（ ※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。 ）

CROSS TOKAI **Experimental Report** J-PARC	承認日 Date of Approval 2016/07/12 承認者 Approver Dai Yamazaki 提出日 Date of Report 2016/07/04
課題番号 Project No. 2015A0011 実験課題名 Title of experiment Feasibility test of the beamline's MWPC for visualization of surface and interfaces of thin films 実験責任者名 Name of principal investigator Kenji Sakurai 所属 Affiliation National Institute for Materials Science	装置責任者 Name of Instrument scientist K. Soyama 装置名 Name of Instrument/（BL No.） BL17 実施日 Date of Experiment a part of February 24-27, May 8-11, June 24-27, 2016 (total 6 days)

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.

A patterned layered thin film (coated by Ni and Ti on Si wafer)

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.

The present work follows a series of previous research (2014B002, 2014A002 and 2013A0227) aiming at extending the conventional neutron reflectivity to give spatial resolution necessary for visualizing the buried inhomogeneous interfaces of layered thin films.　In the present experiment, we tested MWPC instead of the combination of the coded mask and ^{3}He detector.　We obtained 18 reflection projections in the similar manner as previous research.　As we did not need the mask scan, the experiment was simple enough.　On the other hand, our measurement used only few mm (H) x 30mm (V) in the detector's 100 mm x 100 mm area, and this would not be very efficient.　If we continue to use such a 2D detector, some optimization for neutron reflection imaging will be important.　The detector was also easily saturated when the a part of direct beam came in.　We have compared the data taken by MWPC and those by the coded mask scan in terms of the spatial resolution and the quality of the data.　Though the latter seems superior at the present stage, the use of more advanced high-resolution 2D detector would be promising.

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

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