

5-2. RIKEN Beamlines

RIKEN SPring-8 Center is responsible for the R&D of SPring-8 beamline technology and systems as well as the new SACLA technology in various fields of Synchrotron Radiation (SR) science. RIKEN Advanced Photon Technology Division is exploring the best use of the high-brilliant SR sources of SPring-8 and XFEL of SACLA in various scientific fields, including life science and materials science. In addition, this division is responsible for the operation and user support of 12 RIKEN beamlines. RIKEN beamlines are operating with new measurement methods. These include the high-throughput protein micro-crystallography at BL32XU, which has been successfully solving membrane protein structures, a new scanning SX spectromicroscope at BL17SU, which is useful in microspectroscopic studies on various advanced materials, and the Quantum Nano-dynamics Beamline (BL43LXU) for inelastic X-ray scattering research.

In addition to conventional beamline R&D, we began the first remodeling program of the RIKEN beamline and public beamline as the beamline scrap and swap for the SPring-8 upgrade. The first RIKEN beamline to be remodeled is BL45XU. It was converted from a SAXS beamline to a high-throughput MX beamline for industrial use. In December 2018, the last SAXS experiment at BL45XU was completed. The remodeling to a high-throughput MX beamline was completed by the end of the FY2018. BL45XU is now a public MX beamline, and the SAXS activity at BL45XU was transferred to another beamline.

Technological developments and SR experiments are proceeding smoothly at four structural biology–

related and five physical science–related RIKEN beamlines. Each beamline has its own characteristics. Below, we report on the current status of the RIKEN beamlines in operation: BL05XU, BL17SU, BL19LXU, BL26B1&B2, BL29XU, BL32XU, BL43LXU, BL44B2, and BL45XU.

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