Preface

The fiscal year of 2020 started with COVID-19. The first state of emergency was issued on April 7th to seven prefectures, including Hyogo, where SPring-8 is located and was subsequently expanded nationwide on April 16th. In Hyogo prefecture, it continued until the cancellation on May 21st. Human traffic was severely restricted during this time, and the facility open house scheduled for the end of April was canceled.

Even though the SPring-8 site was far from big cities, and the risk of infection was low, only COVID-19-related research projects were allowed to be conducted owing to the general rule of RIKEN. Several structures analyses were carried out for proteins related to the COVID-19. Spectroscopic evaluation of blood transport tubes for Extracorporeal Membranous Oxygenation (ECMO) was carried out to find a way for suppressing thrombus formation. Most of the other programs approved in 2020A (the first half of the year) could not be implemented, and most of them were shifted to the second half of the year. However, overseas users could not come to Japan at all during this time.

The restriction of human traffic by COVID-19 pandemic has spurred the development of remote access, automatic measurement, and multi-site remote participation experiments using web systems. PRISM-funded DX conversion was implemented at several beamlines.

On the other hand, while the number of visiting users decreased during the state of emergency, tests for using the SACLA linear accelerator as an injector for SPring-8 storage ring were carried out. We found and solved some minor problems. Finally we decided to discard the old injection system consisting of the 1 GeV linac and booster synchrotron, and to start the daily SACLA injection in earnest from the beginning of 2021. This change caused the loss of NewSUBARU injectors, but installing a dedicated 1GeV linear accelerator for NewSUBARU has made a top-up operation possible.

Beamline renovation is being continued in order to respond to the future upgrade of the light sources. Over the next five to ten years, we will continue reorganizing and renovating the shared beamlines and RIKEN beamlines. The basic principle aims to expand the portfolio by categorizing the beamline into three types: production, specific, and development.

Meanwhile, our accelerator team helped National Institute for Quantum Science and Technology (QST)

design and procurement of the accelerator components for the next generation SR facility to be built in Sendai. The facility will be a Multi-Bend Achromat (MBA) based fourth generation source. We consider it a prototype for our future SPring-8-II. Many new designs of the components made for SPring-8-II have been applied to the designs of the next generation SR facility.

We were forced to cancel the 2020 Open House by COVID-19 pandemic. However, the 2021 Open House was held on-line. Due to the strong requests from the online visitors, we decided to keep the special website as an archive. We are partially focusing to SDG (sustainable development goals) -related activities. We strongly would like to contribute to establish the New Normal for our lifestyle with and after COVID-19.

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