

# **RIBF User Group Town Meeting**

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2024/09/16

@ JPS Hokkaido

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# Agenda

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- 1) Report on RIBF UEC activities (Miki)
- 2) Report from Nishina Center (Yoneda)
- 3) Others
  - Report on the workshop series  
Advancing physics at next RIBF (ADRIB) (D. Suzuki)
  - Anything else?

# Report on RIBF UEC activities

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Kenjiro Miki  
For the RIBF Users Executive Committee

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# Current UEC Members and Their Roles

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- Members

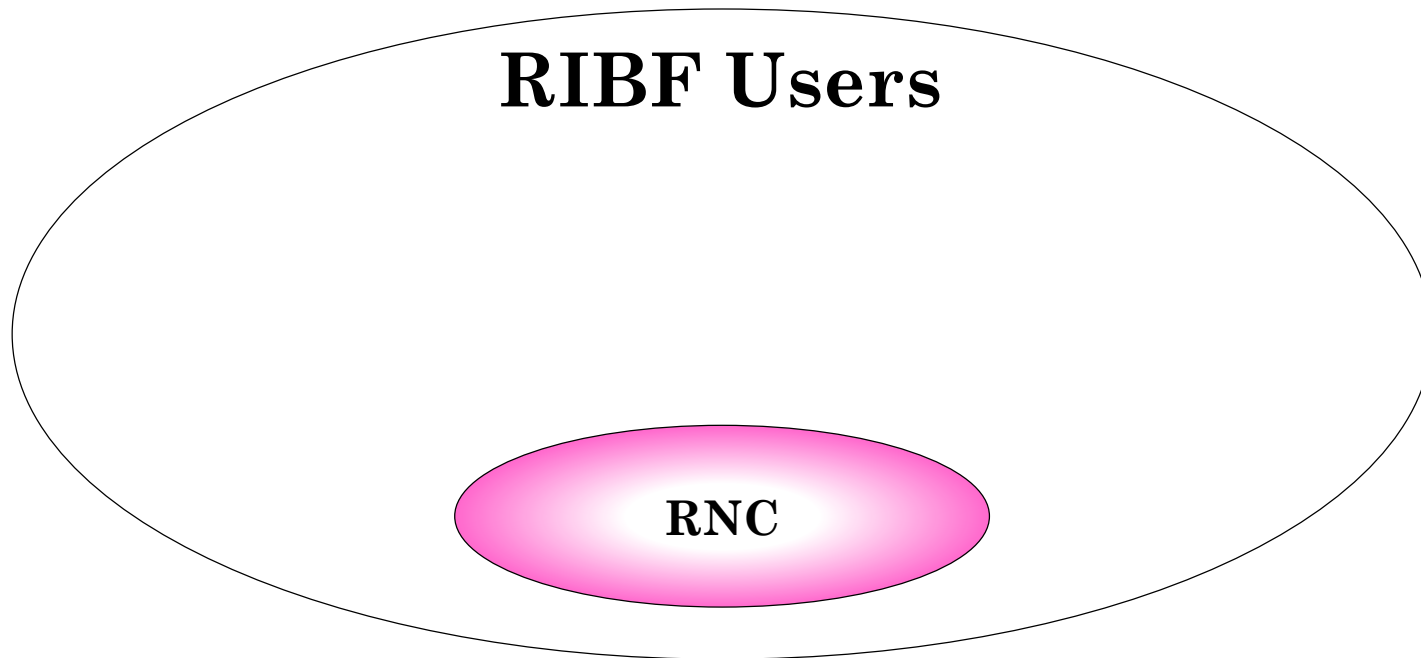
Chair : K. Miki                    T. Abe, A. Corsi, H. Liang,  
Vice Chair : F. Minato           &      D. Nishimura, P. Schury,  
Vice Chair : Y. Ichikawa           K. Sekizawa, J. Zenihiro

- The term of the members highlighted in green is until March 2025.  
An election will be held in early 2025.

- Roles

- Town meeting : T. Abe,            F. Minato
- Web Page        : A. Corsi,            P. Schury
- Users meeting : J. Zenihiro,    D. Nishimura
- Thesis award   : K. Sekizawa, H. Liang
- User manage.   : T.Abe,            P. Schury
- MT Committee : K. Miki

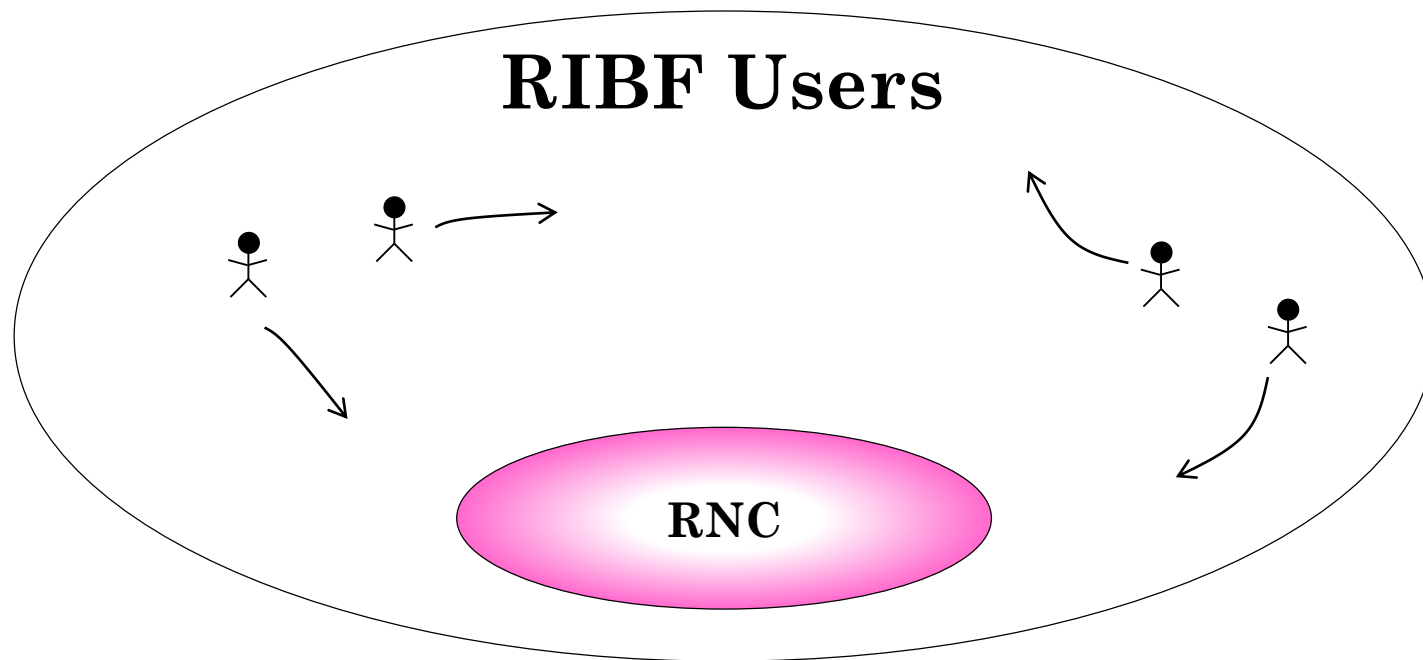
If you have any suggestions or claims,  
please feel free to contact us !



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# What is RIBF UEC ?

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“Independent particle”

There is a structure, but not fully productive.  
Sometimes we should be interactive and coherent.

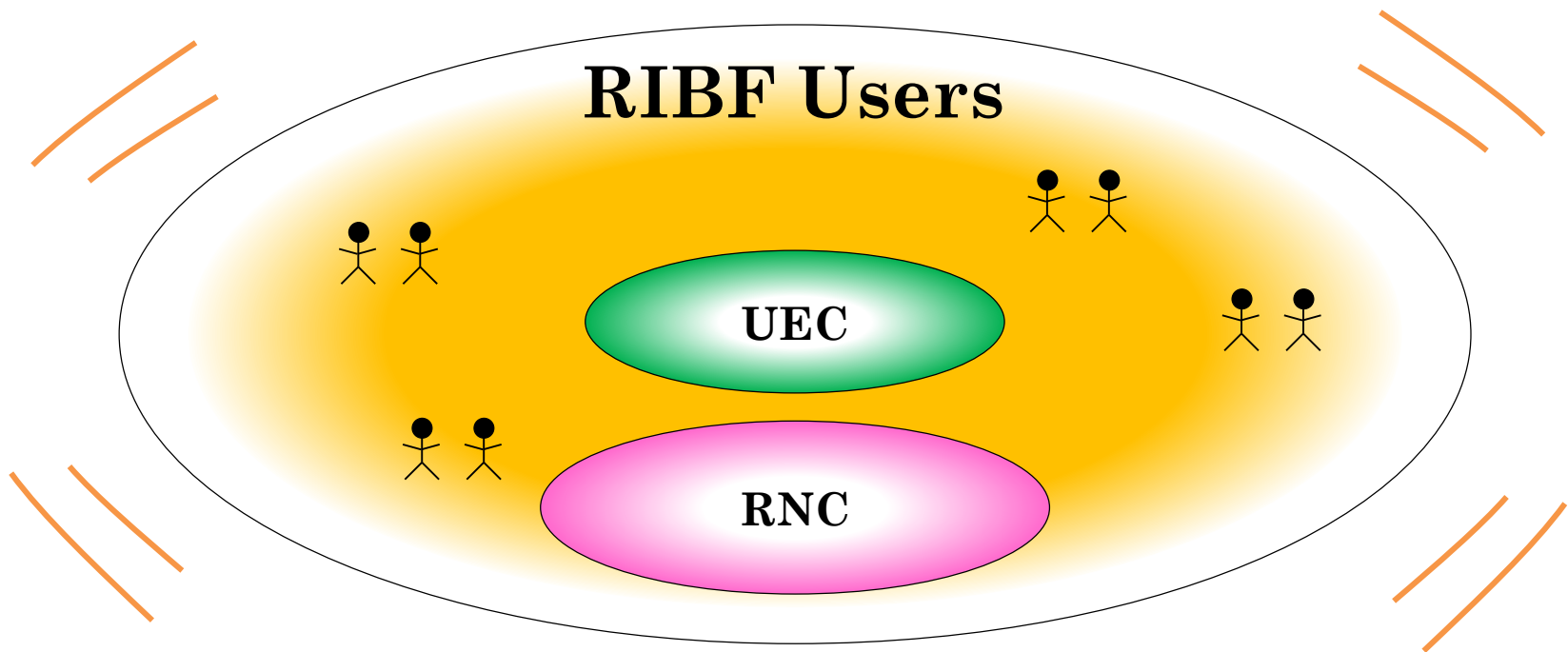
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# What is RIBF UEC ?

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- RIBF UEC = RIBF Users Executive Committee

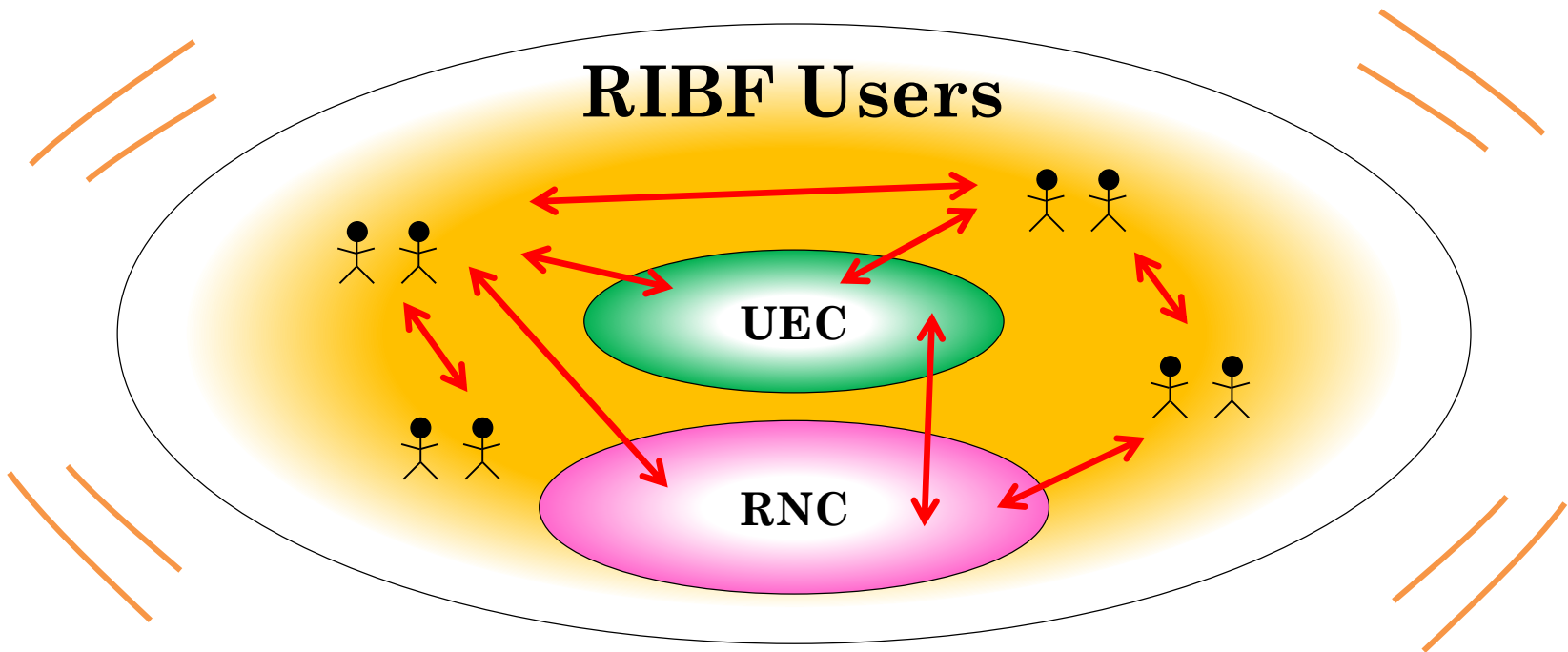
As a **representative** of the users,  
UEC contribute to the **advancement of research** at RIBF



# What is RIBF UEC ?

- RIBF UEC = RIBF Users Executive Committee

UEC encourages **interactions** among Users and RNC



Hosting the environment for interactions

- **Users Meeting, Conference Calendar** (Research oriented)
- **Town Meeting** (More administrative)

Encourage young researchers

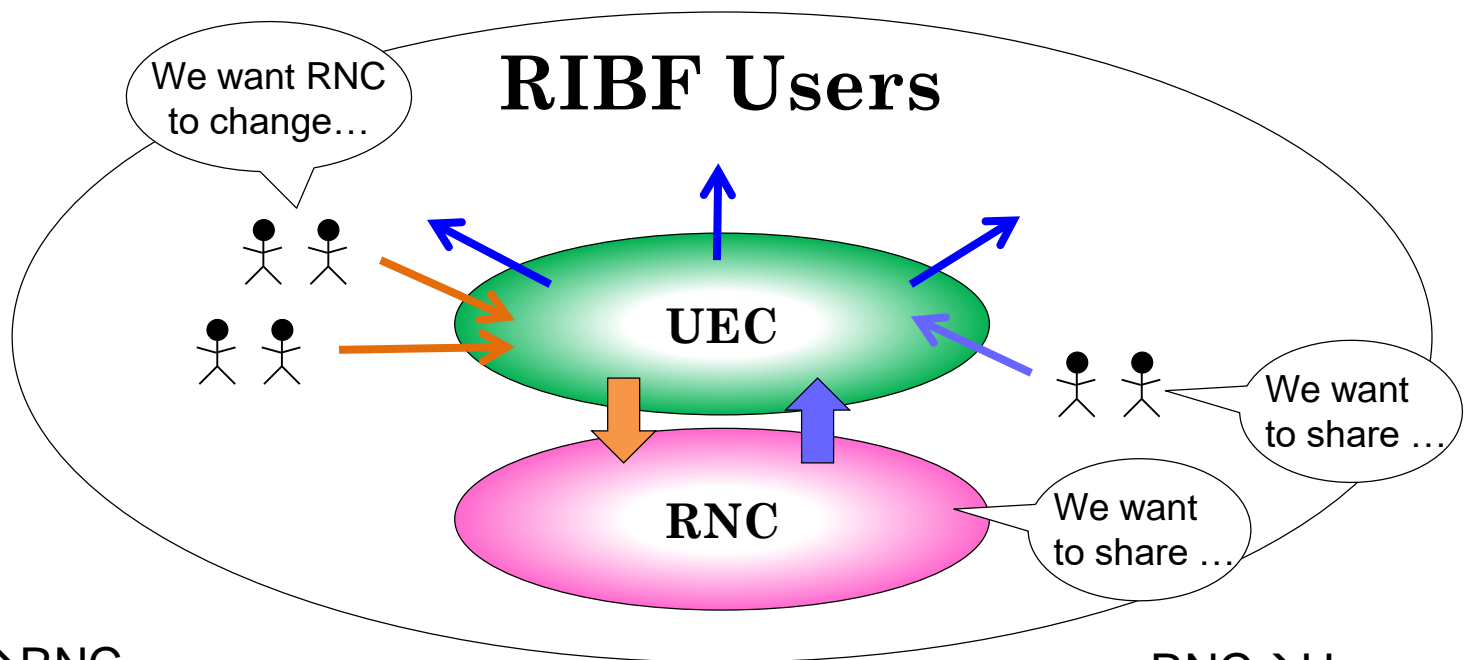
- **Thesis Award**



# What is RIBF UEC ?

- RIBF UEC = RIBF Users Executive Committee

UEC facilitates **communication** between Users and RNC



Users→RNC

- "Survey of Requests to RNC"

RNC→Users

- "MT committee report"

Management of

- Users Group Registration & ML (in cooperation with RNC)
- Users Group Web page

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# Activities of UEC **and Today's report**

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- Regular town/online meetings
- **RIBF Users Meeting**
- **RIBF Users Group Thesis Awards**
- Conference calendar update (regularly)
- MT committee report
- **Status of Users Group Registration & ML**
- **Survey of requests to RNC**

# Users Meeting

Organizers:  
J. Zenihiro, D. Nishimura

- Hold **UM** and **ADRIB** in series
  - UM: Jan. 21 (Tue) ← **Hybrid**
  - ADRIB: Jan. 22-23 (Wed-Thu) ← **Onsite**
- Background of this change
  - Previously,
    - UM was often held jointly with CM to promote participation of CM.
  - Nowadays,
    - CM increasingly being conducted overseas or online.  
UM and CM are often not aligned.  
(This is a reflection of the growth and independence of the collaboration.)
  - By holding UM+ADRIB,
    - Promote RIBF users more involved in RIBF upgrade project
    - Make it easier to get together at RIBF

UM: Users Meeting  
CM: Collaboration Meeting  
ADRIB: RIBF upgrade workshop

## **Dr. Mădălina Enciu**

"Extended p<sub>3/2</sub> neutron orbital  
and the N=32 shell closure in <sup>52</sup>Ca"

(Technische Universität Darmstadt, 2023)

## **Congratulations !**

The award presentation and ceremony are scheduled  
to take place during the Users Meeting.

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# Users Group Registration & ML: Status of Updates

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- Thank you to everyone who updated your registration. UEC: T. Abe, P. Schury  
RNC: D. Suzuki, Y. Watanabe  
registered members: 800 (as of June 12th, 2024)  
updated members : 193

We are afraid that there exist many active members who have not updated by the deadline of May 31st, 2024.

- Some issues were found:
  - 1) database corruption (fixed by Y. Watanabe)
  - 2) data inconsistency between the member list and the mailing list (in progress by D. Suzuki)

After resolving these problems, we are going to clean up the inactive members from the list.

- Even if your registration would be deleted this time, you can make a new registration and rejoin the User Group anytime.

Registration website:

[https://ribfuser.riken.jp/RIBF\\_UG/registration.html](https://ribfuser.riken.jp/RIBF_UG/registration.html)

- We appreciate your cooperation.

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# Requests to Nishina Center

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As part of bridging RNC and RIBF users, we are currently compiling and submitting user's requests to RNC.

## Timeline in 2024

- Mar. 3           Deadline of Survey
- Mar. 18        Town meeting → Report on Survey
- Mar.-May.     Discussions in UEC
- Jun.           Submission of a letter to RNC
- Now            Under consideration within RNC

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# Requests to Nishina Center: Contents #1

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## 1. Future Plans

- “Enhancing the visibility of the RIBF future plan”
  - \* Synchronize more closely the RNC and the Users Group for the future plan
  - \* Hold ADRIB and UM in series

## 2. Machine Time

- "Earlier decision and notification of machine time"
  - \* Distribute the MT plan 3 months before the MT
  - \* If MT is delayed, provide explanations to RIBF Users ML.

## 3. Conducting Experiments

- “Establishing a platform for sharing information on RIBF experiments”
  - \* Provide a web-based platform for
    - A repository for general documents related to RIBF (detectors, DAQ, analysis, ...)
    - An archive for troubleshooting of DAQ and analysis

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# Requests to Nishina Center: Contents #2

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## 4. Nuclear Data

- "Ensuring continuous update of nuclear data"
  - \* Establish a system to continuously incorporate the results from RIBF into the nuclear data.
  - \* Take charge of compiling RIBF's results. Register each paper from RIBF in the XUNDL.
  - \* Revive the role of nuclear data evaluators in Japan

## 5. Promoting Theoretical Research

- "Providing opportunities for long-term workshop"
  - \* Allocate funding for long-term workshops, which bridges experimental and theoretical research at RIBF.

## 6. Others

- "Promoting Mini-Workshops"
  - \* Actively send the call for topics for mini-workshops to the RIBF-users ML.



# RIBF Status Report

**Ken-ichiro YONEDA**

User Liaison Group

RIKEN Nishina Center

RIBF User Group Town Meeting  
Hokkaido University, September 16, 2024

- New research group in Nishina Center
- RIBF operation in 1st half FY2024
- MT plan in 2nd half FY2024
- NP-PAC meeting



# New Nuclear Science Research Division

Nuclear Science Research Division	
Radioactive Isotope Physics Group Hiroyoshi Sakurai	
Nuclear Dynamics Research Group Tomohiro Uesaka	
Nuclear Structure Research Group Hideki Ueno	SLOWRI Team Hironobu Ishiyama
Superheavy Element Research Group Hiromitsu Haba	Superheavy Element Device Development Team Kouji Morimoto
Few-body Systems in Physics Laboratory Emiko Hiyama	
Cosmic Radiation Laboratory Toru Tamagawa	
Astro-Glaciology Laboratory Yuko Motizuki	
Nuclear Many-body Theory Laboratory Masaaki Kimura	
RHIC Physics Research Laboratory Yasuyuki Akiba	
<b>Three-Body Nuclear Force Laboratory</b> Kimiko Saito	
Meson RIKEN ECL Research Team Tadashi Hashimoto	

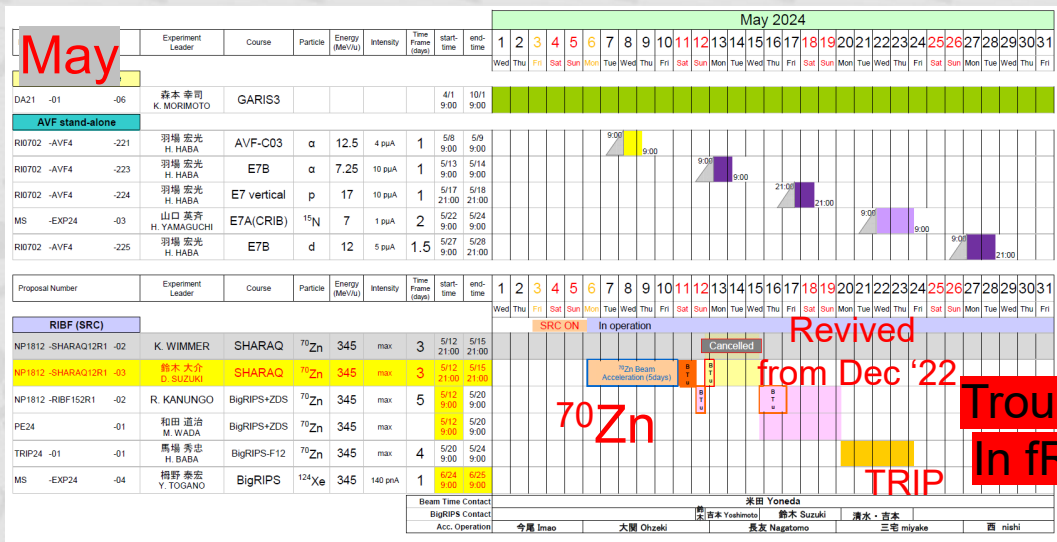
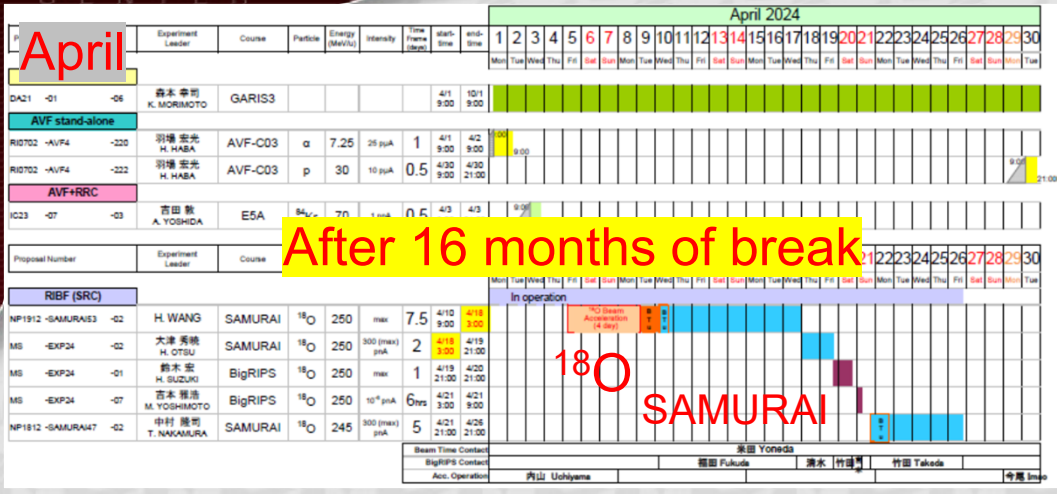
原子核研究部門	
RI物理研究部 櫻井 博儀	
核反応研究部 上坂 友洋	
核構造研究部 上野 秀樹	低速RIビーム生成装置開発チーム 石山 博恒
超重元素研究部 羽場 宏光	超重元素分析装置開発チーム 森本 幸司
少数多体系物理研究室 肥山 詠美子	
宇宙放射線研究室 玉川 徹	
雪氷宇宙科学研究室 望月 優子	
核子多体論研究室 木村 真明	
RHIC物理研究室 秋葉 康之	
<b>三体核力研究室</b> 関口 仁子	
中間子理研ECL研究チーム 橋本 直	

**NEW!!**

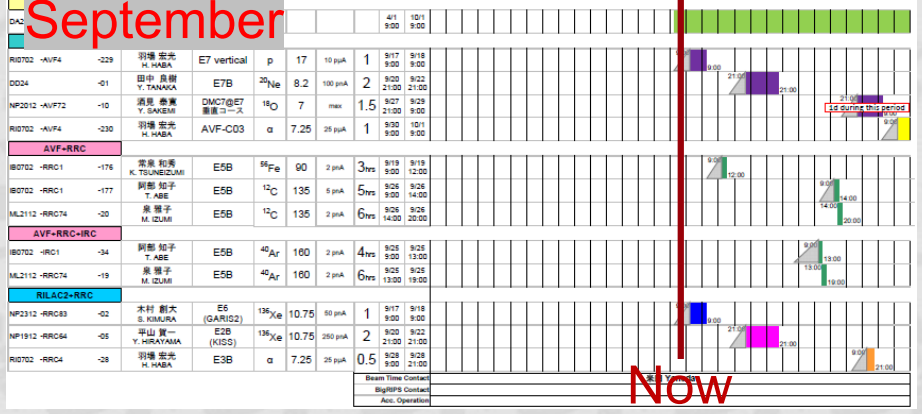
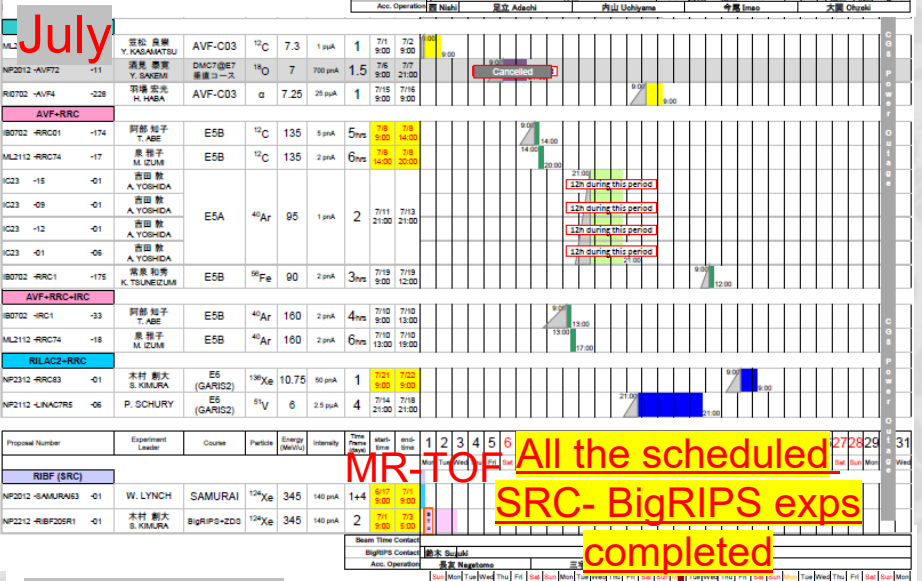
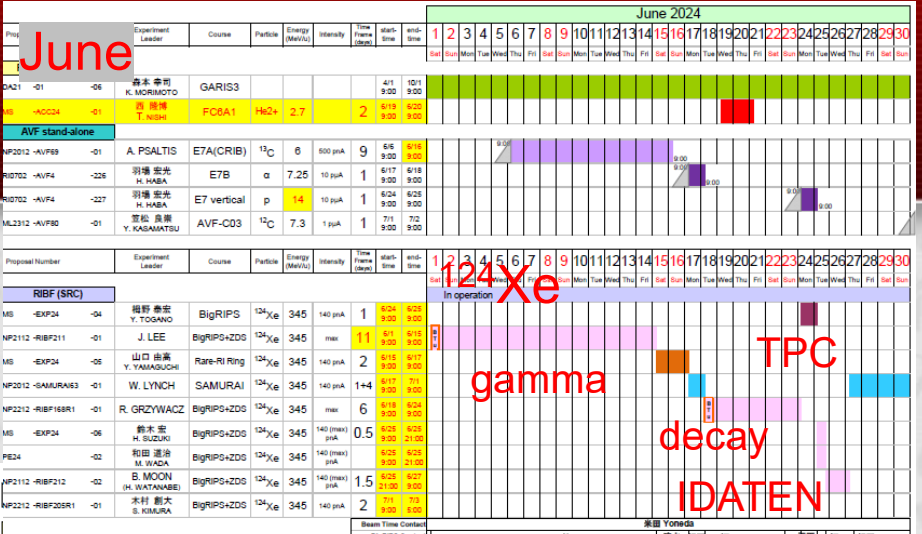




# RIBF operation April – September '24



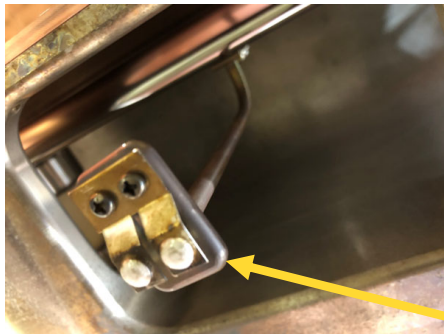
<https://www.nishina.riken.jp/rarfmt/pc.html>



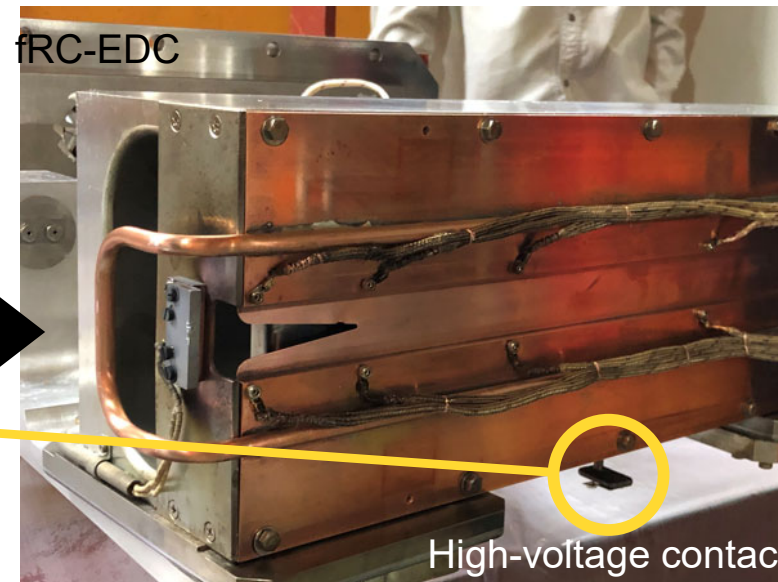
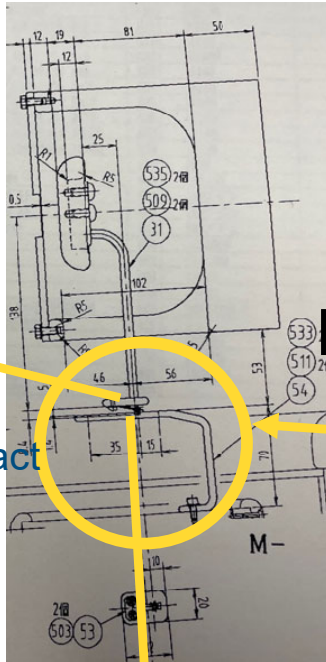
# fRC-EDCの不調

Cross-section drawing

fRC-EDCに放電が発生してビーム状態が変化するという事象が発生、頻度が増えていった。



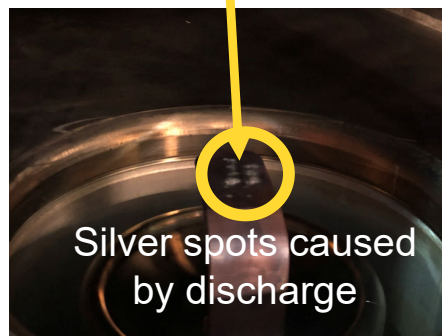
High-voltage contact



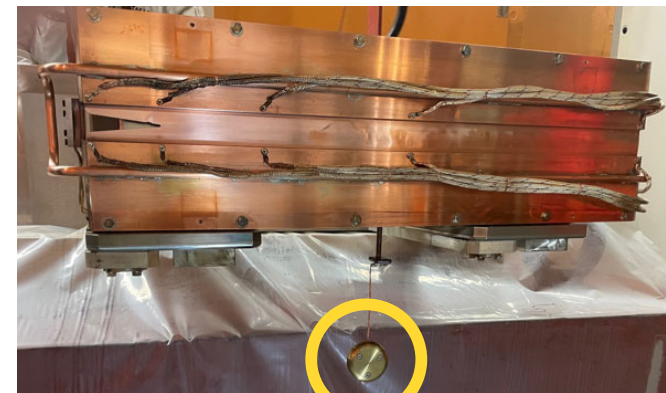
High-voltage contact



The contact pole is slightly declined and the contact is not sufficient.



Silver spots caused by discharge

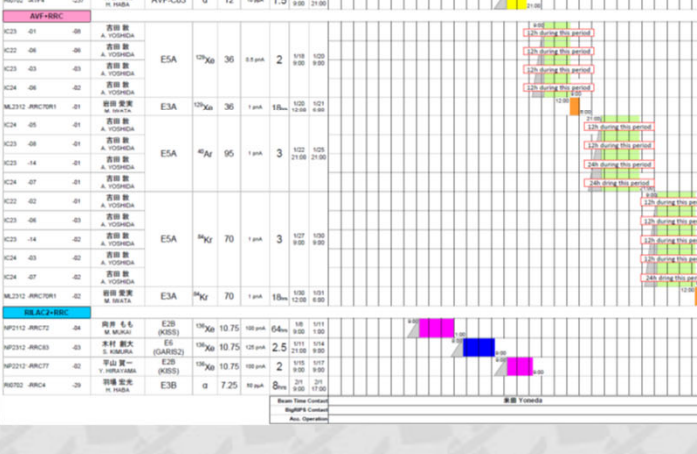
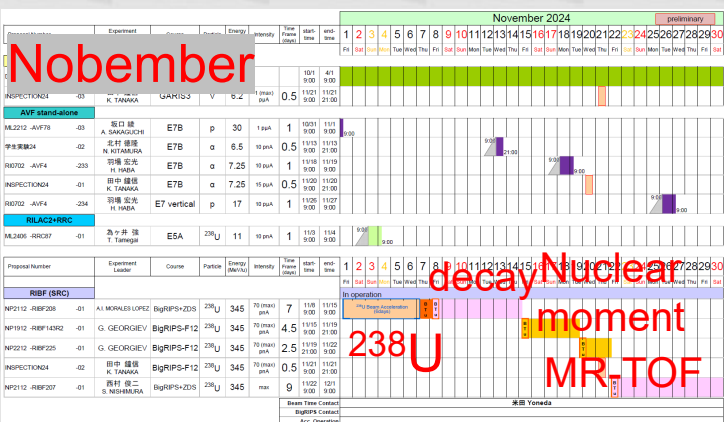
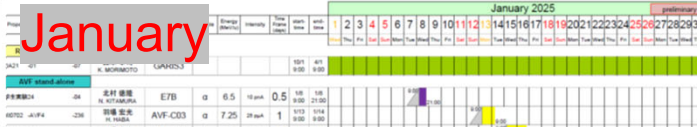
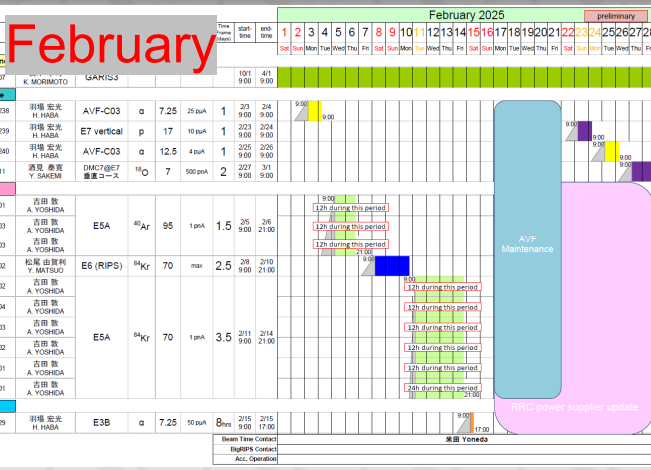
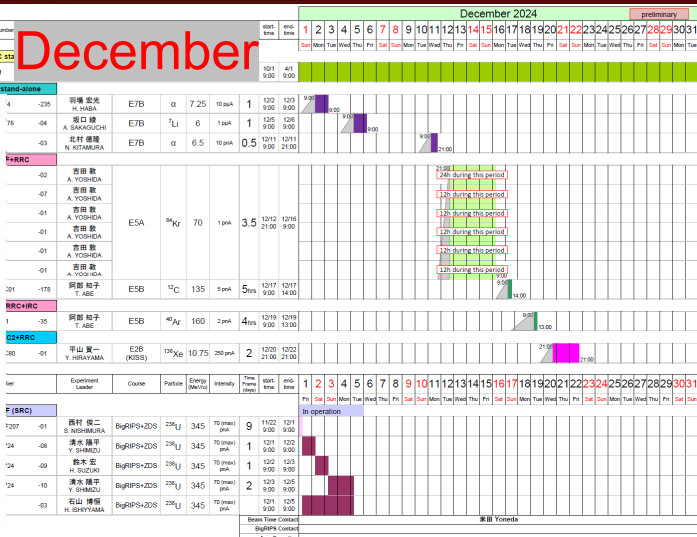
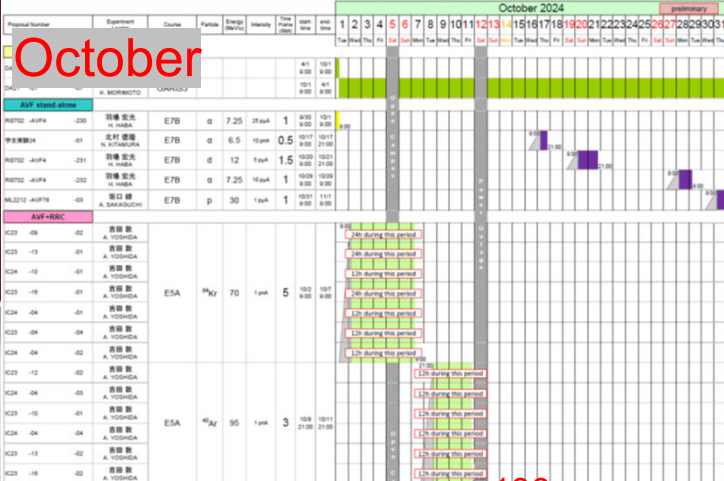


An additional (flexible) high-voltage contact is introduced.





# RIBF operation October '24 – March '25



136Xe  
TRIP  
TPC

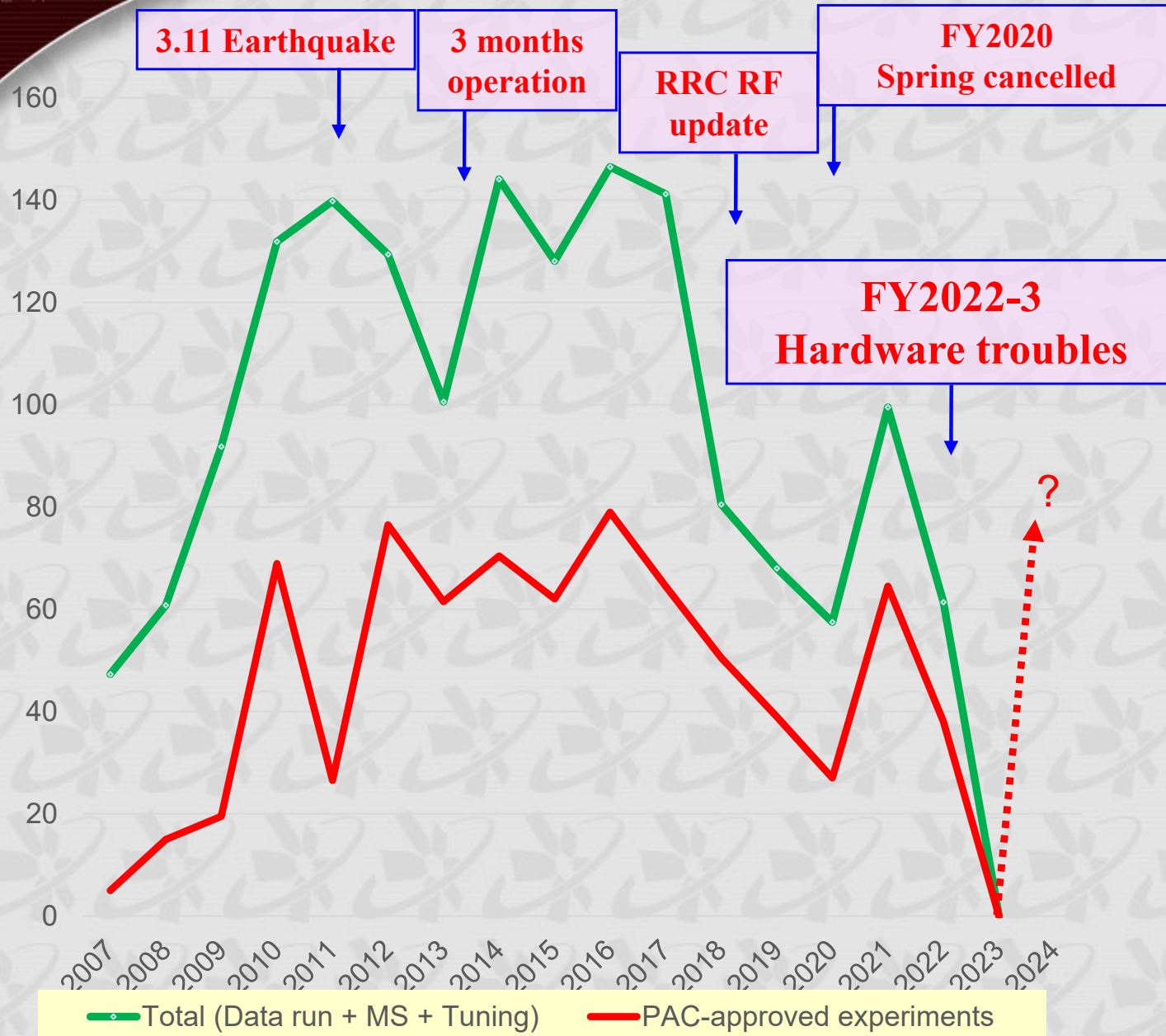
decay Nuclear  
238U  
moment  
MR<sub>T</sub> TOF

AIF Maintenance  
RIBC power supplier update

RIBC power supplier update  
Schedule to be determined later

# SRC operation time

(days)





# NP-PAC

next 25th NP-PAC  
in-person meeting, **December 11-13**

proposal submission deadline **October 4**

Call for Proposals issued in August

Latest information will be given in:

<https://www.nishina.riken.jp/RIBF/NP-PAC/index.html>



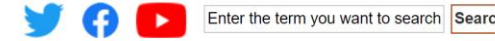
# Advancing physics at next RIBF (ADRIB)

Report on ADRIB24 on January 23 and 24, 2024  
and announcement of ADRIB25

Organizers of ADRIB25

W. Horiuchi (OMU), Y. Ichikawa (Kyushu), M. Kimura (RIKEN), K. Miki (Tohoku),  
F. Minato (Kyushu), D. Nishimura (TCU), T. Onishi (RIKEN),  
M. Sasano (RIKEN), D. Suzuki (RIKEN), A. Takamine (Kyushu), K. Yoshida (RCNP), J. Zenihiro (Kyoto)

# Background



News | About Nishina Center | Laboratory | Research | Facility | Enjoy Learning | For Researchers



for Researchers Top | RIBF Upgrade Project | RIBF | Conferences & Seminars

HOME > For Researchers Top

[RIBF Facility Upgrade Project](#)

Information of RI Beam Factory Upgrade Project.  
Report and latest informations.



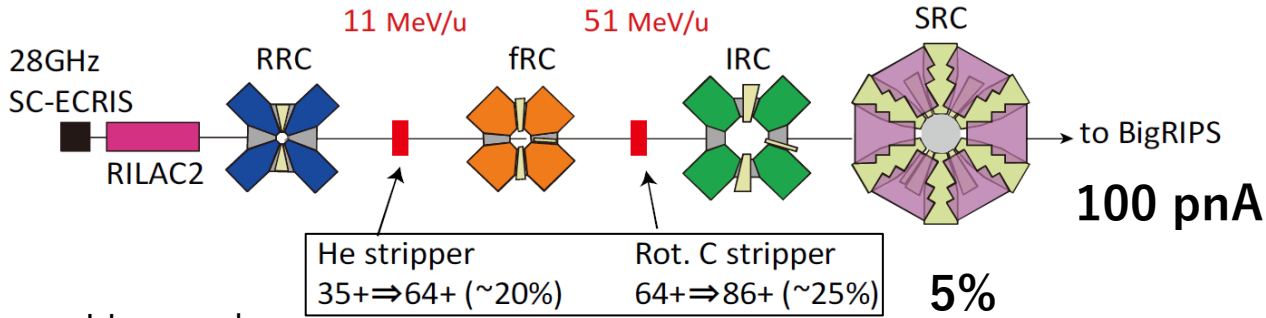
ADRIB24 was arranged to **open the Upgrade Project toward the RIBF user community.**

- Share information on Next RIBF
- Build momentum of science toward Next RIBF
- Young gen. driven theory/experiment joint meeting

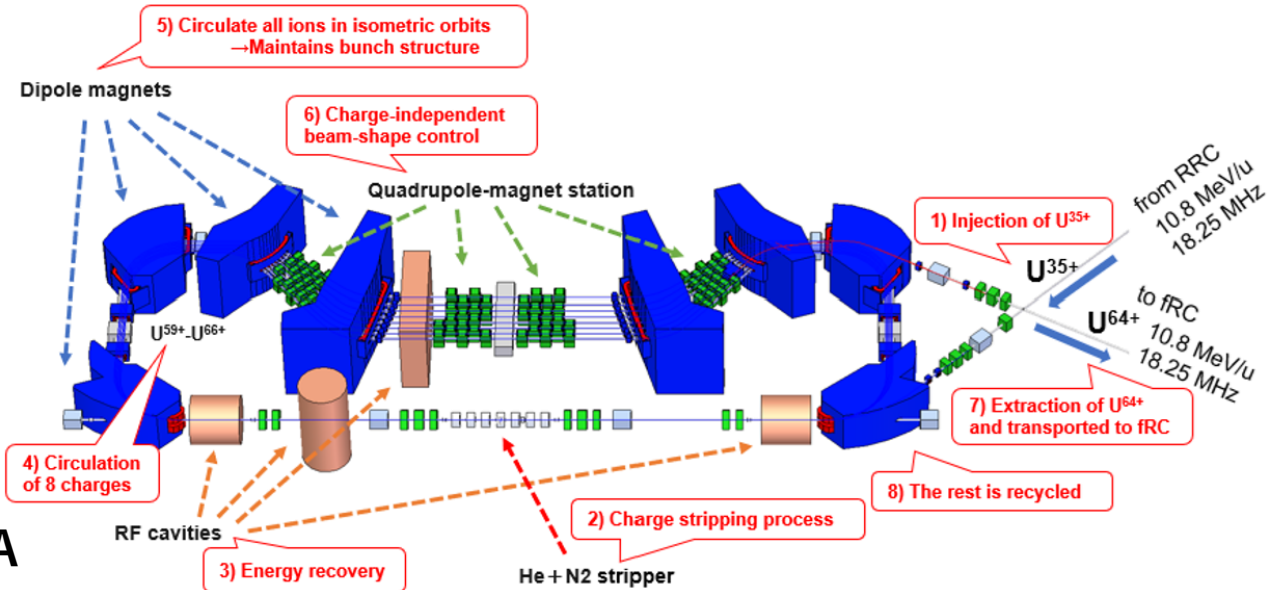
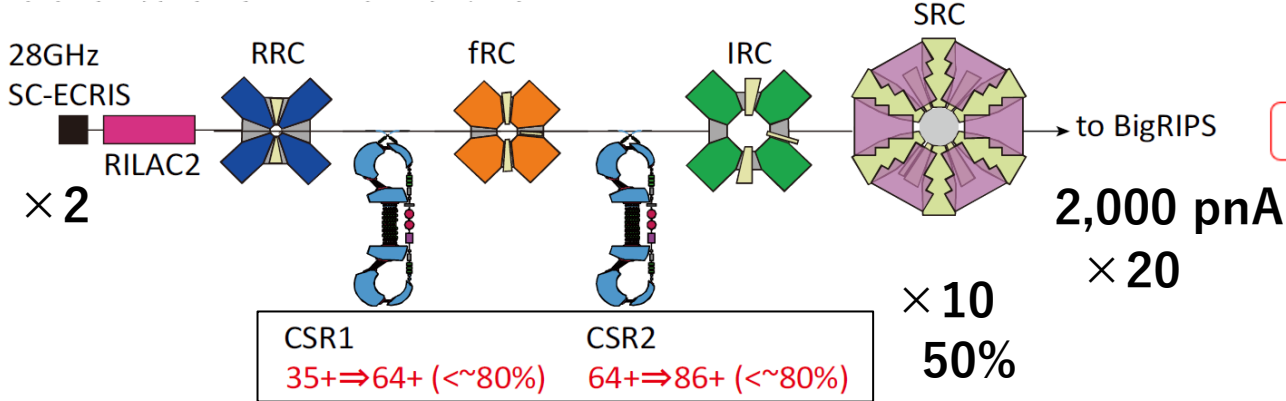
# RIBF Upgrade Project

Major facility upgrade to RIBF with a goal set to increase U beam intensity to 2,000 p nA from 100 p nA.

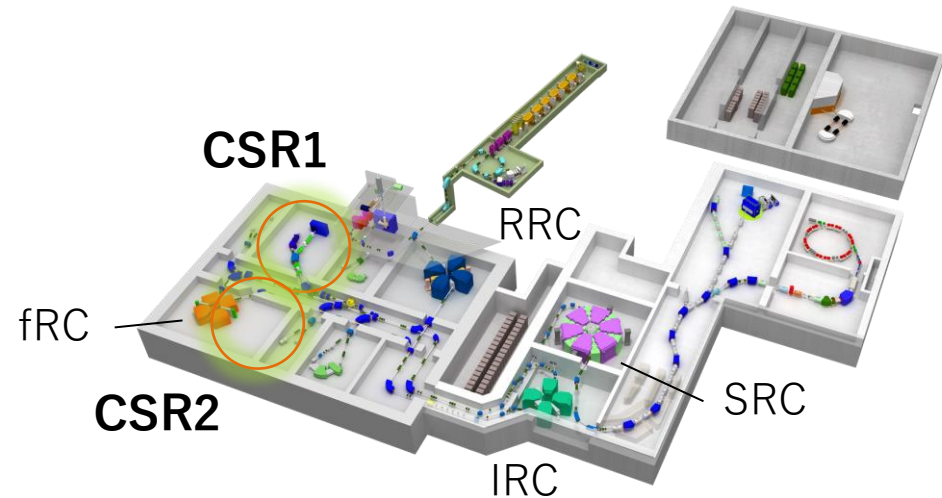
Present



Upgrade



Charge stripping efficiency (5%) is the bottle neck of the beam transport.  
 Charge Stripper Ring (CSR) will improve the efficiency to 50%.

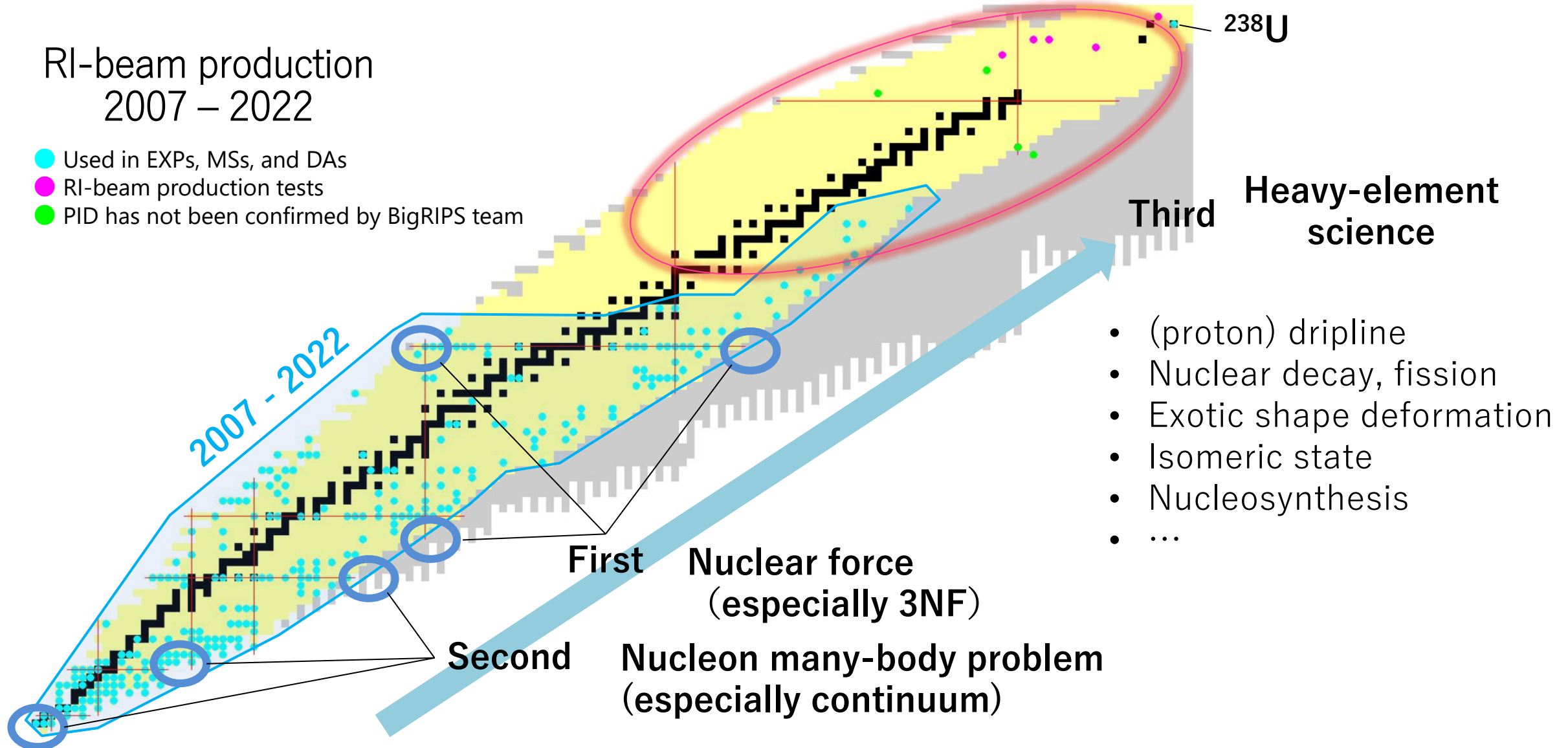


# Three pillars of Next RIBF

Deepening the knowledge of nuclear force and nucleon many-body problems that RIBF has established, and challenge the unexplored heavy-element region.

RI-beam production  
2007 – 2022

- Used in EXPs, MSs, and DAs
- RI-beam production tests
- PID has not been confirmed by BigRIPS team



- (proton) dripline
- Nuclear decay, fission
- Exotic shape deformation
- Isomeric state
- Nucleosynthesis
- ...

# ADRI24 on January 23 and 24 @Nishina Hall

Project overview + 25 invited talks (experiment 12 + theory 13) + discussion session

## Overview of RIBF Facility Upgrade Project

M. Kimura (RNC), D. Suzuki (RNC)

Theory in red

## Neutron dripline, EOS, $N = Z$

Y. Kondo (Tokyo Tech), T. Naito (iTHEMS),  
N. Hinohara (Tsukuba)

## RI production and reaction theory

H. Suzuki (RNC), K. Hagino (Kyoto), N. Imai (CNS)

## Nuclear structure of heavy element

S. Go (RNC), T. Miyagi (GSI), H. Nishibata (Kyushu)

## Nuclear mass, beta decay

H. Koura (JAEA), M. Rosenbusch (RNC),  
H. Liang (Tokyo), F. Minato (Kyushu)

## EOS, nuclear response

T. Isobe (RNC), K. Yoshida (RCNP), S. Ota (RCNP)

## Nuclear matter, neutron star, clustering

K. Sekizawa (Tokyo Tech), Y. Kubota (RNC),  
K. Yoshida (JAEA)

## Magicity, deformation

P. Doornenbal (RNC), K. Yanase,  
K. Nomura (Hokkaido)

## Physics with isomeric beam

Y. Yamaguchi (RNC), M. Dozono (Kyoto),  
W. Horiuchi (Osaka Metropolitan)



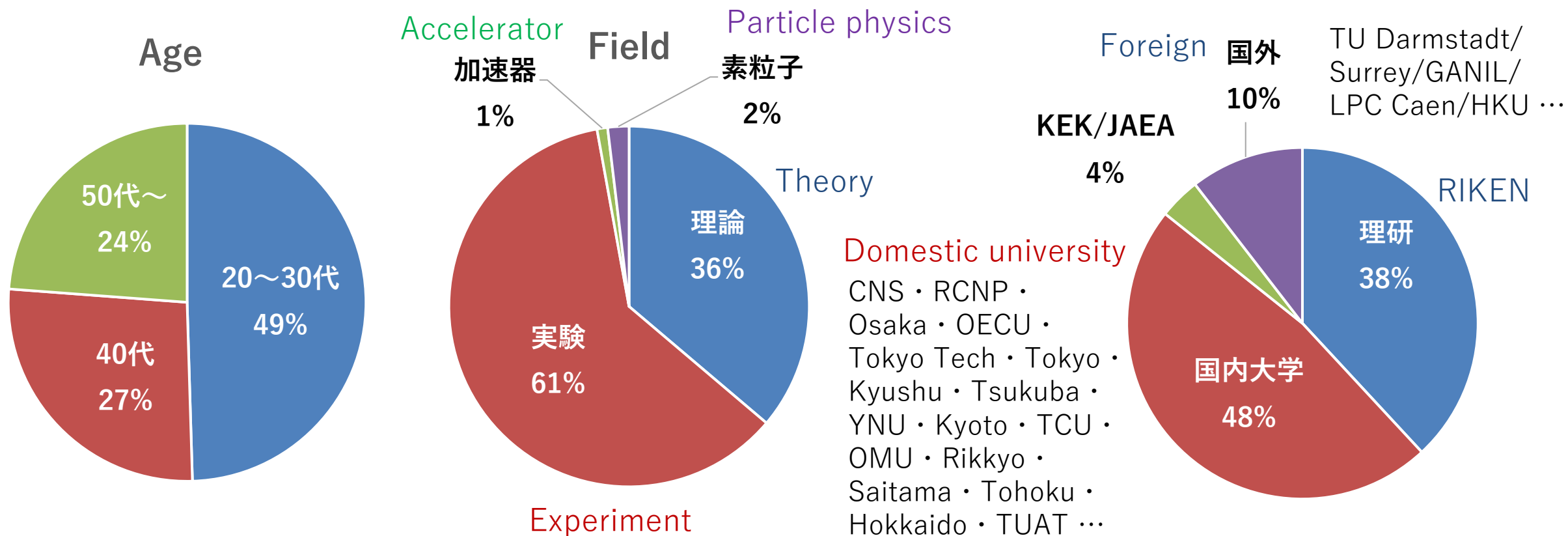


# ADRI24 in numbers

**Total 105 participants** (97 registered)

Many young researchers from outside of RIKEN

※ADRI24 was held **in person**.



# Discussion session

## **ADRIB series to be held every year**

- Suggested topics for next edition
  - Superheavy element
  - Quenching problem
  - Fundamental physics
- Other suggestions
  - Clarify key questions in each presentation
  - Invite some speakers from related fields (QCD, hadron, solid state, quantum chemistry ...)

## **Encourage topical workshops**

- Mini workshop with 10–20 participants on a quick footwork
- Encourage organizers from outside of RIKEN
- Encourage to use RIBF mini workshop framework
- Suggested topics
  - Instrumentation for RI beam line
  - Reaction mechanism for RI beam production
  - Nuclear deformation and rotation
  - Isomer production and isomer physics
  - Spectroscopy of continuum (neutron state,  $^{28}\text{O}$ , two proton decays, giant resonance ... )
  - Physics of proton-rich,  $N = Z$  line, ...
  - Nuclear data for applications
  - Quantum computing for nuclear many-body problem (c.f. RIKEN quantum).

# ADRIB25

## Organizers

W. Horiuchi (OMU), Y. Ichikawa (Kyushu), M. Kimura (RIKEN), K. Miki (Tohoku),  
F. Minato (Kyushu), D. Nishimura (TCU), T. Onishi (RIKEN),  
M. Sasano (RIKEN), D. Suzuki (RIKEN), A. Takamine (Kyushu), K. Yoshida (RCNP), J. Zenihiro (Kyoto)

## **Will be held on January 22 and 23, 2025 at Nishina Hall**

- RIBF Users Meeting (UM) will be held in the same place on Jan. 21.
- The two workshops seamlessly cover the present and future of RIBF:  
**UM for current status and short-term future and ADRIB for mid to long term projects.**
- Organizations of UM and ADRIB are independent. For instance, the registration will be arranged separately.
- Except for the reception that will jointly be organized.

**First circulars will be released soon. Stay tuned.**