

Overview of the SPring-8 Project

Hideo OHNO

1. Introduction

The installation of all systems in the linac, synchrotron and storage ring was completed, and the beamline construction has continued. The beam commissioning of the linac and synchrotron was completed. The operation of the storage ring started in the middle of March, and the first synchrotron radiation was observed on March 26, 1997. The research activities using the public beamlines will start in October 1997.

2. Accelerators

2.1 Injector Linac

The installation of the linac started in April 1995 and was completed in December 1995. Testing of the various types of power supplies started early in 1996, and the beam commissioning started on August 1 and was completed in November 1996.

2.2 Booster Synchrotron

The construction of the synchrotron started in 1993, and all of its components were installed at the end of March 1996. After the alignment of the lattice magnets, the conditioning of the RF cavities started in June 1996. The beam commissioning began on December 10, 1996, and the energy ramping of the electron beams in the synchrotron from 1 GeV of injection energy to 8 GeV of extraction energy succeeded on December 16, 1996.

2.3 Storage Ring

All components of the storage ring including magnets, the vacuum system, power supplies and the control system were completed, and the beam commissioning started in the middle of March 1996. The first synchrotron radiation was observed on

March 26, 1996.

3. Beamlines

In 1996, the construction of 10 first phase public beamlines, 2 R&D beamlines (BL46XU, BL47XU) and 6 JAERI/RIKEN beamlines has continued.

The 10 first phase public beamlines were those for XAFS (BL01B1), crystal structure analysis (BL02B1), high temperature research (BL04B1), high energy inelastic scattering (BL08W), nuclear resonant scattering (BL09XU), extremely dense state (BL10XU), soft X-ray spectroscopy of solid (BL25SU), soft X-ray photochemistry (BL27SU), physicochemical analysis (BL39XU), and bio-crystallography (BL41XU). These beamlines are scheduled for completion by the end of 1997.

The six beamlines of JAERI (BL23SU, BL14B1, BL11XU) and RIKEN (BL45XU, BL44B2, -) have been constructed for the exclusive use by the researchers at JAERI and RIKEN.

For the contract beamlines, five proposals were accepted. The construction of two among these beamlines, the Hyogo Beamline (Hyogo) and Macromolecular Assemblies Beamline (Osaka University) has started.

4. Conventional Facilities

The following facilities were completed in 1996: the utility control building (Jan.), experiment drainage treatment equipment (Feb.), storage ring building (Oct.), cafeteria (Nov.), and the RI laboratory (Dec.). The administration building, machine laboratory, assembly & adjustment experimental building, guest houses, and biomedical imaging center buildings are under construction.

5. Administrations

The present SPring-8 organization, established in September 1995, manages the operation of both the SPring-8 Project Team

and JASRI staff. At the end of December 1996, the SPring-8 project had a total staff of 289, 181 of whom belonged to the SPring-8 Project Team, while the remaining 108 were the members of JASRI.

SPring-8 has established the Steering Coordination Committee to promote the effective coordination of work undertaken by JAERI, RIKEN and JASRI

6. JASRI Users Programs

As many as 190 scientific subjects were submitted to the Proposal Review Committee for the first utilization period of SPring-8 beamlines. A total of 131 subjects was accepted during October, 1997 and March, 1998.

The contract beamlines proposed by universities, national laboratories or industries at their expense were reviewed at the Contract Beamline Committee. The Committee approved five proposals to start the beamline construction. These are the multipurpose beamline (Hyogo Pref.), supramolecular crystallography beamline (Osaka Univ.), high-precision materials science beamline (National Inst. Res. Inorg. Material), sunbeam BM(JASRI-Industry), sunbeam ID(JASRI-Industry).

7. SPring-8 Users Society

The SPring-8 Users Society was formally established in 1993. More than 1050 members (60% from universities, 20% from national laboratories and 20% from industry) belonging to 35 groups have joined this Society to promote scientific programs including the detailed design of public beamlines.