

Chapter 1 Introduction

The SPring-8 facility was designed and constructed by the Japan Atomic Energy Research Institute (JAERI) and the Institute of Physical and Chemical Research (RIKEN). After the inauguration in October, 1997, it has been operated by the Japan Synchrotron Radiation Research Institute (JASRI). At present, 48 beamlines are in operation and among them 25 beamlines are for public use under JASRI's management. These state-of-the-art beamline facilities are shared with the worldwide communities of basic science and industries and contain cutting-edge technologies and instrumentation that are available only in a limited number of synchrotron radiation facilities. Since the inauguration the number of users has been growing, and more than 7,300 users visit SPring-8 annually in recent years.

As in previous years many programs for development have been pursued through the whole facility. A noteworthy event is the launch of a top-up operation of the storage ring to provide users with stable x-rays. The top-up operation injects electrons in short intervals and maintains the stored current constant. In 2005, it has become a routine operation in the SPring-8 facility and has widened the choice of beam-filling patterns. This successful implementation will lead to progresses in experiment to open a new window for innovative research.

Progress is accelerating with the partnership for industries. JASRI will start a new program, the Program for Strategic Use of Advanced Large -scale Research Facilities, in the 2005B research term that strengthens the system for promoting the use from industries.

In the fall of 2004 two typhoons hit the SPring-8 site and caused serious damages on the roofs of the storage ring building. Although the SPring-8 facility was shut down between January to March in 2005 for repairing the damaged parts, the total of beam times was kept as planned beforehand for the total of the 2004A and 2004B research terms by for user the facility operation and user's experiments.

This book is compiled for the Beamline Review Committees to learn the beamline setup, their performances, research activities and future plan. The next chapter presents the current status of SPring-8 beamlines. Chapters 3 and 4 describe the storage ring operation and the user operations. Chapter5 surveys the publications at SPring-8. Finally, Appendix A summarizes the experimental stations, and Appendix B lists the publications.

The statistics in this book are based on the data from the 1997B research term to the 2004B research term except for the list of publications. The list comprises all the publications registered by May 31, 2005.

