Research Activity of the RIKEN SPring-8 Center

YAMAMOTO Masaki[1,2]
[1]RIKEN SPring-8 Center
[2]Japan Synchrotron Radiation Research Institute (JASRI)

The SPring-8, the world's largest third-generation Synchrotron Radiation (SR) facility, provides the most powerful SR currently available. This ultra-brilliant SR of SPring-8 offers many researchers exciting opportunities for advanced research in materials science, spectroscopic analysis, earth science, life science, environmental science, industrial applications and other various fields.

The RIKEN has been managing the SPring-8 independently since October 2005 after the withdrawal of the Japan Atomic Energy Research Institute, previously known as JAERI. The management of operation and maintenance, and support for users of the SPring-8 has been entrusted to the Japan Synchrotron Radiation Research Institute (JASRI). In October 1997, upon opening of the SPring-8 for public use, the RIKEN Harima Institute was established to conduct frontier research. In October 2005, the RIKEN SPring-8 Center (RSC) was set up to promote structural biology, materials science, advanced SR technology and R&D for the next generation light source. In the field of Structural Biology, for instance, three-dimensional (3-D) structures are determined to further understand the mechanisms of biological catalysts at the atomic level, and are then applied to the pharmaceutical development.

The RSC together with the JASRI currently develops the X-ray Free Electron Laser, the next generation light source with advanced properties of both SR and laser, which will greatly contribute to the progress in the many fields of science. For example, XFEL is expected to determine the 3-D structure of protein from a single molecule, which will shorten the time of solving structures. We have already constructed XFEL's prototype machine and started to build the full-scale machine in 2006. We eagerly step forward to generate a "dream-light", which eventually leads us to a world where no one has ever been before.