

Preface



Our previous annual report highlighted the significant challenge posed by launching the SPring-8-II project for fiscal year 2023. This challenge was further intensified by discussions surrounding the revision of the Act on the Promotion of Public Utilization of Specific Advanced Large Research Facilities, which gained traction following the completion of the NanoTerasu facility in Sendai. Concerns regarding the aging SPring-8 facility were raised by several Diet members, prompting the Ministry of Education, Culture, Sports, Science, and Technology (MEXT) to establish a task force led by a Parliamentary Vice-Minister to oversee its upgrade. As a direct result, a budget of 300 million yen has been allocated for a feasibility study in fiscal year 2024, and preparations are underway to secure a comprehensive development budget for fiscal 2025. To ensure steady progress, we have been assigned two critical tasks: first, conduct an international review to secure external expert endorsement of our project's definitive goals, and second, publish or gain acceptance of a paper detailing our progress in a prestigious journal within the synchrotron radiation (SR) community.

Concurrently, we have been deeply involved in the commissioning of the NanoTerasu accelerator, which is set to begin operations in April 2024. While we initially faced some challenges with RF cavity control, we successfully operated the accelerator at 250 mA, just below its rated current of 400 mA. These technical issues have since been resolved, and the QST accelerator group, with continued support from RSC, is now focused on achieving full-rated operational performance.

In parallel with these efforts, the government has been driving a strategy to revitalize the semiconductor industry by supporting RAPIDUS, an advanced semiconductor device manufacturer. Understanding the vital role that precise "metrology" plays in the efficient production of advanced semiconductor devices, we identified an urgent need for cutting-edge measurement facilities. To address this, we successfully raised private funds, formed the technology consortium SQAT, and designed an advanced measurement platform, which the Ministry of Economy, Trade, and Industry will fund. Discussions with the Ministry regarding the full-scale launch of this initiative are ongoing.

Additionally, we are pleased to announce the completion of the testing phase for CITIUS, our X-ray imaging detector that incorporates an X-ray image sensor developed in collaboration with SONY. This detector is installed on multiple beamlines and represents a major milestone in our commitment to advancing scientific research.

Our green innovation efforts, launched with the Green Facility Declaration in August 2021, continue to attract global attention. The U.S. Department of Energy has shown strong interest in our progress toward the greening of accelerator technologies, leading to numerous invitations to speak at accelerator and synchrotron radiation-related conferences. The significant reduction in power consumption achieved through the SPring-8-II upgrade is not only a testament to our commitment to sustainability but also a source of pride as it is expected to further elevate global recognition of our contributions.

ISHIKAWA Tetsuya, Dr. Eng.
Director, RIKEN SPring-8 Center