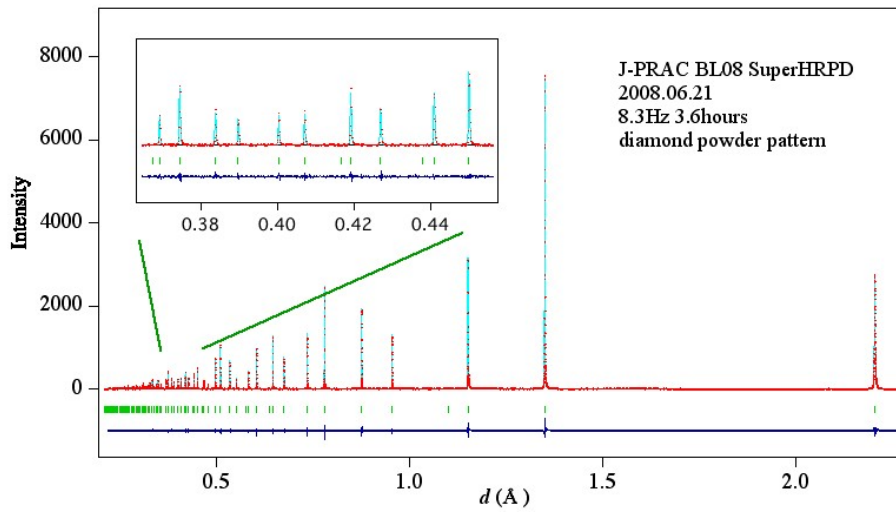
 MLF Experimental Report	提出日 Date of Report 2010.5.24
課題番号 Project No. 2008A0072 実験課題名 Title of experiment Extending the Limit of Neutron Powder Diffraction in Precise Crystallographic Studies on Various Functional Materials 実験責任者名 Name of principal investigator T. Kamiyama 所属 Affiliation	装置責任者 Name of responsible person T. Kamiyama 装置名 Name of Instrument/(BL No.) BL08 実施日 Date of Experiment

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.
Diamond powder, NIST Si, Ce, and other standard samples

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>We measured a sealed sample filled with diamond powder for checking “time focusing” procedure as well as verifying the capability of SuperHRPD as a high resolution powder diffractometer. As shown in Fig. 1, the result of Pawley fitting by <i>Z-Codes</i>, which has been developed for three years, clearly indicates</p> <ol style="list-style-type: none"> 1) SuperHRPD can be used as a high resolution powder diffractometer, and 2) profile shape function used in the analysis software, <i>Z-Rietveld</i>, is basically OK.

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



Diffraction pattern of diamond powder and its whole pattern fitting with a software *Z-Code*. *Z-Code* is a powder diffraction data analysis software suit and has been developed by us for three years. *Z-Code* composed of various kinds of programs including peak-search, peak-matching, peak-indexing, Fourier analysis, maximum entropy method, Reverse Monte Carlo, profile fitting and Rietveld method *etc.*