BL12XU

NSRRC ID

1. Operation of the main line

The main beam line of BL12XU has been fully operational focusing mainly on IXS experiments on the dynamic response of electrons and the electronic structure in strongly correlated systems, and phase transitions in materials induced by pressure and temperature. There were 25 experiments carried out in 2006 and a number of papers have been published in high impact journals.

2. Progress of construction of the side line

Near the end of 2005 NSRRC decided to build a side line of BL12XU for performing high energy photoemission (HEPES) experiments using hard x-rays. The research will be focused both on the bulk properties of correlated systems and the electronic structure of buried interfaces such as those related to semiconductor devices. This project is a joint endeavor with the University of Cologne, Germany. The beam line modification plan was approved by SPring-8 in mid-2006.

We design to use diamond 111 reflection to either use the whole beam in Bragg mode or split the beam sharing with the main line in Laue mode. The layout is shown in Fig. 1. The scattering angle range is from 60-28 degrees corresponding to photon energy about 6-12 keV. In our design of the diamond monochromator (DM) the diffracted monochromatized beam of all energies will converge to a point. This pivot point is which a rotational platform is swung about. All other optics including a high resolution channel-cut monochromator (HRM), a KB focusing mirror system, and finally the end station will be placed on top of the platform. The DM has been installed and is shown in Fig. 2. The platform, HRM, and KB systems will be installed in the end of 2007 or early 2008.

Fig. 2. The installed diamond monochromator.

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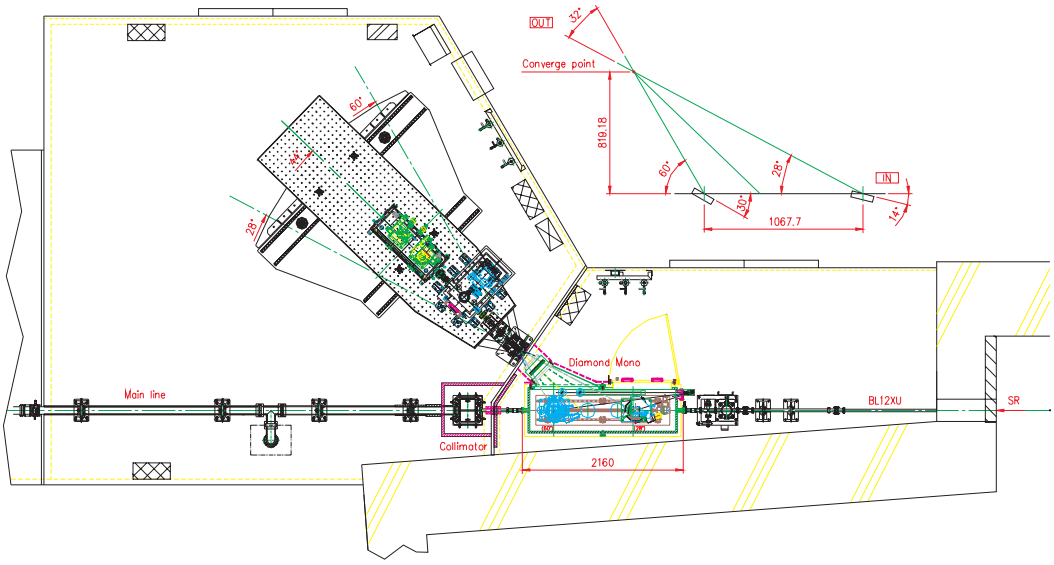

Fig. 1. Layout of the side beam line of BL12XU.