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<<BL15 REPORT>>

FIRST EXPERIMENTS OF A STRUCTURAL STUDIES BEAMLINE BL15 OF A COMPACT SYNCHROTRON LIGHT SOURCE (SAGA-LS)

Yoshinori Chikaura[1], Toshihiro Okajima[2], Yuji Soejima[3], Kazuhiro Hara[4], Yoshifumi Suzuki[1], Nobuyasu Hiramatsu[5], Atsushi Kohno[5], Kiyofumi Nagata[5], Hiroyuki Setoyama[2], Daisuke Yoshimura[2] and Masaaki Tabata[6]

1 Graduate school of Eng., Kyushu Institute of Tech., Kitakyushu, 804-8550, Japan
2 Kyushu Synchrotron Light Research Center, Tosu, Saga 841-0005, Japan
3 RDCEH, Kyushu University, Chuo-ku, Fukuoka 810-8560, Japan
4 Graduate school of Eng., Kyushu University, Higashi-ku, Fukuoka 812-8581, Japan
5 Faculty of Sc., Fukuoka University, Johnan-ku, Fukuoka 814-0180, Japan
6 Faculty of Sc. and Eng., Saga University, Saga 840-8502, Japan

The SAGA-LS, a compact synchrotron light source with a 1.4 GeV electron storage ring [1], has successfully begun the beam commissioning since the last December. In the presently first construction stage SAGA-LS is equipped with a structural studies beamline (bending magnet) "BL15" using hard X-rays in addition to the other three beamlines such as soft X-ray or photoelectron beamlines, in order to perform the characterization of various materials developed for industrial purposes. Conceptual target of the beamline is due to promote the industrial applications and academic studies.

The transport channel above the experimental station are composed with two optical elements. The bending magnet white X-rays with 2.1 to 14.2 keV are monochromatized by using a fixed-exit double-crystal Si (111) monochromator and focused using a bent cylindrical mirror. The mirror focuses the beam into a sub-millimeter spot at the sample position. The ray-tracing simulations shows the flux at the sample position is expected to be more than 1×10^{11} photons/sec at 8 keV with an energy resolution of better than 8×10^{-4} [2]. Basic experimental equipments for XAFS measurement including X-ray absorption measurements, high resolution diffractometry, various kinds of imaging and energy-dispersive diffractometry have been prepared in the station. It is particularly important to set up an apparatus with necessary measuring units according to the present experiment. The detailed of the experiments made at the beamline BL15 will be reported at the poster session.

[1] T. Tomimasu, *et. al.*, Proc. PAC2003 (2003) 902.

[2] T. Okajima, *et. al.*, Nucl. Instr. and Meth. in Phys. Res. B 238 (2005) 185.