

Research strategy with open-closed data utilization in nuclear physics experiments

H. Baba*¹

A workshop on Research strategy with open-closed data utilization in nuclear physics experiments¹⁾ was held on March 7th, 2022 at Integrated Innovation Building of RIKEN Kobe campus in a hybrid format with both on-site and remote participation. This workshop was supported by RIKEN's internal fund dedicated to data utilization promotion support.

Open science and open data schemes are currently being attempted worldwide. RIKEN has also been promoting open science especially in the fields of life and medical science.²⁾ For example, in accelerator based sciences, some particle physics experimental data are opened at CERN.³⁾ Even in open science approaches, it is recommended that open-closed data be strategically selected, rather than all data being open. For example, regarding satellite data for astronomy, for which open access is common, the spokesperson is often given a period of several years of occupied use. This workshop was held to discuss "What kind of demands and effects can be expected by open data of nuclear physics experiments at RIBF?."

There were 19 participants from RIKEN Nishina Center, RIKEN Information R&D and Strategy Headquarters, Japan Atomic Energy Agency, Hokkaido University, Konan University, Kyoto University, Kyushu University, Research Center for Nuclear Physics, Osaka University, University of Miyazaki, University of Tsukuba, Tohoku University, Tokyo City University, and Yokohama National University. 9 regular talks and 8 short talks were presented:

- Background and purpose of this workshop
- RIKEN's open science initiatives for maximizing research results
- Activities on nuclear data
- Past nuclear data research activities and latest initiatives
- Suggestions from the nuclear engineering community regarding RIBF data
- Suggestions from theoretical studies regarding RIBF data
- Research and education at the University of Miyazaki
- Research and education at Tokyo City University
- Current status and future of research and education at Konan University
- Comments from Nishina Center Promotion Office (short talk)
- Comments from Tohoku University (short talk)
- Comments from Kyoto University (short talk)

- Comments from Research Center for Nuclear Physics, Osaka University (short talk)
- Comments from RIKEN Slow RI Data Team (short talk)
- Comments from RIKEN Radioactive Isotope Physics Laboratory (short talk)
- Comments from experimentalist of RIBF User Executive Committee (short talk)
- Comments from theorist of RIBF User Executive Committee (short talk).

As a result of active discussion, several initiatives were proposed.

1) A detailed database of experiments conducted at RIBF: make a table of nuclei, energies, targets, measured quantities of approved experiments at RIBF to understand what kind of experiments are planned.

2) RIBF experiments assuming data sharing : try to share not only data but also analysis methods to accumulate knowledge and experience as a software library.

3) Registration to nuclear data: not all RIBF experimental results will be registered, especially those of master's thesis. We will continue to discuss methods of registration.

We are continuing our discussions on how to realize open-closed data in the nuclear field, starting from this workshop.

References

- 1) <https://indico2.riken.jp/event/4016/>.
- 2) <https://metadb.riken.jp/osp/>.
- 3) <https://opendata.cern.ch/>.

*1 RIKEN Nishina Center