

BL32B2 (R&D-BM)

BL32B2 is a beamline with a bending magnet as a light source. It consists of one optics hutch and two experimental hutches.

To efficiently use high-energy X-rays over 60 keV, a new double silicon crystal monochromator was introduced in the transport channel during FY 2018. It is designed so that the crystal plane can be changed from Si(111) to Si(311) or Si(511) plane, allowing higher energy X-rays to be utilized. The crystals are indirectly cooled by water. Two mirrors are installed to reject higher-order reflections from monochromator crystals. They are both 1-m long. To deflect the X-rays downwards, the first one is a flat mirror with platinum-coated and rhodium-coated areas, both of which are 15-mm wide. The other one is a partly 10-mm-wide platinum cylindrical mirror, where the remaining area contains a 15-mm-wide platinum-coated area and a 15-mm-wide rhodium coated area. This mirror deflects the X-rays upwards. Several ion pumps are introduced in the transport channel.

The first experimental hutch (EH 1), which has an entrance Be window located 53.6 m from the source point, was mostly used for performance tests of X-ray imaging microscopy using a Fresnel zone plate as an objective lens. This microscope can also measure the spatial distribution of EXAFS signals. Tests were conducted by the Structure Visualization Team in RIKEN and Rigaku. The second experimental hutch (EH 2), which has an entrance Kapton window located 70.75 m from the source point, was utilized for the experiments related to battery science performed by NEDO (New Energy and Industrial Technology Development

Organization) and Kyoto University. A vacuum pipe is connected between EH 1 and EH 2 during the experiments at downstream EH 2 to avoid the X-ray attenuation by air. In FY2019, this beamline will be utilized as the RIKEN beamline and the Facility Development Bending beamline. Experiments will focus on R&D of SR instruments.

Yoshiki Kohmura

SR Imaging Instrumentation Team, Physical and Chemical Research Infrastructure Group, Advanced Photon Technology Division, RIKEN SPring-8 Center