

C O N T E N T S

Page

PREFACE

GRAVURE

FEATURE ARTICLE

The S π RIT experiment: Studying the density dependence of the symmetry energy via heavy RI collisions	S1
--	----

I . HIGHLIGHTS OF THE YEAR

Production of new neutron-rich isotopes near the $N = 60$ isotones ^{92}Ge and ^{93}As by in-flight fission of a 345 MeV/nucleon ^{238}U beam	S7
Y. Shimizu, T. Kubo <i>et al.</i>	
Discovery of neutron-rich silicon isotopes $^{45,46}\text{Si}$	S9
M. Yoshimoto <i>et al.</i>	
Spectroscopy of ^{52}K	S10
M. Enciu <i>et al.</i>	
Inelastic excitation of ^{98}Pb , ^{100}Cd , ^{102}Sn	S11
P. André and A. Corsi <i>et al.</i>	
In-beam γ -ray spectroscopy of ^{100}Sn	S12
X. Liu <i>et al.</i>	
Magicity versus superfluidity around ^{28}O viewed from the study of ^{30}F	S13
J. Kahlbow <i>et al.</i>	
First reach of ^{100}Sn high-precision mass measurements	S14
M. Rosenbusch <i>et al.</i>	
Candidate for the double Gamow-Teller giant resonance studied by $^{48}\text{Ca}(^{12}\text{C}, ^{12}\text{Be}(0_2^+))$ reaction at RIBF	S15
A. Sakaue <i>et al.</i>	
Precise spectroscopy of the $3n$ and $3p$ systems via the $^3\text{H}(t, ^3\text{He})3n$ and $^3\text{He}(^3\text{He}, t)3p$ reactions at intermediate energies	S16
K. Miki <i>et al.</i>	
Twist analysis of the spin-orbit correlation in QCD	S17
Y. Hatta and J. Schoenleber	
Uncovering the mechanism of chiral three-nucleon force in driving spin-orbit splitting	S18
T. Fukui <i>et al.</i>	
Impact of the molecular resonances on the $^{12}\text{C}+^{12}\text{C}$ fusion reaction rate	S19
Y. Taniguchi and M. Kimura	
^{164}Pb : A possible heaviest $N = Z$ doubly magic nucleus	S20
T. Naito <i>et al.</i>	
Investigation of finite transverse single-spin asymmetry for very forward neutral pion and neutron production in diffractive and non-diffractive processes	S21
S. Lee <i>et al.</i>	
Production cross-sections of light and charmed mesons in e^+e^- annihilation near 10.58 GeV	S22
R. Seidl	
A novel model simulation for the parton energy loss in QGP	S23
T. Kumaoka	
Key ionic reactions affecting stratospheric O_3 and HNO_3 changes caused by the Halloween solar proton event	S24
S. Hirasedo <i>et al.</i>	
Commissioning of the RI production line for the mass production of astatine-211 using SRILAC	S25
T. Nishi <i>et al.</i>	
In-beam commissioning of the NEBULA-Plus neutron array	S26
N. L. Achouri <i>et al.</i>	
A low-cost power supply for silicon photomultipliers	S27
P. Schury <i>et al.</i>	

Improvement of the Rare-RI Ring beam transport using vertical steering magnets	S28
A. Yano <i>et al.</i>	
Performance of a precise isochronous magnetic field over a wide momentum range in the Rare-RI Ring	S29
Y. Abe <i>et al.</i>	
Development of laser system for magneto-optical trapping of francium atoms	S30
K. Nakamura <i>et al.</i>	
Laser spectroscopy of triply charged ^{229}Th isomer for a nuclear clock	S31
A. Yamaguchi <i>et al.</i>	
Controlling ^{229}Th isomeric state population in a VUV transparent crystal	S33
T. Hiraki <i>et al.</i>	
Universal 3D-printed device for the separation of radio isotope and target metal	S34
S. Ohira <i>et al.</i>	
Production of ^{45}Ti radioisotope by proton irradiation of natural scandium	S35
F. Ditrói, S. Takács, and H. Haba <i>et al.</i>	
Production cross sections of $^{189\text{g}}\text{Ir}$ in α -particle-induced reactions on ^{nat}Re	S37
G. Damdinsuren <i>et al.</i>	
Genomic distribution of essential genes influences deletion mutation inheritance in <i>Arabidopsis thaliana</i>	S39
K. Ishii <i>et al.</i>	

II. RESEARCH ACTIVITIES I (Nuclear, Particle and Astro-Physics)

1. Nuclear Physics

RI beam production at BigRIPS in 2024	1
S. Michimasa <i>et al.</i>	
Measurement of cross-sections and momentum distributions of isotopes produced from ^{18}O beam	3
H. Takeda <i>et al.</i>	
Determination of half-life of ^{89}Rh by measuring in-flight decay	4
H. Suzuki <i>et al.</i>	
Search for short-range correlation in neutron-rich systems	5
H. Wang <i>et al.</i>	
Multi-neutron ^4n and ^6n states in extremely neutron-rich nuclei beyond the neutron drip line	7
T. Nakamura <i>et al.</i>	
Constraining the EoS with heavy ion collisions and the S π RIT time projection chamber	9
W. Lynch <i>et al.</i>	
Triton decay channels from the $^{11}\text{Li}(p,n)^{11}\text{Be}$ reaction	10
M. Sasano and L. Stuhl <i>et al.</i>	
Strong nuclear collectivity in the drip-line nucleus ^{11}Li	12
L. Stuhl <i>et al.</i>	
Beta decay study of $^{156,157}\text{Pr}$ nuclei	13
M. Khandelwal <i>et al.</i>	
Shell evolution beyond ^{208}Pb : Isomer and β -decay spectroscopy of neutron-rich $N > 126$ nuclei	14
A. I. Morales and V. H. Phong <i>et al.</i>	
New fast-timing measurement system at RIBF, IDATEN	15
B. Moon <i>et al.</i>	
Status of mass measurements with CRISMASS@F11 in FY2024	16
H. Ishiyama <i>et al.</i>	
Mass measurements beyond ^{132}Sn using the ZD MRTOF-MS	17
V. H. Phong <i>et al.</i>	
High-precision mass measurements of proton-rich lanthanum and cerium isotopes with the ZD MRTOF-MS	18
S. Iimura <i>et al.</i>	
High-precision mass measurements of ground and isomeric states of ^{97}Cd and ^{99}In using ZD MRTOF-MS	19
W. Xian and M. Rosenbusch <i>et al.</i>	

Mass measurements of neutron-rich $N = Z$ nuclei with ZD-MRTOF-MS system	20
D. Hou and M. Wada <i>et al.</i>	
Mass measurements of proton-rich nuclei in the vicinity of ^{84}Mo	21
S. Kimura <i>et al.</i>	
High-accuracy mass measurements of neutron-rich argon isotopes and their impacts on the understanding of $N = 32$ subshell closure	22
C. Y. Fu and M. Wada <i>et al.</i>	
Observation of ^{256}Db by MRTOF-MS	23
P. Schury <i>et al.</i>	
Confirmation of the order of states in ^{100}Nb	24
S. Kimura <i>et al.</i>	
RIBF experimental program in TRIP project 2024	26
H. Baba <i>et al.</i>	
Measurement of proton elastic scattering of ^{44}Ti in the TRIP-MESA project	27
S. Takeshige <i>et al.</i>	
Measurement of proton elastic scattering from ^{50}Ca with a new telescope DELTA	28
T. Nakada <i>et al.</i>	
Proton elastic scattering with ^{86}Kr beam at 66 MeV/nucleon	29
S. Koyama <i>et al.</i>	
Measurement of proton elastic scattering from ^{136}Xe at 200 and 300 MeV/nucleon	30
T. Yano <i>et al.</i>	
Measurements of charge-changing and reaction cross sections of neutron-rich Ca isotopes	31
R. Kanungo <i>et al.</i>	
Nuclear structure studies around ^{132}Sn through nuclear moment measurements of isomeric states	32
G. Georgiev <i>et al.</i>	
Nuclear structure studies through nuclear moment measurements on short-lived isomeric state with TDPAC technique	33
S. Go <i>et al.</i>	
Novel technique of the surrogate reaction for neutron capture rate with OEDO and SHARAQ	34
N. Imai <i>et al.</i>	
Single-particle states in fp -shell nuclei through the $^{50}\text{Ca}(d, p)^{51}\text{Ca}$ transfer reaction	35
C. Ferrera and K. Wimmer <i>et al.</i>	
Measurement of deuteron beam polarization at RIKEN RIBF	36
H. Sugahara <i>et al.</i>	
Numerical study of space-charge effects and performance evaluation of Coulomb-scaling factors	37
H. Matsubara <i>et al.</i>	
Fluorescence observation of Rb atoms in He II during dynamic Stokes shift at several wavelengths	38
T. Sensui <i>et al.</i>	
Examination of supernova nucleosynthesis with CRIB: measurement of the $^{13}\text{N}(\alpha, p)^{16}\text{O}$ reaction	39
A. Psaltis <i>et al.</i>	
A study of $^6\text{He} + p$ reaction: elastic scattering and neutron transfer reactions	40
Q. Zhang <i>et al.</i>	
Development of large-volume argon gas cell at KISS	42
Y. X. Watanabe <i>et al.</i>	
Mass measurement by using newly developed doughnut-shaped helium gas cell at KISS	43
Y. Hirayama <i>et al.</i>	
Production cross sections of ^{16}N isomer with ^9Be target + ^{18}O beam at 230 and 350 MeV/nucleon	44
R. Yoshida <i>et al.</i>	
2. Nuclear Physics (Theory)	
Uncovering the sign of nuclear deformations: Determination of prolate or oblate shape via low-energy α inelastic scattering	45
S. Watanabe <i>et al.</i>	
Investigation of the determination of nuclear deformation using high-energy heavy-ion scattering	46
S. Watanabe <i>et al.</i>	

Deformation effect in Borromean nucleus ^{19}B	47
M. Yamagami	
Spin entanglement of two protons emitted from ^6Be	48
T. Oishi	
Is the solution to the ATDHF equation unique?	49
K. Sato	
Magnetic dipole excitations in magic nuclei with subtracted second random-phase approximation	50
M. J. Yang <i>et al.</i>	
Exploring two-neutron halos in $N = 28$ isotones ^{40}Mg and ^{39}Na	51
J. Singh and J. Casal <i>et al.</i>	
Gamow-Teller strength distributions of ^{18}O and well-deformed nuclei ^{24}Mg and ^{26}Mg by deformed QRPA	52
E. Ha <i>et al.</i>	
3. Nuclear Data	
Production cross-section measurements of ^{225}Ac produced via projectile fragmentation of ^{238}U beam at 345 MeV/nucleon	53
S. Nishizawa <i>et al.</i>	
Consideration of the production method for Auger electron emitter ^{77}Br using the CCONE-based calculation system	54
S. Sakai <i>et al.</i>	
Development of a CCONE-based calculation system contributing to the consideration of nuclide production methods	55
S. Sakai <i>et al.</i>	
EXFOR compilation of RIBF data in 2024	56
S. Watanabe <i>et al.</i>	
4. Hadron Physics	
Development of concepts of streaming DAQ and computing for ePIC	57
T. Gunji for the EIC-Japan Group	
Development of ePIC zero-degree calorimeter	58
Y. Goto <i>et al.</i>	
Measurement of J/ψ and $\psi(2S)$ production in $p + p$ and $p + d$ interactions at 120 GeV	59
K. Nakano <i>et al.</i>	
Status of Hypertriton lifetime measurement at J-PARC	60
T. Hashimoto <i>et al.</i>	
First transversely polarized proton + proton collision in the sPHENIX experiment at RHIC	61
I. Nakagawa <i>et al.</i>	
Transversely polarized proton-proton collision measurements at a center of mass energy of 200 GeV with sPHENIX	62
G. Nukazuka <i>et al.</i>	
Data readout of the intermediate silicon tracker	63
M. Kano <i>et al.</i>	
Development of streaming readout for sPHENIX-INTT detector	64
T. Hachiya <i>et al.</i>	
Track-seed reconstruction for sPHENIX-INTT	65
H. Tsujibata <i>et al.</i>	
Study of threshold for noise rejection of detector at sPHENIX	66
N. Morimoto <i>et al.</i>	
Cosmic track reconstruction toward alignment for the INTT	67
W. C. Tang <i>et al.</i>	
Z-vertex determination by the sPHENIX INTT detector in $p + p$	68
M. Ikemoto <i>et al.</i>	
Vertex reconstruction by the sPHENIX INTT in field-off data	70
C. W. Shih <i>et al.</i>	
Reaction plane determination INTT at sPHENIX	71
M. Fujiwara <i>et al.</i>	

Effect of radiation exposure on MIP peak position during the 2024 $p + p$ running of sPHENIX-INTT	72
Y. Ishigaki <i>et al.</i>	
Measurement of long-range two-particle correlations in pp collisions at $\sqrt{s} = 200$ GeV with RHIC-sPHENIX	73
Y. Sekiguchi	
MIP analysis of Si-sensor by electron beam for ALICE-FoCal	74
M. Takamura <i>et al.</i>	
sPHENIX silicon tracker alignment	75
J. Bertaux <i>et al.</i>	
Performance evaluation of electron tracking using INTT and a calorimeter for the sPHENIX experiment	76
T. Kumaoka <i>et al.</i>	
Commissioning of intermediate silicon tracker at sPHENIX with transversely polarized proton-proton collisions at $\sqrt{s} = 200$ GeV	77
G. Nukazuka <i>et al.</i>	
Measurement of the luminosity and cross-section of the minimum-bias detector in RHIC-sPHENIX Au-Au run	78
T. Kikuchi <i>et al.</i>	
Au + Au commissioning of RHIC-sPHENIX in Run2024	79
A. Enokizono <i>et al.</i>	
Detection efficiency of the hit cluster in the sPHENIX-INTT detector	80
R. Shishikura <i>et al.</i>	
Beam background analysis with the sPHENIX-INTT detector	81
T. Kato <i>et al.</i>	
Commissioning of the Local Polarimeter with forward neutron production in transversely polarized $p^\uparrow + p$ collisions at sPHENIX	82
J. Hwang	
5. Hadron Physics (Theory)	
6. Particle Physics	
Algebra of the QST model	83
Y. Akiba	
7. Astrophysics and Astro-Glaciology	
MAXI observations of the clusters of galaxies	85
Y. Taki <i>et al.</i>	
MAXI observation of X-rays reflected from the Moon	87
S. Sugawara <i>et al.</i>	
Geant4 simulation of Lunar-RICHeS for human lunar exploration	89
R. Nakamura <i>et al.</i>	
Simulation of the impact of the Halloween event on chemical species in the stratosphere using a chemistry-climate model	90
H. Akiyoshi <i>et al.</i>	
Confirming terrestrial ice-core and tree-ring records as solar proxies through pink noise analysis	92
M. Morikawa and Y. Motizuki	
8. Accelerator	
Development of carbon-isotope beams with solid target at CRIB	93
H. Yamaguchi <i>et al.</i>	
Status of RIKEN 28 GHz SC-ECRIS towards the production of intense uranium ion beams	94
G. Q. Saquilayan <i>et al.</i>	
Lead-ion beam production using high temperature oven of RIKEN 28-GHz superconducting electron resonance ion source	96
T. Nagatomo <i>et al.</i>	
Introducing EtherNet/IP to the RIBF control system: Development and operational use	97
A. Uchiyama <i>et al.</i>	
Development of a machine protection beam interlock system for the RIBF	98
M. Komiyama <i>et al.</i>	

Application of electrostatic pickups for beam current monitoring using double-integration technique at RIBF	100
R. Koyama <i>et al.</i>	
Deployment of digital LLRF in the RRC	101
K. Yamada <i>et al.</i>	
Construction of a Faraday cup for high intensity beams from the SRC	102
K. Yamada <i>et al.</i>	
Development of a system for monitoring electromagnet current fluctuations	103
K. Kumagai <i>et al.</i>	
Development of a vacuum control system with a fast closing valve for the radioisotope production beamline	105
T. Watanabe <i>et al.</i>	
Status of vacuum pumping systems in accelerator facilities	106
Y. Watanabe <i>et al.</i>	
Electric power consumption of RIKEN Nishina Center in 2024	107
M. Kidera <i>et al.</i>	
9. Instrumentation	
Inspection of exit-beam dump for BigRIPS	109
Y. Togano <i>et al.</i>	
Position measurement of rotating Be target for BigRIPS	110
M. Yoshimoto <i>et al.</i>	
Beam emittance analysis of primary beams using profile monitors in the beam transport line from SRC to BigRIPS	111
N. Fukuda <i>et al.</i>	
Diamond recoil particle telescope for primary-beam current measurements at BigRIPS	112
N. Fukuda <i>et al.</i>	
New gas handling system for parallel plate avalanche counter	113
H. Sato <i>et al.</i>	
Depth position measurement ability of SGT's planar strip Ge detector	114
S. Motomura <i>et al.</i>	
Enhancing the efficiency of nuclear equipment adjustments: Statistical techniques for minimal datasets	116
Y. Ono and Y. Kubota	
Response of GAGG detectors with SiPM readout to high-energy gamma rays	117
W. Marshall <i>et al.</i>	
Characterization of a HR-GAGG(Ce) crystal coupled to an avalanche photodiode for HYPATIA project	118
S. G. Posada <i>et al.</i>	
Improved energy resolution for HYPATIA using multiplicity-based Doppler correction	119
J. S. Cachaya <i>et al.</i>	
New liquid hydrogen target for in-beam γ -ray spectroscopy	120
X. Liu <i>et al.</i>	
Continuous wave nuclear magnetic resonance with a vector network analyzer for the polarization monitoring of room-temperature polarized solid proton target	121
D. Takahashi <i>et al.</i>	
Proposal of isobar-separation system using betatron resonance in a multi-frequency RFQ (MRFQ)	122
M. Wakasugi <i>et al.</i>	
Prototype development of a multi-radio-frequency quadrupole (MRFQ) mass filter	123
H. Kobayashi <i>et al.</i>	
Analytical method for betatron tune in multi-frequency RFQ	124
Y. Saito and M. Wakasugi	
Evaluation of residual radiation from the production target at ERIS	125
T. Ohnishi <i>et al.</i>	
Effects of electron beam conditions on the SCRIT ion-trapping properties	126
R. Ogawara <i>et al.</i>	
Evaluation of average kinetic energy of ^{132}Xe ions trapped in SCRIT	127
Y. Kikuchi <i>et al.</i>	

Design of higher order mode damped cavity for electron-beam stabilization in SR2	128
Y. Maeda and M. Wakasugi	
Development of position detector for luminosity monitor in the SCRIT electron scattering facility	129
M. Tachibana <i>et al.</i>	
Development of R3-related equipment with ^{124}Xe beam	130
Y. Yamaguchi <i>et al.</i>	
A compact Schottky cavity detector at the Rare-RI Ring	131
T. Yamaguchi <i>et al.</i>	
Installation and offline tests of a position-sensitive Schottky cavity doublet	132
G. Hudson-Chang <i>et al.</i>	
Isochronous mass spectrometry at the RIKEN Rare-RI Ring facility	133
D. Nagae <i>et al.</i>	
Possibility of ~ 2 particle nA neutron-rich Xe, Kr beams for exploring the island of stability	134
M. Wada	
Development of multireflection time-of-flight for PALIS	135
T. Sonoda <i>et al.</i>	
Beam Hit position dependence of the pulse height of a thin plastic scintillation counter with heavy ion beam	136
M. Kurata-Nishimura <i>et al.</i>	
Performance testing of a photomultiplier tube in a beam diagnostic vacuum chamber for laser spectroscopy of unstable Rb atoms in superfluid helium	137
M. Mochizuki <i>et al.</i>	
Improving energy resolution in an α -TOF detector	139
P. Schury <i>et al.</i>	
Neural network approaches to track reconstruction in drift chambers	140
Y. Ichinohe and H. Baba	
Semi-automated analysis tool for survey system using photogrammetry	141
R. Murayama <i>et al.</i>	
Database for shared and automated photogrammetry survey analysis	142
R. Murayama <i>et al.</i>	
Development of a gas target for the spectroscopy of pionic atoms in inverse kinematic reactions	144
S. Nakahara <i>et al.</i>	
Status of the J-PARC E16 experiment in 2024	146
S. Yokkaichi	
DAQ upgrade of the J-PARC E16 experiment in 2023–2024	147
S. Nagafusa	
Heavy-ion irradiation on a SiC-based semiconductor detector	148
N. Kitamura <i>et al.</i>	
CCJ operations in 2024	149
S. Yokkaichi <i>et al.</i>	

III. RESEARCH ACTIVITIES II (Material Science and Biology)

1. Atomic and Solid State Physics (Ion)

Improvement of single-event burnout tolerance in SiC power devices	151
M. Takahashi <i>et al.</i>	
Laser spectroscopic spin-polarizations of silver atoms in superfluid helium using a single-frequency DPSS laser	153
S. Takahashi <i>et al.</i>	
Magnetic field calibration system for measuring hyperfine splitting of $^{85,87}\text{Rb}$ atoms in superfluid helium	155
S. Sasamori <i>et al.</i>	
Microwave system for atomic beam resonance method	156
T. Kato <i>et al.</i>	
Ejection test using an oscillating electric field from an RF ion-trap toward the generation of a slow RI atomic beam	157
Y. Fukuzawa <i>et al.</i>	

RIKEN ion-beam irradiation platform with glass capillary optics as a member of the Japanese microbeam facility network T. Ikeda	158
2. Atomic and Solid State Physics (Muon)	
Investigation of successive magnetic transition in $\text{Sm}_2\text{Ru}_2\text{O}_7$ via muon spin relaxation (μSR) M. A. Syakuur <i>et al.</i>	159
Hole concentration dependence of spin fluctuations enhanced by Fe impurity in overdoped/heavily overdoped Bi-2201 cuprates Y. Komiyama <i>et al.</i>	161
3. Radiochemistry and Nuclear Chemistry	
Online solid-liquid extraction experiments of ^{255}No in the Sr resin/HDEDTP system R. Wang <i>et al.</i>	163
Solvent extraction of ^{181}W with tri-n-octylamine in HF/HNO_3 system towards the chemistry of Sg S. Mitra, A. Nambu, and H. Haba	165
Anion exchange experiments of tungsten for liquid phase chemistry of seaborgium (Sg, element 106) T. K. Sato <i>et al.</i>	167
Distribution ratio prediction of group 4 elements using machine learning, toward chemical study of element 104, rutherfordium K. Shibamoto <i>et al.</i>	168
Solid-liquid extraction of ^{85}Sr and ^{133}Ba with DGA-resin towards the chemical study of element 102, nobelium E. Khult <i>et al.</i>	169
Doping a CaF_2 crystal with ^{229}Pa and the γ -ray measurement of $^{229\text{m}}\text{Th}$ Y. Shigekawa <i>et al.</i>	171
Sputtering of yttrium on the ^{225}Ac source for the magneto-optical trap of ^{221}Fr T. Nakashita <i>et al.</i>	173
Solvent extraction of astatine with DIPE and attempt to identify the extracted species by thin layer chromatography T. Taniguchi <i>et al.</i>	175
Production and chemical separation of ^{195}Au Y. Shigekawa <i>et al.</i>	177
Production of ^{155}Tb via an α -particle induced reaction on ^{153}Eu Y. Shigekawa <i>et al.</i>	179
Development of a new type $^{103}\text{Pd}/^{103\text{m}}\text{Rh}$ generator T. Ohya <i>et al.</i>	181
Production of non-carrier added ^7Be via the $^{nat}\text{Li}(d, x)^7\text{Be}$ reaction A. Nambu <i>et al.</i>	182
Construction of the gas cell and isotope separation system with resonant laser ionization for astatine-211 production T. Sonoda <i>et al.</i>	183
Observation of At-211 accumulated cells using a real-time alpha-particle imaging system M. Yoshino <i>et al.</i>	184
First investigation of energy transfer in quantum dots with ^{211}At K. Shimazoe <i>et al.</i>	186
Determination of ^{211}At activity using liquid scintillation counting Y. Soeta <i>et al.</i>	187
Characterization of ^{195}Au and ^{155}Tb for photon-pair radiotheranostics K. Shimazoe <i>et al.</i>	188
Analysis of Mg ion transport by AtMRS2-1 in <i>Arabidopsis thaliana</i> using Mg-28 K. Tanoi and N. I. Kobayashi	189
An ^{211}At -labeled alpha-melanocyte stimulating hormone peptide analog for targeted alpha therapy of metastatic melanoma H. Suzuki <i>et al.</i>	190
Comparison of linker length in compounds for nuclear medicine targeting Fibroblast activation protein as molecular target K. Hisada <i>et al.</i>	192

Development of LAT1-selective nuclear medicine therapeutics using astatine-211	194
K. Kaneda-Nakashima <i>et al.</i>	
At-211 labeling of a somatostatin analog TATE via closo-decaborate for targeted alpha antitumor therapy	196
S. Warashina <i>et al.</i>	
Preparation for RNA-sequencing of ^{211}At -MABG treated neuroblastoma cell lines	197
T. Sakashita <i>et al.</i>	
Development of ^{67}Cu -labeled somatostatin derivatives to optimize nuclear medicine therapy	198
Y. Fujisawa <i>et al.</i>	
Activation cross sections of α -particle-induced reactions on scandium in the energy range of 22–51 MeV	200
M. Aikawa <i>et al.</i>	
Production cross sections of ^{48}V via α -particle-induced reactions on scandium below 29 MeV	202
E. Sakamoto <i>et al.</i>	
Activation cross sections of ^7Li -induced reactions on ^{nat}Ti : Implications for monitor reactions	204
M. Aikawa <i>et al.</i>	
Activation cross sections of ^7Li -induced reactions on ^{nat}Ni	206
M. Aikawa <i>et al.</i>	
Excitation functions of α -particle-induced reactions on ^{nat}Cr up to 50 MeV	208
N. Ukon <i>et al.</i>	
Activation cross sections of α -particle-induced reactions on ^{nat}Cu and ^{nat}Ti	210
S. Nikaido <i>et al.</i>	
Activation cross sections of ^7Li -induced reactions on ^{nat}Cu for monitor reactions	212
M. Aikawa <i>et al.</i>	
Production cross-section of ^{109}Cd via alpha-particle-induced reaction on natural silver up to 50 MeV	213
Ts. Zolbadral <i>et al.</i>	
Production cross-section of the $^{nat}\text{Sn}(\alpha, x)^{118}\text{Te}$ reaction up to 50 MeV	215
Ts. Zolbadral <i>et al.</i>	
Isomer production studied with simultaneous decay curve analysis for alpha-particle induced reactions on natural platinum up to 29 MeV	216
N. Otuka <i>et al.</i>	
Synthesis of Np isotopes via the $^{232}\text{Th} + ^7\text{Li}$ nuclear reaction	217
A. Nakajima <i>et al.</i>	
4. Radiation Chemistry and Biology	
Effect of heavy-ion irradiation on survival rate of <i>Synechocystis</i> sp. PCC 6803	219
M. Ishida <i>et al.</i>	
Effects of heavy-ion beam irradiation on the survival and morphology of <i>Cyanidioschyzon merolae</i>	221
T. Kodama <i>et al.</i>	
Effect of heavy-ion irradiation on survival of <i>Medakamo hakoo</i>	222
Y. Okabe <i>et al.</i>	
LET effect of Ar-ion irradiation on the flowering rate of <i>Arabidopsis thaliana</i>	223
S. Ohbu <i>et al.</i>	
Effects of heavy-ion beam and X-ray irradiation on flowering rate in <i>Arabidopsis thaliana</i>	224
S. Ohbu <i>et al.</i>	
Isolating morning glory mutants using carbon-ion irradiation	225
Y. Shirakawa and T. Abe	
Distinctive development of embryo and endosperm caused by male gametes irradiated with carbon-ion beam	226
T. Hirano <i>et al.</i>	
Mutation breeding of cineraria using heavy-ion irradiation	227
S. Ochiai <i>et al.</i>	
The effect of accessory bud size on initial growth of taro accessory bud irradiated with heavy ion beams in <i>Colocasia esculenta</i> ‘Ehimenoushi V2 gou’	229
M. Okamoto <i>et al.</i>	
Isolating mutant red algae <i>Agardhiella subulata</i> using C-ion-beam irradiation	230
K. Tsuneizumi <i>et al.</i>	

The localization of repair proteins for alternative non-homologous end joining and single strand annealing after stepwise fractionation	231
M. Izumi and T. Abe	

IV. OPERATION RECORDS

Program advisory committee meetings for nuclear physics and for materials and life experiments	233
K. Yoneda <i>et al.</i>	
RILAC operation	234
K. Kaneko <i>et al.</i>	
Operation report on the RIKEN AVF cyclotron for 2024	235
J. Shibata <i>et al.</i>	
Operation report on ring cyclotrons in the RIBF accelerator complex	237
M. Nishida <i>et al.</i>	
Present status of liquid-helium supply and recovery system	238
T. Dantsuka <i>et al.</i>	
Operation of the BigRIPS cryogenic plant	239
K. Kusaka <i>et al.</i>	
Operation of Pelletron tandem accelerator	241
T. Ikeda <i>et al.</i>	
Radiation safety management at RIBF	243
K. Tanaka <i>et al.</i>	
Fee-based activities performed by Nuclear Chemistry Group	246
A. Nambu <i>et al.</i>	

V. EVENTS

Nishina School 2024	247
H. Ishiyama <i>et al.</i>	
RBRC workshop on Generalized Parton Distributions for nucleon tomography in the EIC era	248
Y. Hatta <i>et al.</i>	
RIKEN open day 2024	249
Y. Miyake and O. Kamigaito	
MNT2024—Exploring the heavy exotic neutron-rich nuclides via multinucleon transfer reactions	250
H. Ishiyama <i>et al.</i>	
International workshop on “Low-Energy Electron Scattering for Nucleon and Exotic Nuclei”	251
T. Ohnishi <i>et al.</i>	
Ask scientists “What is nihonium!”—Public lecture on the 20th anniversary of the birth of nihonium	252
H. Haba <i>et al.</i>	
The 2nd workshop on signal processing and data acquisition infrastructure	253
H. Baba <i>et al.</i>	
Workshop “Low-energy heavy-ion reactions and science of superheavy elements”	254
Y. Watanabe <i>et al.</i>	
Advancing physics at next RIBF (ADRI24)	255
D. Suzuki <i>et al.</i>	
The 36th symposium on tandem accelerators and related technologies	256
T. Ikeda <i>et al.</i>	
International technical safety forum 2024	257
K. Tanaka <i>et al.</i>	
The 12th international conference on hard and electromagnetic probes of high-energy nuclear collisions	258
I. Nakagawa <i>et al.</i>	
The 16th sPHENIX collaboration meeting	259
I. Nakagawa	

Report on the workshop “Advances and applications of intermediate-energy hadron-nucleus scattering” M. Kimura <i>et al.</i>	260
Recent progress in many-body theories (RPMBT22): Conference report M. Kimura <i>et al.</i>	261
Report on the conference titled “Time-evolution dynamics of nuclear reactions” H. Otsu <i>et al.</i>	262

VI. ORGANIZATION AND ACTIVITIES OF RIKEN NISHINA CENTER

(Activities, Members, Publications & Presentations)

Organization

1. Organization Chart	263
2. Finances	264
3. Staffing	265
4. Research publication	266
5. Management	267
6. International Collaboration (as of March 31, 2024)	271
7. Awards	273
8. RIKEN Awards	275
9. Brief overview of the RI Beam Factory	276

Center Director	277
-----------------	-----

Laboratories

Research Facility Development Division

Accelerator Group	279
Accelerator R&D Team	280
Ion Source Team	282
RILAC Team	284
Cyclotron Team	286
Beam Dynamics & Diagnostics Team	288
Cryogenic Technology Team	290
Infrastructure Management Team	291
Research Instruments Group	292
Automated Operation Technology Team	293
BigRIPS Team	294
SAMURAI Team	298
Data System Team	300
Detector Team	302

Instrumentation Development Group	304
-----------------------------------	-----

Nuclear Science Research Division

Radioactive Isotope Physics Group	309
Nuclear Dynamics Research Group	317
Nuclear Structure Research Group	324
SLOWRI Team	331
Superheavy Element Research Group	334
Superheavy Element Device Development Team	338
Few-body Systems in Physics Laboratory	340

Cosmic Radiation Laboratory	345
Astro-Glaciology Laboratory	357
Nuclear Many-body Theory Laboratory	360
RHIC Physics Research Laboratory	365
Three-Body Nuclear Force Laboratory	370
Meson RIKEN ECL Research Team	372
<i>Accelerator Applications Research Division</i>	
Nuclear Transmutation Data Group	375
Slow RI Data Team	378
Nuclear Transmutation Technology Group	380
High-Gradient Cavity R&D Team	381
Ion Beam Breeding Group	382
Nuclear Chemistry Group	386
Industrial Application Research Team	394
Safety Management Group	395
User Liaison Group	397
RIBF User Liaison Team	398
Office of the Center Director	399
RIKEN BNL Research Center	402
Theory Group	403
Experimental Group	407
Computing Group	412
Partner Institutions	415
Center for Nuclear Study, Graduate School of Science, The University of Tokyo	416
Wako Nuclear Science Center, IPNS (Institute for Particle and Nuclear Studies), KEK (High Energy Accelerator Research Organization)	425

VII. APPENDICES

Symposia, Workshops & Seminars	429
Events	437
Press Releases & News	438
Preprints	440