Chapter 2 Beamlines

A total of 49 beamlines have been installed and commissioning. The current beamline lineup is summarized in Tables 2-1 and 2-2, and the x-ray beam characteristics and research areas at each beamline are in Appendix A.

At present 48 beamlines are operated for users' experiments. The beamlines are categorized into three groups according to management:

1. Public beamlines
2. RIKEN beamlines
3. Contract beamlines

Twenty-five public beamlines are open to general users under JASRI's management. The RIKEN beamlines are managed by The Institute of Physical and Chemical Research (RIKEN) for their own experiments. Seven RIKEN beamlines are in operation. The contract beamlines are funded and controlled by other organizations, i.e. universities, industrial companies and research institutes. Fourteen contract beamlines are operational.

As for new beamlines, the "Hyogo BM (BL08B2)" beamline, a contract beamline, is under commissioning and the "Engineering Science Research II (BL14B2)" beamline is under design and construction as a public beamline.

In addition, the SPring-8 facility has two accelerator beamlines (BL05SS and BL38B2). The beamlines are used for diagnosing the stored electron beams by the JASRI accelerator group.

Table 2-1 SPring-8 beamlines (2005B)

	Beamline*	Beamline Name	Public Use
Public Beamlines	BL01B1	XAFS	October 1997
	BL02B1	Single Crystal Structure Analysis	October 1997
	BL02B2	Powder Diffraction	September 1999
	BL04B1	High Temperature and High Pressure	October 1997
	BL04B2	High Energy X-ray Diffraction	September 1999
	BL08W	High Energy Inelastic Scattering	October 1997
	BL09XU	Nuclear Resonant Scattering	October 1997
	BL10XU	High Pressure Research	October 1997
	BL13XU	Surface and Interface Structures	September 2001
	BL14B2	Engineering Science Research II	Under Construction
	BL19B2	Engineering Science Research I	November 2001
	BL20XU	Medical and Imaging II	September 2001
	BL20B2	Medical and Imaging I	September 1999
	BL25SU	Soft X-ray Spectroscopy of Solid	April 1998
	BL27SU	Soft X-ray Photochemistry	May 1998
	BL28B2	White Beam X-ray Diffraction	September 1999
	BL35XU	High Resolution Inelastic Scattering	September 2001
	BL37XU	Trace Element Analysis	November 2002
	BL38B1	Structural Biology III	October 2000
	BL39XU	Magnetic Materials	October 1997
	BL40XU	High Flux	April 2000
	BL40B2	Structural Biology II	September 1999
	BL41XU	Structural Biology I	October 1997
	BL43IR	Infrared Materials Science	April 2000
	BL46XU	R&D	November 2000
	BL47XU	HXPES, MCT	October 1997

	Beamline*	Beamline Name	First Beam
RIKEN Beamlines	BL17SU	RIKEN Coherent Soft X-ray Spectroscopy	September 2003
	BL19LXU	RIKEN SR Physics	October 2000
	BL26B1	RIKEN Structural Genomics I	April 2002
	BL26B2	RIKEN Structural Genomics II	April 2002
	BL29XU	RIKEN Coherent X-ray Optics	December 1998
	BL44B2	RIKEN Structural Biology II	February 1998
	BL45XU	RIKEN Structural Biology I	July 1997
Contract Beamlines	BL08B2	Hyogo BM (Hyogo Prefecture)	June 2005
	BL11XU	JAEA Quantum Dynamics (Japan Atomic Energy Agency)	October 1998
	BL12XU	NSRRC ID (National Synchrotron Radiation Research Center, Taiwan)	December 2001
	BL12B2	NSRRC BM (National Synchrotron Radiation Research Center, Taiwan)	October 2000
	BL14B1	JAEA Materials Science (Japan Atomic Energy Agency)	December 1997
	BL15XU	WEBRAM (National Institute for Materials Science)	January 2000
	BL16XU	Industrial Consortium ID (Industrial Consortium)	October 1998
	BL16B2	Industrial Consortium BM (Industrial Consortium)	October 1998
	BL22XU	JAEA Quantum Structural Science (Japan Atomic Energy Agency)	May 2002
	BL23SU	JAEA Actinide Science (Japan Atomic Energy Agency)	February 1998
	BL24XU	Hyogo ID (Hyogo Prefecture)	May 1998
	BL32B2	Pharmaceutical Industry (Pharmaceutical Consortium for Protein Structure Analysis)	April 2002
	BL33LEP	Laser-Electron Photon (Research Center for Nuclear Physics, Osaka University)	June 1999
	BL44XU	Macromolecular Assemblies (Institute for Protein Research, Osaka University)	May 1999
Accelerator Beamlines	BL05SS	Accelerator Beam Diagnosis	March 2004
	BL38B2	Accelerator Beam Diagnosis	September 1999

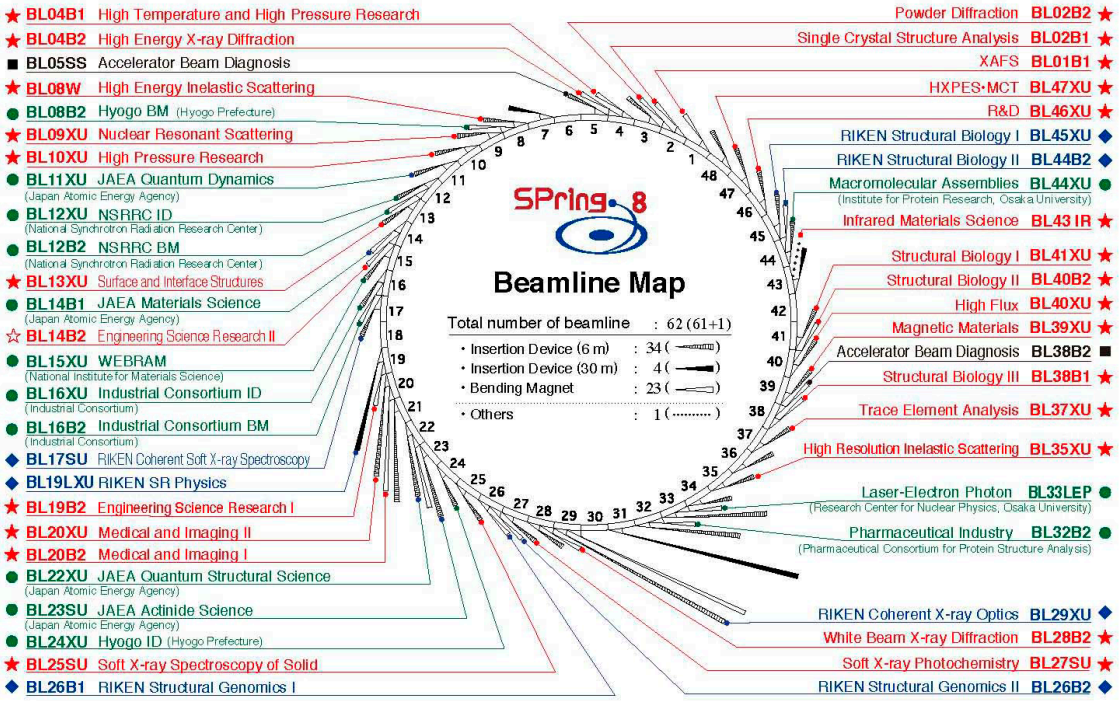
* BL: Beamline B1, B2:Bending Magnets XU:X-ray Undulator SU:Soft X-ray Undulator
W:Wiggler IR:Infrared Radiation LEP:Laser-Electron Photon LXU:Long-length Undulator
SS:Straight Section

Table 2-2 Status of SPring-8 beamlines (2005B)

Beamline	Status		Total
	In Operation	Planned or Under Construction	
Public Beamlines	25	1	26
Contract Beamlines	14	0	14
RIKEN Beamlines	7	0	7
Accelerator Beamlines	2	0	2
Total	48	1	49

Table 2-3 Classification of beamlines (2005B)

Method / Field	Public Beamline				RIKEN Beamline				Contract Beamline				
X-ray Diffraction													
Single Crystal Analysis	BL02B1	BL04B2	BL19B2	BL46XU					BL12B2	BL14B1	BL16XU	BL22XU	
Powder Diffraction	BL02B2	BL19B2							BL08B2	BL12B2	BL15XU	BL24XU	
Surface and Interface Structures	BL09XU	BL13XU							BL11XU	BL24XU			
Random System	BL04B2	BL28B2											
High Pressure	BL04B1	BL04B2	BL10XU						BL14B1	BL22XU			
Time Resolved	BL40XU												
Inelastic X-ray Scattering													
Compton Scattering	BL08W												
Nuclear Resonant Scattering	BL09XU	BL35XU							BL11XU				
High Resolution lnelastic Scattering	BL35XU												
Resonant Inelastic X-ray Scattering									BL11XU	BL12XU			
Magnetic Scattering and XMCD	BL39XU	BL46XU			BL19LXU								
Spectroscopy													
Hard X-ray Photoelectron Spectroscopy of Solids	BL47XU								BL15XU				
Soft X-ray Photoelectron Spectroscopy of Solids	BL25SU	BL27SU			BL17SU				BL23SU				
Soft X-ray Emission Spectroscopy	BL27SU				BL17SU								
MCD	BL25SU	BL39XU							BL23SU				
PEEM	BL25SU				BL17SU								
Photochemistry	BL27SU								BL23SU				
Infrared Spectroscopy	BL43IR												
Structural Biology	BL38B1	BL40B2	BL41XU		BL26B1	BL26B2	BL44B2	BL45XU	BL12B2	BL24XU	BL32B2	BL44XU	
Imaging and Tomography	BL20XU	BL20B2	BL28B2	BL47XU					BL08B2	BL16B2	BL24XU		
Small Angle Scattering	BL20XU	BL20B2	BL40XU	BL40B2	BL45XU				BL08B2				
Chemical Analysis													
XAFS	BL01B1	BL19B2	BL37XU	BL38B1					BL08B2	BL11XU	BL12B2	BL14B1	BL16B2
Dispersive XAFS	BL28B2												
Fluorescence Analysis	BL08W	BL20B2	BL37XU	BL40XU					BL16XU	BL16B2			
Coherent Optics					BL29XU								
Photonuclear Reactions									BL33LEP				
Accelerator Diagnostics	BL05SS	BL38B2											



BL: Beamline
B1, B2: Bending Magnets
XU: X-ray Undulator
SU: Soft X-ray Undulator
W: Wiggler

IR: Infrared Radiation
LEP: Laser-Electron Photon
LXU: Long-length Undulator
SS: Straight Section

WEBRAM: Wide Energy range Beamline for Research in Advanced Materials
NSRRC: National Synchrotron Radiation Research Center

★ : Public Beamlines
● : Contract Beamlines
◆ : RIKEN Beamlines
■ : Accelerator beam diagnostic lines
☆ ○ ◇ □ : Planned or Under Construction

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Status	Beamline				Total
	Public Beamlines	Contract Beamlines*	RIKEN Beamlines	Accelerator Beam Diagnostic Lines	
Operational	25	14	7	2	48
Planned or Under Construction	1	0	0	0	1
Total	26	14	7	2	49

Figure 2-1 SPring-8 beamline map