample at a certain position, while measuring time was set 30 sec. As example, obtained diffraction patterns are shown in Fig. 1. Main peaks in the diffraction patterns are attributed to those of SiO₂. The diffraction image will be obtained from these scattering patterns, after developing new software to analyze the obtained big diffraction data.</p>

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

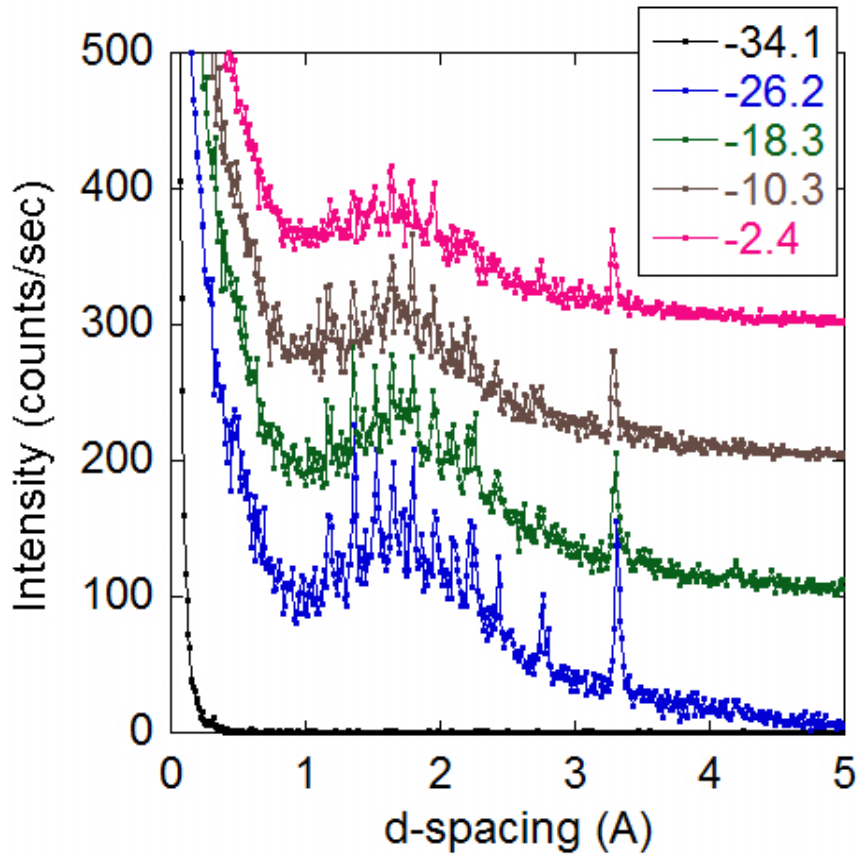


Fig. 1. Selected diffraction patterns obtained from an ammonite nodule in Devonian period at a height of 36 mm (near the center of the nodule). Vales are x-positions from the center of nodule (a positive sign is a right direction).