

# PREFACE

Since beginning operations in 1997, SPring-8 has welcomed over 160,000 users. In 2013, we had 7,800 users conduct 1,240 experiments at the 26 public beamlines and 5,600 users conduct 560 experiments at the 19 contract beamlines. The operation time of the storage ring in 2013 was approximately 4,300 h, 80% of which (3,400 h) was available to users. This is about 1,000 h less than a typical year due to large-scale renovations of the aging cooling water and air-conditioning system. In the past 15 years, research conducted at SPring-8 has resulted in 8,000 published papers, and the average number of citations per paper is as high as 16. In 2013, about 800 papers were published.



User operations of the SACLA X-ray free electron laser (XFEL) facility began in March 2012. In 2013, two beamlines (BL3 for XFEL and BL1 for broadband spontaneous light) were available to users, but all experiments were conducted at BL3. The total operation time in 2013 was about 7,000 h, and the user time was about 3,500 h. We had 680 users conduct 54 experiments in 2013. In 2012 and 2013, SACLA experiments resulted in 7 and 20 published papers, respectively. Thus, the SPring-8 campus provides a unique environment where the SPring-8 and SACLA facilities operate synergistically.

In 2013, users of the SPring-8 and SACLA facilities reported their research in high-impact journals such as *Nature* and *Science*. Fields of study included structural biology, medical biology, materials science, chemical science, earth science, planetary science, environmental science, nuclear physics, industrial applications, and facility methodology. In this 2013 volume, we will report the highlights of scientific achievements from the SPring-8 and SACLA users.

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 constant efforts.

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