Preface

The RIKEN RI Beam Factory has reached its harvest time. From its commissioning in 2006 to 2013, 71 experiments have been performed with ^{238}U, ^{124}Xe, ^{86}Kr, ^{70}Zn, ^{48}Ca, ^{18}O, ^{14}N, and ^{4}He beams from the Superconducting Ring Cyclotron (SRC) and the isotope separator BigRIPS. The SRC recorded its highest ^{238}U current of 25pnA in 2013, a performance far beyond that of any other accelerator facilities in the world. This edition of Accelerator Progress Report highlights the history of RI delivery at the RIBF in its gravure pages. While some are yet unpublished, we should be proud that more than 100 new isotopes have been discovered at the RIBF.

Our RI beams attract many users from all over the world. Following the great success of the EURICA (Euro-Riken Crystal Array) campaign, MINOS, a state-of –the-art setup with a hydrogen target and a vertex detector, arrived from Saclay, France. A large-scale Time Projection Chamber to be installed in the SAMURAI spectrometer has recently arrived from the USA. Furthermore, other detectors like NeuLand (highly segmented neutron time-of-flight counters from Germany) and BRIKEN (hundreds of neutron counters from the USA to surround the target) are to be shipped to the RIKEN RIBF.

To effectively explore new regions in the nuclear chart using such devices, we have introduced a new scheme of experimental proposal, Proposal for Scientific Project. With this new scheme, experimentalists are asked to propose a series of experiments based on common physics interests that uses the same experimental apparatus and targets not just one or two nuclei but a wide region of nuclei.

Under this new scheme, the SEASTAR project employing the MINOS and the DALI2 detectors was established to aim for a systematic search of new 2^{+} energies in the wide range of the neutron-rich nuclei accessible with the RIBF's currently available ^{70}Zn and ^{238}U beam intensities. The proposal was approved and the first beam time was already allocated. Somewhat different from our traditional style of proposal, the new scheme requires the experimentalists to form a bigger and tighter collaboration. The Nishina Center appreciates an understanding by all users of the necessity of such an approach, and promises its fair operation to the user community.

As we have now reached the stage to reap the harvest of the RIBF research, many interesting results are being published. In 2013, we issued three press releases on the RIBF experiments, “Discovery of exotic isomers with a magic number”, “Evidence for a new nuclear magic number of 34 --- a key to access a dream region of island-of-stability”, and “Magic numbers’ disappear and expand area of nuclear deformation”. The Nishina Center thanks and congratulates all those involved in these experiments, and is convinced that this trend will continue to grow in the future. It should be noted and appraised that in 2013, prestigious prizes were given to the staffs in our accelerator group for their record-breaking accelerator operation, especially with the gas stripper developments.

Unfortunately, JFY2013 did not close peacefully. The STAP incident, a serious scientific misconduct that occurred at the RIKEN Center for Developmental Biology has affected RIKEN severely. I apologize for any inconveniences you have had to deal with to in complying with RIKEN’s countermeasures. If any similar incident ever occurred at the Nishina Center, the Center would cease to exist. We thus declare that such an incident will never happen in our field.

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