

Preface

This annual report summarizes the activities at SPring-8 during calendar year 1999. It includes status reports of accelerators, experimental facilities, activities of safety office and utility management together with results of R&D activities with accelerator and beamline technology. As for the research activities using synchrotron radiation at SPring-8, only the titles of the experiments performed in 1999 are listed in this volume, because short reports of all the experimental results at SPring-8 are summarized in a series of "SPring-8 User Experimental Report" separately.

In 1997 and 1998 the operation schedule for the facility was formed on the basis of the Japanese fiscal year which starts in April. From our experience in the past two years, however, we found that this operation schedule did not work well, because the proposal review always coincided with times when university professors were busiest. So we decided to form the operation schedule for SPring-8 in the user service mode on the basis of the calendar year. The year of 1999 was the transition period and the former user service period, 1999A, started in October 1998 and ended in June 1999. The latter, 1999B, was from September to December 1999. The facility was in continuous operation for two- or three-weeks as one cycle.

The storage ring was operated for 4,850 hours in 1999 and 3,425 hours of these (70.63%) were used for experiments. The remaining 1,424 hours were spent for machine study and tuning and also for commissioning new beamlines. It should be stressed that the total down time in 1999 was only 60 hour corresponding to 1.76% of the total user time.

The performance of the storage ring such as orbit stability, emittance, coupling, stored current and its life etc., has been studied and it became clear that the present ring already exceeds the design values of almost all the items in its performance. In September 1999 the optics of the electron beam in the storage ring was changed from initial hybrid mode to HHLV (high β in the horizontal plane and low β in the vertical plane) mode. We found that the performance of the storage ring was greatly improved.

Construction of beamlines was continued in 1999. The number of public, contract and JAERI/RIKEN beamlines, which were in full operation for users, was eighteen in 1999A and increased to twenty-five in 1999B. In addition to these, twelve beamlines were under construction and construction of two public beamlines, one for surface/interface research and one for R&D in industries was newly started in 1999B.

In 1999A, 392 proposals were submitted by public users and 258 of them were accepted, whereas 246 proposals were accepted among 431 in 1999B. On the other hand, the experiments of 104 proposals were pursued at three contract beamlines. The total number of users 3,800 in 1999.



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