


(※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。)

 <b>MLF Experimental Report</b>	提出日 Date of Report
課題番号 Project No. 2011B0042 実験課題名 Title of experiment Measurement of Angular Distribution of Prompt Gamma-rays from Radiative Capture Neutron Reactions 実験責任者名 Name of principal investigator Hirohiko Shimizu 所属 Affiliation Nagoya University	装置責任者 Name of responsible person Hideo Harada 装置名 Name of Instrument/(BL No.) BL04 実施日 Date of Experiment 2012/3/19-2012/3/23

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.
La (metal)

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 placed a lanthanum foil at the normal sample position, which is located 21.5 m from the moderator surface, and acquired gamma-ray signals from the set of cluster germanium detectors. The amplitude of the gamma-ray signals from individual germanium crystals were recorded as a function of neutron time-of-flight.</p> <p>We obtained the time-of-flight spectrum, in which the gamma-ray signals are histogrammed as a function of neutron time-of-flight. P-wave and s-wave resonances of <math>^{139}\text{La}</math> are observed at <math>\text{tof}=1.8\text{ms}</math> and <math>18\mu\text{s}</math>, which corresponds to the neutron energy of <math>E_n=0.75\text{ eV}</math> and <math>E_n=72\text{ eV}</math>. Random pulser signals with a constant rate were merged into the data acquisition system for the correction of the deadtime of the germanium detectors and the data acquisition system. The pulser signals had a constant amplitude beyond the pulse height region of physics signals and were unambiguously distinguished from physics signals. The observed rate was distorted from the constant rate due to the dead time of the detector and data acquisition system. The dead time correction was applied so that the pulse signals have a constant rate over the neutron time-of-flight.</p>