C O N T E N T S

		Page
PR	EFACE	
3R	AVURE	
	FEATURE ARTICLE First Beam from SRILAC	0.1
	First Beam from SRILAC	S1
Ι.	HIGHLIGHTS OF THE YEAR	
	Oblate shapes and metastable states of ^{92, 94} Se···· PA. Söderström <i>et al</i> .	S13
	Properties of ¹⁸⁷ Ta revealed through isomeric decay P. M. Walker, Y. Hirayama, <i>et al</i> .	S14
	In-gas-cell laser resonance ionization spectroscopy of ^{196, 197, 198} Ir · · · · · · · · · · · · · · · · · · ·	S15
	Fragmentation of single-particle strength around the doubly-magic nucleus ¹³² Sn and the position of the 0 <i>f</i> _{5/2} proton-hole state in ¹³¹ In	S16
	Experimental studies of the two-step scheme with an intense radioactive ¹³² Sn beam for next-generation production of very neutron-rich nuclei H. Suzuki <i>et al</i> .	S17
	On-line commissioning of the new SLOWRI/ZD-MRTOF system · · · · · ·	S18
	Mapping of a new deformation region around ⁶² Ti · · · · · · · · · · · · · · · · · · ·	S19
	Surface localization of the dineutron in ¹¹ Li · · · · · Y. Kubota <i>et al</i> .	S20
	Probing alpha clusters in the low-density region of the nuclear surface	S21
	Reaction cross sections on a deuteron as a probe of nuclear radii · · · · · · · · · · · · · · · · · ·	S22
	Mean-square radius of the neutron distribution and skin thickness derived from electron scattering · · · · · · · · · H. Kurasawa <i>et al.</i>	S23
	Isotopic production of high-radiotoxic nuclide 90Sr via proton- and deuteron-induced reactions ······ R. Matsumura <i>et al</i> .	S24
	CP-odd gluonic operators in QCD spin physics · · · Y. Hatta	S25
	Start the operation of AVF-BIS and its performance evaluation as a successor system to BIS····· M. Komiyama <i>et al</i> .	S26
	HiCARI: High-resolution Cluster Array at RIBF · · · · K. Wimmer <i>et al</i> .	S27
	Removing non-isobaric ions from an MRTOF-MS by periodic electric pulses	S28
	Development of the gaseous Xe scintillation detector for heavy RI beams · · · · Y. Hijikata <i>et al.</i>	S29
	μ SR study of slightly pressurized organic superconductor κ -(ET) ₄ Hg _{2.89} Br ₈ D. P. Sari <i>et al.</i>	S30
	Targeted alpha therapy of cancer: Evaluation of [211At] AAMT targeting LAT1 ····· K. Kaneda-Nakashima <i>et al</i> .	S31
	Influence of antibody stabilization with sodium ascorbate on radioimmunotherapy with an ²¹¹ At-conjugated anti-tissue factor antibody	S32

	Kinetics of Rad51 foci in G2 phase after heavy-ion irradiation in mammalian cells	S33
	Improvement of rotifer as the new food item in larviculture	S34
Ι.Ι	RESEARCH ACTIVITIES I (Nuclear, Particle and Astro-Physics)	
1	I. Nuclear Physics	
	RI beam production at BigRIPS in 2020····· H. Takeda <i>et al</i> .	1
	Production cross-section measurement and new-isotope search for very-neutron-rich RIs produced from ⁷⁰ Zn beam at 345 MeV/nucleaon by BigRIPS separator	2
	N = 32 shell closure below calcium: Low-lying structure of 50 Ar · · · · M. L. Cortés <i>et al</i> .	3
	Proton removal and lifetimes in the Ca isotopes: Spectroscopy and reaction studies	4
	Evolution of collectivity in Ti isotopes towards the $N = 40$ island of inversion \cdots T. Koiwai, K. Wimmer, <i>et al.</i>	5
	RIBF190: Exploring collectivity beyond ⁷⁸ Ni····· F. Browne, V. Werner, <i>et al</i> .	6
	Neutron intruder states and collectivity beyond $N = 50$ towards ⁷⁸ Ni · · · · · · F. Flavigny <i>et al</i> .	7
	High-resolution spectroscopy and lifetime measurements in neutron-rich Zr and Mo isotopes····· W. Korten <i>et al</i> .	8
	Single particle structure of semi-magic ¹²⁹ Ag ₈₂ ···· T. Parry <i>et al</i> .	9
	Characterization of a strongly Coulomb-excited state at an excitation energy above 4 MeV in ¹³⁶ Te · · · · · · · A. Jungclaus <i>et al</i> .	10
	Study of the ⁹ C proton breakup reaction · · · · · A. I. Chilug <i>et al.</i>	11
	Gamow-Teller giant resonance in ¹¹ Li neutron drip-line nucleus · · · · L. Stuhl <i>et al</i> .	12
	One proton removal cross section of ²⁵ F with a carbon target · · · · Y. Yoshitome <i>et al</i> .	13
	Particle identification of SAMURAI11 experiment	14
	Symmetry energy investigation with pion production from Sn+Sn systems · · · · · · · G. Jhang <i>et al</i> .	15
	Proton efficiency function for high-multiplicity events in the $S\pi RIT$ -TPC investigated by the embedding technique \cdots M. Kaneko <i>et al.</i>	16
	Observation of anisotropic collective flow of charged particles and neutrons in heavy-ion collisions at beam energies of 400 MeV/nucleon	17
	Measurement of proton elastic scattering from ¹³² Sn at 300 MeV/nucleon in inverse kinematics ····· T. Harada <i>et al</i> .	18
	Results on the β decay of 60 Ge and 62 Ge measured at RIBF	19
	On the β -decay of 70 Kr	20
	Measuring β -decay strength distribution in the 78 Ni region using VANDLE····· M. Singh $et~al.$	21
	Constraining multi-neutron emission models with spectroscopy of neutron-rich Ga isotopes using BRIKEN array	22

,	Spectroscopy of 99 Cd and 101 In from β decays of 99 In and 101 Sn	23
,	Total absorption γ-spectroscopy study of the beta decay of ¹⁰⁰ Sn	24
;	Shape evolution of 106, 108, 110 Mo in the triaxial degree of freedom	25
]	Evolution of proton single-particle states in neutron-rich Sb isotopes beyond $N = 82$	26
]	BRIKEN measurements of P_n -values and half-lives for understanding the formation of the r -process rare-earth peak: progress on the Ce to Nd region · · · · · · · · · · · · · · · · · · ·	27
]	Precision measurement of ground-state electric quardrupole moment for neutron-rich ²¹ O · · · · · · · · · · · · · · · · · · ·	28
	Investigations of magnetic moments in Coulomb fission	29
]	Re-measurement of the ⁴ He(⁸ He, ⁸ Be) reaction ······ S. Masuoka <i>et al</i> .	30
	Alpha-decay correlated mass measurement of ^{206, 207} Ra using an MRTOF-MS system equipped with an α-TOF detector T. Niwase <i>et al</i> .	31
]	First high-precision direct determination of the atomic mass of a superheavy nuclide P. Schury, T. Niwase, <i>et al</i> .	32
,	β-decay spectroscopy of ¹⁸⁷ Ta · · · · · · · · · · · · · · · · · · ·	33
,	$β$ - $γ$ Spectroscopy of 192 Re	34
]	Insight into the reaction dynamics of proton drip-line nuclear system ¹⁷ F + ⁵⁸ Ni at near-barrier energies ······ L. Yang <i>et al</i> .	35
2.	Nuclear Physics (Theory)	
]	Dineutron and effective pairing forces in momentum space	37
	Structure of ¹² C studied by the no-core Monte-Carlo shell model	38
]	Double charge-exchange phonon states	39
]	Exotic nuclear shape due to cluster formation at high angular momentum	40
]	Probing dilute nuclear density by antiproton-nucleus scattering · · · · · · · · · · · · · · · · · · ·	41
]	Nuclear charge radii with a trained feed-forward neural network	42
]	Effects of finite nucleon size, vacuum polarization, and electromagnetic spin-orbit interaction on nuclear binding energies and radii in spherical nuclei T. Naito, X. Roca-Maza, et al.	43
,	Trajectory in 2D plot of IS and IV densities of ⁴⁸ Ca and ²⁰⁸ Pb ····································	44
]	Energy-weighted sum rule for Gamow-Teller giant resonances in high-spin isomeric states of $N = Z$ nuclei	45
	A fully microscopic model of total level density in spherical nuclei	46
]	Isobaric analog state energy in deformed nuclei: A toy model	47

	Parity-conserved self-consistent CHFB solution	48
	Role of exact treatment of thermal pairing in radiative strength functions of ^{161, 163} Dy nuclei · · · · L. Tan Phuc <i>et al</i> .	49
	Non-relativistic expansion of Dirac equation by the reconstituted Foldy-Wouthuysen transformation	50
	On the role of three-particle interactions in nuclear matter W. Bentz and I. C. Cloët	51
	A3-Foresight theory collaboration for nuclear data library: A3LIB····· K. Yoshida	52
3	. Nuclear Data	
	EXFOR compilation of RIBF data in 2020···· T. Tada <i>et al</i> .	53
4	. Hadron Physics	
	Transverse momentum dependence of forward neutron single spin asymmetries in polarized $p^{\uparrow}+p$ collisions at $\sqrt{s}=200~{\rm GeV}$	55
	Transverse single-spin asymmetry for very forward neutral pion production in polarized $p+p$ collisions at $\sqrt{s}=510~{\rm GeV}$	56
	Transverse single spin asymmetry in charged pion production at midrapidity in polarized $p + p$ collisions at 200 GeV···· J. H. Yoo <i>et al.</i>	57
	Improvement of the DCA resolution for PHENIX	58
	Recent progress of polarized Drell–Yan experiment at Fermilab,SpinQuest (E1039) · · · · K. Nagai <i>et al.</i>	59
	Measurement of J/ψ productions in $p+d$ and $p+p$ at SeaQuest···· K. Nakano <i>et al</i> .	60
	Expression of interest for EIC-Japan · · · Y. Goto <i>et al</i> .	61
	Semi-inclusive deep inelastic scattering at the Electron Ion Collider R. Seidl	62
	Bus-extender development for sPHENIX INTT detector T. Hachiya <i>et al</i> .	63
5	. Hadron Physics (Theory)	
	Non-global logarithms in hadron collisions at $N_c = 3$ · · · · · Y. Hatta and T. Ueda	65
	Verification of the QED tenth-order electron $g-2$:Diagrams without a fermion loop	66
6	. Particle Physics	
	Time development of conformal field theories associated with L_1 and L_{-1} operators \cdots T. Tada	67
	Study of Lorentzian sine-square deformed CFT · · · · X. Liu and T. Tada	68
	Empirical formulas for the standard-model parameters · · · · · Y. Akiba	69
	Quarternion-spin-isospin model for the standard-model parameters · · · · Y. Akiba	70
	$R = 12H_0^2$ and its implications to gravity and cosmology · · · · · Y. Akiba	71

7. Astrophysics and Astro-Glaciology	
A novel high-resolution laser-melting sampler for discrete analyses of ion concentrations and stable water isotopic compositions in firn and ice cores	. 73
Annually resolved <i>d</i> -excess record from a shallow ice core (DFS10) near Dome Fuji station, East Antarctica · · · · · Y. V. Sahoo <i>et al</i> .	· 74
8. Accelerator	
High-intensity vanadium-beam production to search for a new super-heavy element with $Z = 119$	
R&D in AVF cyclotron · · · · J. Ohnishi <i>et al.</i>	
Charge stripper ring for RIKEN RI beam factory · · · · · · · · · · · · · · · · · · ·	
2020 operational report for the Nishina RIBF water-cooling system · · · · · T. Maie, E. Ikezawa, <i>et al</i> .	
Status of vacuum pumping systems in accelerator facilities · · · · Y. Watanabe <i>et al</i> .	· 79
9. Instrumentation	
Development of ²¹⁶ Th and ²²⁰ Th beams at the BigRIPS separator · · · · · N. Fukuda <i>et al</i> .	. 81
BYACO ecosystem for innovative online operation of BigRIPS experiments with seamless connection to comprehensive analysis · · · · · . T. Sumikama <i>et al.</i>	. 82
Development of auto-focusing and auto-centering system for the BigRIPS separator	
Thermo-mechanical simulation of high-power rotating target for BigRIPS separator	
Incidents involving the DMT3 magnet in the beam transport line from SRC to BigRIPS	
Trace-back method for dispersion matching conditions of primary beams at RIBF	
Conceptual design of a heavy ion storage ring RUNBA····· M. Wakasugi <i>et al</i> .	. 87
Development of Resonant-Extraction Charge Breeder (RECB)	. 88
Development of a forward detector for the measurement of the mean square radius of the neutron distribution of unstable nuclei by electron scattering	. 89
Ion-beam-profile monitor using MCP at the SCRIT electron scattering facility	
Extraction test of stopped Bi isotopes in PALIS gas cell	
Improvement of evacuation time of RI from argon gas cell····· T. Sonoda <i>et al</i> .	· 92
Fourth report on offline tests for RF carpet transportation in RF ion guide gas cell at the SLOWRI facility	. 93
High mass resolving power and isomeric state separation at SLOWRI/ZD-MRTOF system · · · · · W. Xian, M. Rosenbusch, <i>et al</i> .	
Offline ion source for laser spectroscopy of RI at SLOWRI	
Temperature and pressure dependence of ion extraction from RF gas cell	. 96

Degrader optimization for ZeroDegree gas cell···· S. Chen <i>et al</i> .	97
Online extraction efficiency from RF ion guide gas cell at SLOWRI	98
Development of MCP timing detector for low-energy heavy ions	99
Improvement of kicker system for rare-RI ring · · · · Y. Yamaguchi <i>et al</i> .	100
Improved position resolution of the beam diagnostics detector for the Rare-RI Ring · · · · · · · G. Hudson-Chang, S. Naimi, <i>et al</i> .	101
Computer server and network for HiCARI experiments····· H. Baba <i>et al</i> .	102
Development of a high-bandwidth waveform processing system using RFSoC · · · · S. Takeshige <i>et al</i> .	103
GPU acceleration of SAMURAI particle tracking simulation	104
Observation of Rb D1 fluorescence in superfluid helium using picosecond time-resolved detection · · · · Y. Takeuchi <i>et al</i> .	105
Development of ion trap system for the neutralizer toward production of spin-polarized RI beam using atomic beam magnetic resonance method······ K. Imamura <i>et al</i> .	106
Status of the J-PARC E16 experiment in 2020 ····· S. Yokkaichi <i>et al.</i>	107
Construction of GEM Tracker for J-PARC E16 experiment Run0-a···· T. N. Murakami <i>et al</i> .	108
Performance evaluation of the electron identification system for the J-PARC E16 experiment····· S. Nakasuga <i>et al.</i>	109
Intermediate silicon tracker for sPHENIX experiment at RHIC···· I. Nakagawa <i>et al</i> .	110
Detection efficiency of the INTT test bench for sPHENIX···· G. Nukazuka <i>et al</i> .	111
Radiation resistance of bus extender cable for sPHENIX-INTT · · · · · · · · · · · · · · · · · ·	112
Electrical and mechanical properties of the bus-extender M. Morita, Y. Akiba, <i>et al</i> .	113
Upgrade of the Si-CsI array TiNA for transfer reactions at OEDO B. Mauss, J. W. Hwang, <i>et al</i> .	114
Heat durability test of molybdenum foil for the new CRIB cryogenic gas target · · · · · S. Hayakawa <i>et al.</i>	115
Radiation resistivity test of an optical fiber for laser cooling of francium atoms····· T. Hayamizu <i>et al</i> .	116
Development of novel detection system for francium ions extracted from online surface ionizer····· N. Ozawa <i>et al</i> .	117
Experiment on hydrogen removal apparatus for helium supply and recovery system	118
Safety interlock system for LINAC building	119
Computing and network environment at the RIKEN Nishina Center	120
CCJ operations in 2020	121

Ⅲ. RESEARCH ACTIVITIES II (Material Science and Biology)

1. Atomic and Solid State Physics (Ion)	
Control of electrical conductivity in diamond by boron-implantation using an ECR ion source—application of high-temperature and high-pressure annealing	123
Single-event effects in SiC planar and trench power MOSFETs	124
Profile measurements of dual-microbeams generated by glass capillaries · · · · · · M. Mori <i>et al.</i>	125
2. Atomic and Solid State Physics (Muon)	
Partial order of conduction electrons in Mn ₃ CoSi ······ S. Shamoto, D. P. Sari, <i>et al</i> .	127
Magnetism and superconductivity in underdoped region of T*-type $La_{1-x/2}Eu_{1-x/2}Sr_xCuO_{4-y}F_y$	
Spin dynamics in Pyrochlore Nd ₂ Mo ₂ O ₇ ····· L. J. Chang <i>et al</i> .	129
Possible multipolar ordering in spin-orbital-entangled d^2 system on a face-centered-cubic lattice	130
Successive Transitions in Spin-dimer Compound $\operatorname{Cs_3V_2Cl_9}$ H. Kikuchi <i>et al.</i>	131
Magnetism of novel heavy fermion compound YbCu ₄ Ni investigated by μ SR····· T. Taniguchi <i>et al</i> .	132
ZF- μ SR measurement to investigate thermal hysteresis of MgTi ₂ O ₄ at low temperature U. Widyaiswari <i>et al</i> .	133
Observation of Cu spin fluctuations in over-doped regime $La_{2-x}Sr_xCuO_4$ nanoparticles · · · · · · S. Winarsih <i>et al</i> ·	134
The electron transfer channel in the sugar recognition system assembled on gold nano particles · · · · · T. Goto <i>et al</i> .	135
Antiferromagnetic ordering of λ -(BEST) ₂ FeCl ₄ observed by μ SR measurement · · · · · · · · · . T. Kobayashi <i>et al</i> .	136
Zero-field μ SR on the out-of-plane superconductivity of λ -(BETS) ₂ GaCl ₄ ····· D. P. Sari <i>et al</i> .	
Li-ion di usion in LiFeSi _x $P_{1-x}O_4/C$ with $x = 0$ and 0.03 · · · · F. Astuti <i>et al</i> .	138
Measurement of muon spin rotation in muonic hydrogen atom · · · · · · · · · · · · · · · · · · ·	
A LYSO calorimeter prototype for muonic X-ray detection · · · · · S. Kanda and K. Ishida	140
3. Radiochemistry and Nuclear Chemistry	
Production of 266 Bh in the 248 Cm(23 Na, $5n$) 266 Bh reaction and its decay properties \cdots H. Haba <i>et al</i> .	141
Measurement of the isotopic ratio of Np-236 to Np-237 in Th-232 + Li-7 reaction products by accelerator mass spectrometry A. Nakajima <i>et al</i> .	142
Production and photon measurement of ²²⁹ Pa toward the observation of radiative decay of ^{229m} Th · · · · · · · · Y. Shigekawa <i>et al</i> .	143
Measurement of extraction time and e ciency of ²²⁰ Rn ions using a cryogenic RF-carpet gas cell for the chemistry of superheavy elements Y. Shigekawa <i>et al.</i>	
Anion-exchange behavior of Db in HF/HNO ₃ solution · · · · · · · · · · · · · · · · · · ·	147

Anion exchange of Rf in H ₂ SO ₄ using the batch-type solid-liquid extraction apparatus AMBER · · · · · · T. Yokokita <i>et al.</i>	148
Online anion-exchange experiment of Zr in H_2SO_4 for the chemical study of Rf in H_2SO_4 ······ T. Yokokita <i>et al</i> .	149
Solvent extraction of Zr and Hf from HCl by Aliquat 336 using a flow-type extraction apparatus toward online chemical studies of element 104, rutherfordium	150
Cation- and anion-exchange behavior and UV-vis spectroscopy of Zr in HBr for chemical characterization of bromide complexes of Rf····· T. Yokokita and H. Haba	
Solvent extraction of Fr and Cs with calix[4]arene-bis(benzocrown-6) · · · · · Y. Komori and H. Haba	152
Solvent extraction and speciation of a tatine species via thin layer chromatography	153
⁹⁹ Ru and ⁵⁷ Fe Mössbauer spectroscopic studies of Na ₂ Ru _{1-x} FexO ₃ of sodium-ion battery electrode (2) ················. K. Hamano <i>et al</i> .	154
Targeted alpha therapy for thyroid cancer: Radiation-induced toxicity of [211At]NaAt in mice	155
Quality confirmation of RIKEN ¹⁸⁶ Re using bifunctional chelating agents and derivatives · · · · · · · S. Oshikiri <i>et al</i> .	156
Complex formation of Rhenium-186 with lipophilic ligands —Comparison with technetium-99m— · · · · · · · · · · · · I. O. Umeda <i>et al</i> .	157
Simultaneous imaging of Na ⁺ /K ⁺ by semiconductor Compton camera GREI	159
Development of image reconstruction method for a multiple-isotope PET using 44mSc	160
Double photon emission nuclides for double photon coincidence imaging	161
Production cross sections of ²²⁵ Ac in the ²³² Th(¹⁴ N, <i>xnyp</i>) reactions at 116 and 132 MeV/nucleon····································	162
Cross sections of alpha-particle-induced reactions on natNi: Production of 67Cu · · · · · · · · · · · · · · · · · · ·	164
Production cross sections of ⁶⁸ Ga and radioactive by-products in deuteron-induced reactions on natural zinc ······· Ts. Zolbadral <i>et al</i> .	165
Activation cross section measurement of the deuteron-induced reaction on yttrium-89 for zirconium-89 production M. Sakaguchi <i>et al.</i>	166
Excitation functions of deuteron-induced reactions on ¹⁴¹ Pr for medical radioisotope production · · · · · · · · M. Aikawa <i>et al</i> .	167
Production cross sections of medical radioisotope ¹⁵³ Sm in alpha-particle-induced reaction on natural neodymium · · M. Sakaguchi <i>et al</i> .	168
Production cross sections of ¹⁵⁵ Tb in deuteron-induced reactions on natural gadolinium	169
Production cross sections of $^{\text{nat}}\text{Er}(d,x)^{171}\text{Er}$ reactions on natural erbium · · · · · · · · · · · · · · · · · · ·	170
Measurement of production cross sections of 175 Hf in the nat Lu (p, x) and nat Lu (d, x) reactions \cdots Y. Komori <i>et al.</i>	171
4. Radiation Chemistry and Biology	
Selection of high-yield rice mutant induced by heavy-ion beam irradiation	173
Whole genome sequencing analysis for detecting mutations induced by carbon- and argon-ion irradiations of rice (<i>Oryza sativa</i> L.)	174

	Detection of structural variations in three responsible genes induced by relatively high-LET ion beams in rice	175
	Dose-dependent mutagenic effects of 160-MeV/nucleon-argon beam in <i>Arabidopsis thaliana</i>	176
	Argon-ion-induced mutant of <i>Arabidopsis thaliana</i> exhibiting accelerated leaf chlorosis	178
	Effect of heavy-ion irradiation on survival rate of <i>Torenia fournieri</i> ······ A. Matsuta <i>et al</i> .	179
	Behaviors of the Saprophytic <i>Tricholoma matsutake</i> Mutants G1 and Ar 59 In Vitro Substrate Cultivation: the former exhibited Morphological Changes while the latter did not	180
IV.	OPERATION RECORDS	
	Program Advisory Committee meetings for nuclear physics and for materials and life sciences · · · · · · · H. Ueno <i>et al</i> .	181
	Electric power status of RIKEN Nishina Center in 2020 ···· E. Ikezawa <i>et al</i> .	182
	RILAC operation	183
	Operation report on the ring cyclotrons in the RIBF accelerator complex · · · · S. Ishikawa <i>et al</i> .	184
	Operation report on the RIKEN AVF cyclotron for 2020···· M. Nishida et al.	185
	Present status of liquid-helium supply and recovery system · · · · . T. Dantsuka <i>et al</i> .	186
	Operation of the BigRIPS cryogenic plant K. Kusaka et al.	187
	Radiation safety management at RIBF · · · · K. Tanaka <i>et al</i> .	188
	Operation of the Pelletron tandem accelerator T. Ikeda <i>et al</i> .	190
	Fee-based activities of the Industrial Application Research Team	191
	Activity report of the second-term (2014–2021) RIBF Theory Forum · · · · · . T. Abe <i>et al.</i>	192
v.	EVENTS	
	Symposium on Nuclear Data 2020	195
	The 8th Asia-Pacific Conference on Few-Body Problems in Physics (APFB2020) E. Hiyama <i>et al</i> .	196
	Domestic Workshop on Spin Physics····· Y. Goto <i>et al</i> .	197
	ORGANIZATION AND ACTIVITIES OF RIKEN NISHINA CENTER (Activities, Members, Publications & Presentations)	
	Organization	
	1. Organization Chart ·····	199
	2. Finances	200
	3. Staffing ····	200
	4. Research publication	201

5. Man	agement····
6. Inter	national Collaboration
7. Awa	rds ·····
8. Brie	f overview of the RI Beam Factory ·····
enter Direc	ctor · · · · · · · · · · · · · · · · · · ·
aboratories	
Nuclea	r Science and Transmutation Research Division
	ctive Isotope Physics Laboratory ····
	ospin Laboratory ·····
Nuclea	r Spectroscopy Laborarory·····
	nergy Astrophysics Laborarory · · · · · · · · · · · · · · · · · · ·
Superh	eavy Element Research Group ····
S	uperheavy Element Production Team·····
S	uperheavy Element Device Development Team ·····
Astro-	Glaciology Research Group ·····
Nuclea	r Transmutation Data Research Group
F	ast RI Data Team ····
S	low RI Data Team
N	fluon Data Team····
High-I	ntensity Accelerator R&D Group····
Н	ligh-Gradient Cavity R&D Team · · · · · · · · · · · · · · · · · · ·
Н	ligh-Power Target R&D Team · · · · · · · · · · · · · · · · · · ·
Resear	ch Facility Development Division
Accele	rator Group·····
Α	ccelerator R&D Team
Id	on Source Team ····
R	JLAC Team ····
C	Syclotron Team ·····
В	eam Dynamics & Diagnostics Team ·····
C	Pryogenic Technology Team · · · · · · · · · · · · · · · · · · ·
Iı	nfrastructure Management Team·····
Instrun	nentation Development Group ·····
S	LOWRI Team
R	are RI-ring Team ····
S	CRIT Team ····
Resear	ch Instruments Group ·····
В	sigRIPS Team····
S	AMURAI Team····
C	Computing and Network Team····
Ε	Detector Team ····
Accele	rator Applications Research Division
Beam 1	Mutagenesis Group ·····
Id	on Beam Breeding Team
ח	lant Genome Evalution Research Team

RI Application Research Group	 293
Nuclear Chemistry Research Team · · · · · · · · · · · · · · · · · · ·	 294
Industrial Application Research Team · · · · · · · · · · · · · · · · · · ·	 300
Subnuclear System Research Division	
Quantum Hadron Physics Laboratory · · · · · · · · · · · · · · · · · · ·	 301
Strangeness Nuclear Physics Laboratory	 306
Radiation Laboratory·····	 309
Meson Science Laboratory · · · · · · · · · · · · · · · · · · ·	 314
RIKEN BNL Research Center	 319
Theory Group····	 320
Experimental Group	 324
Computing Group····	 329
RIKEN Facility Offce at RAL	 334
Safety Management Group	 338
User Liaison Group	 340
RIBF User Liaison Team·····	 341
Outreach Team · · · · · · · · · · · · · · · · · · ·	 342
Office of the Center Director	 343
Partner Institutions · · · · · · · · · · · · · · · · · · ·	 347
Center for Nuclear Study, Graduate School of Science, The University of Tokyo ·····	 348
Wako Nuclear Science Center, IPNS (Institute of Particle and Nuclear Studies),	
KEK (High Energy Accelerator Research Organization)	 358
VII. APPENDICES	
Symposia & Workshops	 361
Seminars	 362
Events	 367
Press Releases · · · · · · · · · · · · · · · · · ·	 368
Preprints	 369