

PREFACE



It is my great pleasure to publish SPring-8/SACLA Research Frontier 2019 describing the activities of SPring-8 and SACLA in FY2019. JASRI is responsible for operating two world-leading accelerator-based light sources, SPring-8 and SACLA, located on the same campus, whose synergy produces groundbreaking results.

SPring-8 (Super Photon ring 8 GeV) welcomed 15,970 users in 2019 who came to perform more than 2,000 experiments. Currently, SPring-8 users are publishing over 1,000 research papers per year. SACLA users published over 70 research papers in 2019.

A number of SPring-8 and SACLA users were awarded prestigious prizes in 2019 and 2020 for their achievements in science and technology. To take a few, Professor Shigeyuki Yokoyama (RIKEN, The University of Tokyo) was awarded the Medal with Purple Ribbon in fall 2019 for his achievements in structure biology, to which X-ray crystallography experiments at SPring-8 made major contribution. Professor Junji Sugiyama (Kyoto University, visiting scientist of JASRI) was awarded the Medal with Purple Ribbon in spring 2020 for his achievements in wood science, where the small-angle X-ray scattering (SAXS) and imaging experiments at SPring-8 made major contributions.

In this volume, a comprehensive review is reported by Professor Yoshinari Abe (Tokyo University of Science) on the application of synchrotron-based X-ray analysis to cultural heritages and art.

Active users of SPring-8 have also contributed the essence of their results as review articles in the section of Scientific Frontiers in this volume, which composes Life Science, Physical Science, Chemical Science, Earth & Planetary Science, and Industrial Applications. In addition, the principal activity reports on SPring-8/SACLA facilities are included in the sections of Accelerators & Beamlines Frontiers and Facility Frontiers.

I am very grateful to the many authors and experts who contributed their papers to this volume. Special thanks are due to Dr. Naoto Yagi and the members of the editorial board for their continuous efforts.

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