PREFACE

The RIKEN Accelerator Progress Report is the annual report on all the research activities conducted at the RIKEN Nishina Center for Accelerator-Based Science (RNC). This volume (No. 57) covers the activities conducted during the Japanese fiscal year 2023 (i.e., April 2023 to March 2024).

In Japan, the restrictions on daily activities due to COVID-19 that began in the spring of 2020 were lifted on May 8 last year. Even after the lift, remote working and online communication still have continued, while many people have began to recognize the importance of face-to-face activities and discussions. The coronavirus pandemic can be considered to have changed the social structure, increased work format options and communication tools, and raised awareness about the respect for autonomous decision-making of individuals.

For RIKEN, 2023 was a year of evaluation: the Nishina Center Advisory Committee (NCAC) convened in July, highly praised the RNC's research activities, and plans, and provided valuable comments. With regard to "The RI Beam Factory Upgrade Project," both the heads of laboratories/groups and young researchers played a major role in its planning. The upgrade plan was also highly evaluated by the RIKEN Advisory Committee (RAC) held in December. The English version of the Upgrade Plan is now available on the website, and the first international workshop dedicated to the upgrade plan was held in January 2024.

The ERATO Sekiguchi Three-Body Nuclear Force Project began in October 2023. It is a project that RNC has contributed to and is the first project related to nuclear physics that has been selected for ERATO. This demonstrates that the role of "nuclei" in society is gradually gaining traction.



As of April 2023, Robert E. Tribble has been appointed as the Director of RIKEN BNL Research Center, and Nobuhisa Fukunishi has been appointed as the Director of Automated Operation Technology Team.

In 2023, RNC produced many excellent research results and award winners. Thirteen press releases were disseminated. Several accomplishments in 2023 have been compiled in the "Highlights of the Year" section in this volume, which show successful multi-disciplinary activities of RNC for science, technology, and innovation. One of the highlights is the world's first successful measurement of the proton distribution of radioisotopes by SCRIT. The result of the technological development took about 20 years since its conception. The other highlight is the first observation of ²⁸O, which was found not to be double-magic.

Kohei Tamao, who has supported SCRIT activities since the early stages of its development, was awarded the Order of Culture in November 2023. Hiromitsu Haba and Yasuki Akiba received Science and Technology Award of The Minister of Education, Culture, Sports, Science and Technology. Pieter Doornenbal was awarded GSI/FAIR Exotic Nuclei Community Membership Award. Yuga Nakazawa received the 19th Particle Accelerator Society of Japan Award and Jiantai Li received A3F-CNS Summer School 2023 Young Scientist Award. Tomoko Abe, Yusuke Kazama, and Kotaro Ishii were awarded the 95th Best Paper Award of The Genetics Society of Japan. Aiko Takamine, Tadaaki Isobe, and Kenichiro Tateishi were awarded the Outstanding Presentation Award of Japanese Society for Quantum Medical Science. Riku Matsumura received the Poster Award of Atomic Energy Society of Japan's Nuclear Data Section. The 2023 RIKEN Awards, the "EIHO Award," "BAIHO Award," and "OHBU Award" were presented to seventeen members in RNC, as listed in the "RIKEN Awards" section.

uli Sil-

Hiroyoshi Sakurai Director RIKEN Nishina Center for Accelerator-Based Science