

Industrial Consortium ID (BL16XU)

1. Introduction

The industrial consortium for materials research was organized in 1996 for industrial applications of high brilliance X-rays in SPring-8. The consortium is composed of 13 companies in the fields of electronics, steel, electric power and automobiles. JASRI acts as a secretariat. The undulator, beamline and experimental station have been constructed this year for X-ray diffraction, X-ray fluorescence analyses, and X-ray microbeam experiments. The beamline BL16B2 with a bending magnet source has also been constructed at the same time.

2. Outlines of the Beamline

The undulator is a standard in-vacuum type with a little long period of 40 mm for X-ray energy around the Ti *K*-edge. Figure 1 shows the beamline layout. The first optical component in the beamline is the standard double crystal monochromator in SPring-8. We use the X-ray from 4.5 to 40 keV with Si(111). A toroidal mirror is installed to focus the beam on a pin-hole slit in the experiment hutch. Under the standard incidence at 5 mrad, a X-ray up to 14 keV is focused and the 3rd harmonic component is eliminated. It is unnecessary to move components after the mirror.

The hutches of BL16XU and BL16B2 are joined, and the status signal of the door between the two beamlines is connected with both interlock systems.

3. Experimental Station

The instrumentation for X-ray fluorescence analyses, X-ray diffraction and X-ray microbeam experiments is now being constructed and put in order in the hatch. We can use either a wave dispersive or an energy dispersive X-ray fluorescence analysis with various incidence conditions such as a grazing incidence in a vacuum. The X-ray diffractometer is designed to measure thin films or powder. The optical system for X-ray microbeam experiments is a K-B mirror. We are planning to perform mapping or imaging measurements of X-ray fluorescence or X-ray diffraction.

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