

Preface

In October 2007 SPring-8 celebrated the 10th anniversary of inauguration. SPring-8 has kept the position of the world largest for a decade because no gigantic facilities were constructed after SPring-8. Furthermore, people have learned from the results of operation of the big three third-generation facilities that the most of the demands to synchrotron radiations can be covered by high-performance medium-energy (~ 3 GeV) machine, which were materialized by using the vacuum-sealed undulator developed at SPring-8. This recognition led to the construction of such machines, which will probably respond to most of the users' demands in the future.

SPring-8 is the most expensive machine in the world to operate and to maintain, and will be no more competitive to the new medium-energy machine from the economical point of view. SPring-8 is now destined to depend on the extreme quality and/or high energy of the beam. In other words, the gravity center of SPring-8 should be shifted to the experiments that are worthy to utilize the superior beams of SPring-8. We are forced to yield the good result of utilization to convince the public society for holding such expensive beams.

Machine construction team consisting of RIKEN and JASRI scientists already provided extensive plans for improving the beam on the SPring-8 site. The construction of the XFEL (X-ray free electron laser) based on an 8-GeV linear accelerator (LINAC) started in 2006. In the future this LINAC will be connected to the storage ring of SPring-8 to supply the electron beam of lower emittance than the present. Thus, the machine is ready for the upgrade for the future.



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