CONTENTS

I. ANNUAL SUN	MMARY OF EXPERIMENTAL RESEARCH ACTIVITIES	1
I-1. PROJECT RI	ESEARCHES	2
	nprovement of Characterization Techniques in High-Energy-Particle Irradiation Research Kinomura (30P1)	3
PR1-1	Study on Efficient Use of Positron Moderation Materials A. Kinomura <i>et al.</i> (30P1-1)	4
PR1-2	Temperature Dependence of Electron-Irradiation Effects on Diffusion Coefficient of Cu in Fe Studied by Atom Probe Tomography T. Toyama <i>et al.</i> (30P1-2)	5
PR1-3	Change in Positron Annihilation Lifetime of Vacancies by Hydrogen Charging in Tungsten 2 K. Sato <i>et al.</i> (30P1-3)	6
PR1-4	Electron Paramagnetic Resonance Study on Gamma-Ray Irradiated ZnO Bulk Single Crystal K. Kuriyama <i>et al.</i> (30P1-4)	7
PR1-5	The First Chalenging Study on Corrosion Resistance of Fusion Divertor Materials to Liquid Metal during Electron Irradiation	
	M. Akiyoshi <i>et al.</i> (30P1-5)	8
PR1-6	Positron Annihilation Study of Fe-Cr Binary Alloy after Electron Irradiation T. Onitsuka <i>et al.</i> (30P1-6)	9
PR1-7	PAS Study on Free Volume in Several Diamond-Like Carbon Thin Films K. Kanda <i>et al.</i> (30P1-7)	10
PR1-8	Positron Annihilation Spectroscopy on Diamond-Like Carbon Films S. Nakao <i>et al.</i> (30P1-8)	11
Project 2 D	evelopment on Neutron Imaging Application	
PR2-1	Saito (30P2)	13
PR2-2	Simultaneous Measurements of Water Distribution and Electrochemical Characteristics in Polymer Electrolyte Fuel Cell	14 15
PR2-3	Visualization and Measurement of Distribution of Adsorbed Refrigerant in Adsorbent Particle Layer under Transient Conditions H. Asano <i>et al.</i> (30P2-3)	16
PR2-4	Flow Visualization of Heavy Oil in Supercritical Water Using Neutron Radiography T. Tsukada <i>et al.</i> (30P2-4)	17
PR2-5	Quantitative Dynamic Measurement of Void Fraction H. Umekawa <i>et al.</i> (30P2-5)	18
PR2-6	Three Dimensional Frost Formation on the Heat Exchanger Measured by Neutron CT R. Matsumoto <i>et al.</i> (30P2-6)	19
PR2-7	Analysis of Production Technology of Optics Components Using Neutron Radiography Y. Yamagata <i>et al.</i> (30P2-7)	20
PR2-8	Observation of Water Movement in Reciprocal Grafts of Tomato and Eggplant U. Matsushima <i>et al.</i> (30P2-8)····································	21
PR2-9	Analysis of Dehydration in High-Strength Concrete under High Temperature Using by Neutron Radiography M. Kanematsu <i>et al.</i> (30P2-10)······	22
PR2-10	Effect of Gravity on Coolant Distribution in Flat Laminate Vapor Chamber	22
1 K2-10	K. Mizuta <i>et al.</i> (30P2-11) ·······	23

PR2-11	Study on the Visualization of Organic Matter between Metals in order to Contribute to the Advancement of the Industrial Products K. Hirota <i>et al.</i> (30P2-12)···································	24
PR2-12		25
Project 3	Project Research on Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei Y. Ohkubo (30P3)	27
PR3-1	Technique of Transferring Radioactive Atomic Nuclei Implanted in Dry Ice Film A. Taniguchi <i>et al.</i> (30P3-1)	28
PR3-2	Search for Isomer of Fission Product 144 La through the β^- -Decay of 144 Ba by means of Internal Conversion Electron Measurements M. Shibata <i>et al.</i> (30P3-2)····································	29
PR3-3	Compton Scattering Asymmetry Observed for γ Rays from ¹⁴⁶ La Y. Kojima <i>et al.</i> (30P3-3) ···································	30
PR3-4	Direct Measurement of the Internal Pressure in Ultrafine Bubbles by Angular Correlation Technique M. Tanigaki <i>et al.</i> (30P3-5)	31
PR3-5	Dynamic Behavior of Impurity Indium Ions in Magnetite W. Sato <i>et al.</i> (30P3-6)	32
PR3-6	Observation of Local Fields at the 111 Cd(\leftarrow 111m Cd) Sites in CdTi _{0.95} Co _{0.05} O ₃ S. Komatsuda <i>et al.</i> (30P3-7)	33
Project 4	Project Research of Accelerator-Driven System with Spallation Neutrons at Kyoto University Critical Assemly C. H. Pyeon <i>et al.</i> (30P4)	35
PR4-1	Subcriticality Monitoring for a Reactor System Driven by Spallation Source (II) K. Hashimoto <i>et al.</i> (30P4-1)	36
PR4-2	Reaction Rate of Accelerator-Driven System with Spallation Neutrons N. Aizawa <i>et al.</i> (30P4-2)	37
PR4-3	Measurement of MA Reaction Rates under Sub-Critical Condition with Spallation Neutron Source in A-Core of KUCA for ADS A. Oizumi <i>et al.</i> (30P4-3)	38
PR4-4		39
Project 5	Preclinical Study for Development of New Drug for NCT M. Suzuki (30P5)	41
PR5-1	Nanoparticle Formulation Improves Efficacy of BPA for BNCT K. Matsumoto <i>et al.</i> (30P5-4)	42
PR5-2	Next Generation A (Aomori) - Research and Development of Novel Boron Drugs in BNCT Therapy S. Ishiyama <i>et al.</i> (30P5-5)	43
PR5-3	Pharmacokinetic Status Test Using 3D Artificial Tumor Cell Tissue Model Prepared by LBLA Methols. Ishiyama <i>et al.</i> (30P5-6)	od 44
PR5-4	An Attempt to Prepare Stable Colloid of Boron Carbide Using a Femtosecond Laser Y. Ishikawa <i>et al.</i> (30P5-7)	45
PR5-5	Nanoparticulate p-Borono-L-Phenylalanine Formulations for Boron Neutron Capture Therapy: Biodistribution after Subcutaneous Administration T. Andoh <i>et al.</i> (30P5-8)	46
PR5-6	Evaluation of Boron Neutron Capture Therapy (BNCT) Using Brain Tumor Bearing Rats or Mice Model Y. Fukuo <i>et al.</i> (30P5-9)	47

F K3-7	Y. Hattori <i>et al.</i> (30P5-10)	48
PR5-8	In vivo Evaluation of Novel Boron-Containing Compound for BNCT T. Tsurubuchi et al. (30P5-11)	49
PR5-9	Development of an Actively-Targeted, Phenylboronic Acid-Installed Nanoparticle towards Next-Generation Boron Neutron Capture Therapy A. Kim <i>et al.</i> (30P5-12) ····································	50
PR5-10	Design, Synthesis, and Evaluation of Glucose-Type Boron Carriers for BNCT S. Aoki <i>et al.</i> (30P5-13) ····································	51
PR5-11	Investigation of Therapeutic Potential of Poly(Vinyl Alcohol)-Boronophenylalanine Complexes in Subcutaneous Hypovascular Tumor Models T. Nomoto <i>et al.</i> (30P5-14)	52
PR5-12	Examination of Therapeutic Potential of Novel Boronated Polymers T. Nomoto <i>et al.</i> (30P5-15)	53
PR5-13	Development of closo-Dodecaborate-Conjugated Serum Albumins as Novel Boron Delivery Carriers to Tumor for BNCT H. Nakamura <i>et al.</i> (30P5-16)	54
PR5-14	Experiment on the Therapeutic Effect of Doxorubicin-Encapsulated Boron Liposome by Thermal Neutron Irradiation M. Shirakawa <i>et al.</i> (30P5-17)	55
PR5-15		56
PR5-16	In vivo Evaluation of Boron Neutron Capture Therapy for Head and Neck Cancer. K. Igawa <i>et al.</i> (30P5-19)	57
PR5-17	Antitumor Effectivity by Gd-Neutron Capture Therapy Using Arg-Gly-Asp(RGD) Sequence Binding Gd-DTPA-Incorporated Calcium Phosphate Nanoparticles H. Xuan <i>et al.</i> (30P5-20)	58
Project 6	Clinical Research on Explorations into New Application of BNCT M. Suzuki (30P6)	60
PR6-1	Clinical Research on Explorations into New Application of BNCT M. Suzuki <i>et al.</i> (30P6-1)	61
PR6-2	Literature Consideration of Possibility of Intra-Arterial Immunotherapy after Boron Neutron Capture Therapy to Metastatic Livcer Cancer H. Yanagie <i>et al.</i> (30P6-2)····································	62
Project 7	Establishment of Integrated System for Dose Estimation in BNCT Y. Sakurai (30P7)	64
PR7-1	Establishment of Characterization Estimation Method in BNCT Irradiation Field Using Bonner Sphere and Ionization Chamber (II) Y. Sakurai <i>et al.</i> (30P7-1)	65
PR7-2	Study on New Type of Neutron Spctrometer for BNCT A. Uritani <i>et al.</i> (30P7-2) · · · · · · · · · · · · · · · · · · ·	66
PR7-3	Investigation of Deterioration Characteristics of SOF Detector Probe M. Ishikawa <i>et al.</i> (30P7-3)	67
PR7-4	Beam Profile Measurement at E-3 Irradiation Port by Using the Self-Activation of CsI Plate A. Nohtomi <i>et al.</i> (30P7-4)	68
PR7-5	Characterization of Active Neutron Detector for Boron Neutron Capture Therapy M. Takada <i>et al.</i> (30P7-5)	69
PR7-6	Study for Microdosimetry Using Silicon-on-Insulator Microdosimeter in the BNCT Irradiation Field (II) Y. Sakurai <i>et al.</i> (30P7-6)	70

PR7-7	Measurement of BNCT Beam Component Fluence with Imaging Plate. K. Tanaka <i>et al.</i> (30P7-7)
PR7-8	Development of Neutron Fluence Distribution Measuring Device Using Thermoluminescence Slabs K. Shinsho <i>et al.</i> (30P7-8)
PR7-9	The Study for Development and Application of Tissue Equivalent Neutron Dosimeter
55. 40	M. Oita et al. (30P7-9)
PR7-10	Establishment of Beam-Quality Estimation Method in BNCT Irradiation Field Using Dual Phantom Technique (II) Y. Sakurai <i>et al.</i> (30P7-11)
PR7-11	Development of a Prompt Gamma-Ray Imaging Detector for Boron Neutron Capture Therapy
PK/-11	K. Okazaki <i>et al.</i> (30P7-12)
PR7-12	
	Bright-Red Scintillator and Fibers
	S. Kurosawa <i>et al.</i> (30P7-13)
PR7-13	Establishment of the Imaging Technology of 478 keV Prompt Gamma-Rays of
	Boron-Neutron Capture Reaction and the Measurement of the Intensity of the Neutron Field
	T. Mizumoto <i>et al.</i> (30P7-14)
PR7-14	Feasibility Study for Establihing Quality Assurance and Quality Control for Radiation Field
	in Boron Neutron Capture Therapy
	S. Nakamura <i>et al.</i> (30P7-15)
PR7-15	
	T. Takata <i>et al.</i> (30P7-16)
Project 8	Analyzing Tumor Microenvironment and Exploiting Its Characteristics in Search of
.,	Optimizing Cancer Therapy Including Neutron Capture Therapy
	S. Masunaga (30P8)
PR8-1	Estimation of Therapeutic Efficacy of BCNT Based on the Intra- and
110-1	Intercellular Heterogeneity in ¹⁰ B-Distribution
	T. Sato and S. Masunaga (30P8-1)······
PR8-2	Design, Synthesis and Biological Evaluation of Lipopeptide Conjugates of BSH for BNCT
1110 -	A. Isono <i>et al.</i> (30P8-2)
PR8-3	Molecular Mechanism Underlying Radioresistance of Hypoxic Tumor Cells
	M. Kobayashi <i>et al.</i> (30P8-3)
PR8-4	Membrane-Targeted Boron Neutron Capture Therapy with Boron Liposomes
	Composed of Dimyristoylphosphatidylcholine.
	S. Kasaoka <i>et al.</i> (30P8-5) · · · · · · · · · · · · · · · · · · ·
PR8-5	GLUT1-Mediated Endocytosis Could Be a Major Pathway for Internalisation of
	Kojic Acid-Appended Carborane Conjugate into Melanoma Cells
	S. Dowaki <i>et al.</i> (30P8-6) · · · · · · · · · · · · · · · · · · ·
PR8-6	Development of Novel BPA-Tirapazamine Hybrid BNCT Agent Targeting Hypoxic Tumor Cells
	Y. Uto et al. (30P8-7)····
PR8-7	X-Irradiation-Induced Bystander Effect Enhances Invasion in Tumor Cells
DD 0.0	H. Yasui et al. (30P8-8)····
PR8-8	Analysis of the Response of Tumor and Normal Tissues to BNCT
DD0 0	S. Imamichi <i>et al.</i> (30P8-9)
PR8-9	Radiobiological Effect of Extratumoral Boron Distribution and Neutron Irradiation
DD9 10	K. Nakai et al. (30P8-10)
PR8-10	Multilateral Approach toward Realization of Next Generation Boron Neutron Capture Therapy Y. Matsumoto <i>et al.</i> (30P8-11)
PR8-11	
1 1/0-11	Attempts to Sensitize Tumor Cells by Exploiting the Tumor Microenvironment Y. Sanada <i>et al.</i> (30P8-12) ····································
	1. Sanada et at. (3010-12)
D	Declarity Medical of Delivery A. J. D. L. 16 F. L. 17 D. 1127
Project 9	Production Mechanism of Radioactive Aerosols Released from Fukushima Daiichi Nuclear
	Power Plant T. Takamiya (30P9)
	I LANGUUVA (NUE 7)

PR9-1	Electrostatic Interaction in Production Process of Radioactive Solution Aerosol Particles K. Takamiya <i>et al.</i> (30P9-1)
PR9-2	Particle Size Measurement of Radioactive Aerosol Particles in an Electron LINAC Using A Diffusion Battery System II
	Y. Oki and N. Osada (30P9-2)·····
PR9-3	Observation of Insoluble Radioactive Microparticle Released from FDNPP K. Takamiya <i>et al.</i> (30P9-3) ····································
	Solution Chemical Studies on Actinides and Fission Product Nuclides A. Uehara (30P10)
PR10-1	Solubility of U(VI) in the Presence of Isosaccharinic Acid T. Kobayashi <i>et al.</i> (30P10-2)
PR10-2	Electronic Absorption Spectra of Sulfer in LiCl-KCl Eutectic Melt Y. Sakamura <i>et al.</i> (30P10-3)····································
PR10-3	Study on the Leaching Behavior of Fission Products in Simulated MCCI Debris T. Sasaki <i>et al.</i> (30P10-4)
PR10-4	Analysis of Isotopic Composition of Cs Recovered from Environmental Sample Obtained in Fukushima Prefecture by Thermal Ionization Mass Spectrometry Y. Shibahara <i>et al.</i> (30P10-5)
PR10-5	EMF Mesurements of AgCl Concentration Cell in LiCl-KCl Eutectic Molten Salt Using Chloride Ion Conducting Solid Electrolyte H. Sekimoto <i>et al.</i> (30P10-6)
PR10-6	Structural Change of Borosilicate Glass by Neutron Irradiation T. Nagai <i>et al.</i> (30P10-7)
PR10-7	Activation Measurement for Thermal-Neutron Capture Cross-Section of Cesium-135 S. Nakamura <i>et al.</i> (30P10-8)····································
PR10-8	Exchange Reaction of Proton in Hydroxide with Tritium in Aqueous Solution H. Hashizume <i>et al.</i> (30P10-9)
PR10-9	Solvent Extraction Behavior of Fission Product Elements Y. Araki <i>et al.</i> (30P10-10)··································
PR10-10	Electrochemical Behavior of Zirconium in Molten Lithium – Calcium Chloride to Develop Processing Nuclear Fuel Debris T. Nagasawa <i>et al.</i> (30P10-11) · · · · · · · · · · · · · · · · · ·
	Project Research on Advances in Isotope-Specific Studies Using Muti-Element Mössbauer Spectroscopy M. Seto (30P11)
PR11-1	EFG Tensor of Fe ²⁺ in <i>M2</i> Site of Clinopyroxene by Single Crystal Mössbauer Microspectroscopy D. Fukuyama <i>et al.</i> (30P11-1)
PR11-2	Mössbauer Study on the Model Complexes of Heme Enzymes H. Fujii <i>et al.</i> (30P11-2)···································
PR11-3	Mössbauer Analysis of the Nanoclusters Prepared by Liquid Phase Pulsed Laser Ablation on Pyrite Y. Motohashi <i>et al.</i> (30P11-3)
PR11-4	Effect of H64L Mutation on Resonance Hybrid of Fe-Bound Oxygen in Myoglobin T. Shibata <i>et al.</i> (30P11-4)
PR11-5	Study on the Electronic States of Gold Clusters, $[Au_{25}(SR)_{18}]^n$ $(n = +1, 0, -1)$ by means of ¹⁹⁷ Au Mössbauer Spectroscopy N. Kojima <i>et al.</i> (30P11-5)
PR11-6	The State Analysis of Gold Sulfide Using ¹⁹⁷ Au Mössbauer Spectroscopy H. Ohashi <i>et al.</i> (30P11-6)
	III CIMMII U W I I VI I VI

PR11-7	197 Au Mössbauer Study of Supported Au Nanoparticles Catalysis Y. Kobayashi <i>et al.</i> (30P11-7)	118
PR11-8		119
	5. Kitao et al. (501 11-8)	115
Project 12	Project Research on Boron Dynamics in Plants Using Neutron Capture Reaction: Development of Boron Analytical Method and Elucidation of its Physiological Function T. Kinouchi (30P12)	121
PR12-1	Localization of Boron in Plants Using Neutron Capture Radiography T. Kinouchi <i>et al.</i> (30P12-1)···································	122
PR12-2		123
	RATION RESEARCHES	124
1. Slow Neut CO1-1	<i>tron Physics and Neutron Scattering</i> Quantitative Characerization of Microstructures in Steels Using Small-Angle X-Ray Scattering Y. Oba <i>et al.</i> (30006)	12:
CO1-2	Fabrication of $m=6$ Supermirror on Ellipsoidal Metal Substrate M. Hino <i>et al.</i> (30027)	12
CO1-3	Character of DNA Damage Induced by Nuclear Palnt Neutron Beams H. Terato <i>et al.</i> (30040)	12
CO1-4	Versatile Compact Neutron Diffractometer on the B–3 Beam Port of KUR K. Mori <i>et al.</i> (30064)	12
CO1-5	Recovery Behaviors of Irradiation-Induced Defects in H ₂ ⁺ -Implanted SiC and Graphite N. Kawamura <i>et al.</i> (30073)	12
CO1-6	Measurements of Thermal Neutron Total Cross Section of Reactor-Grade Graphite J. Nishiyama <i>et al.</i> (30083)	13
CO1-7	Development of Neutron Spin Flipper with Large Beam Acceptance M. Kitaguchi <i>et al.</i> (30086)	13
CO1-8	Development of High Spatial Resolution Cold/Ultracold Neutron Detector Using Nuclear Emulsion N. Naganawa <i>et al.</i> (30096)	13
2. Nuclear P	hysics and Nuclear Data	
CO2-1	Development of Gamma Imager and its Application to Identification of Nuclear Materials H. Tomita <i>et al.</i> (30039)	13:
CO2-2	Measurement of Doppler Effect by Small Accelerator Neutron Source (III) T. Sano <i>et al.</i> (30067)	13
CO2-3	Development of Neutron Detectors for BNCT Fields T. Matsumoto <i>et al.</i> (30082)	13
CO2-4	Study on the Non-Destructive Nuclide Assay for Nuclear Materials with a Self-Indication Method J. Hori <i>et al.</i> (30118)	13
3. Reactor P	hysics and Reactor Engineering	
CO3-1	Local Two-phase Flow Characteristics for 6x6 Rod Bundle Geometry X. Shen <i>et al.</i> (30016)	13′
CO3-2	Basic Research for Sophistication of High-Power Reactor Noise Analysis H. Hohara et al. (30034)	13

CO3-3	T. Takeuchi et al. (30091)	139
CO3-4	Measurements of β_{eff}/Λ in Accelerator-Driven System with 14 MeV Neutrons C. H. Pyeon <i>et al.</i> (CA3001)	140
CO3-5	Transient Analyses of Kinectics on Accelerator-Driven System with 14 MeV Neutrons	
CO3-6	Data Assimilation Using Subcritical Measurements: Reactor-Noise Measurement under the Shutdown State, and Transient Experiments for Source Driven Subcritical System	141
CO3-7	T. Endo <i>et al.</i> (CA3004)	142 143
CO3-8	Measurement of Neutron Reaction Rate on Accelerator-Driven System Combined with DT Neutron Source	143
CO3-9	N. Aizawa <i>et al.</i> (CA3006)	144 145
CO3-10	Measurement of 238 U(n, γ) γ Ray from Subcritical System (2) Y. Nauchi <i>et al.</i> (CA3008)	146
CO3-11	Epithermal Neutron Capture Reactivity of Accident Tolerant Control Rod Materials H. Ohta <i>et al.</i> (CA3009)	147
CO3-12	Reactor Physics Experiment in Graphite Moderation System for HTGR (I) Y. Fukaya <i>et al.</i> (CA3010)	148
CO3-13	Measurement of Miner Acinides Reaction Rate Ratio in KUCA (4) T. Sano <i>et al.</i> (CA3011)	149
CO3-14	Measurement of Neutronics Characteristics for Th Loaed Core at KUCA T. Sano <i>et al.</i> (CA3012)	150
CO3-15	Neutron Measurement Experiment Using Thin Type Experimental Model of the SiC Semiconductor Detector M. Nakano <i>et al.</i> (CA3013)	151
CO3-16	Verification of a Method to Estimate Reactivity and Fissile Composition Y. Yamane <i>et al.</i> (CA3014)	
CO3-17	Measurement of Fundamental Characteristics of Nuclear Reactor at KUCA (III) Y. Kitamura <i>et al.</i> (CA3015)	
4. Material Sci	ience and Radiation Effects Crystal Structure Analysis of Aragonite by Neutron Diffraction K. Iwase and K.Mori (30004)··································	154
CO4-2	Radiochemical Research for the Advancement of 99 Mo/ 99 mTc Generator by (n, γ) Method Y. Fujita <i>et al.</i> (30007)	155
CO4-3	Precise Solution Stucture of Artificial Molecular Self-Assemblies in Water N. Sto <i>et al.</i> (30009)	156
CO4-4	Correlation between Damage Accumulation by Neutron Irradiation and Hydrogen Isotope Retention for Plasma Facing Materials Y. Oya <i>et al.</i> (30014)	157
CO4-5	Electron Emission Properties of Field Emitter Array for Image Sensor under Gamma-Ray Irradiation Y. Gotoh <i>et al.</i> (30017)	158
CO4-6	Neutron Irradiation to Liquid Breeders for Fusion Reactors and Tritium Recovery S. Fukada <i>et al.</i> (30021)	159

CO4-7	Damage Evolution in Neutron-Irradiated Metals during Neutron Irradiation at Elevated Temperatures I. Mukouda and Q. Xu (30022)	160
CO4-8	The Correlation between Microstructural Evolution and Mechanical Property Changes in Neutron-Irradiated Vanadium Alloys K. Fukumoto and Q. Xu (30026)	161
CO4-9	Search of Materials Forming Nano-Porous Structures by High-Energy Ion Irradiation and Study on its Formation Mechanisms J. Yanagisawa <i>et al.</i> (30037)	162
CO4-10	Irradiation Experiment of Accident Tolerant Control Rod Materials H. Ohta <i>et al.</i> (30047)	163
CO4-11	Valence Change Behavior of Cu Ions in Oxide Glasses by γ-Ray Irradiation R. Hashikawa <i>et al.</i> (30057)······	164
CO4-12	Elucidation of the Mechanism of the Solvent-Dependent Helix Inversion of Polymer Main Chain Based on the Small Angle X-Ray Scattering Y. Nagata <i>et al.</i> (30059)	165
CO4-13	Vacancy-Type Defects in Tb-Doped GaN Films Probed by a Slow Positron Beam S. Hasegawa <i>et al.</i> (30061)	166
CO4-14	Fundamental Study on Radiation-Induced Surface Activation under Subcritical Conditions T. Hazuku <i>et al.</i> (30066)	167
CO4-15	Salt Effects on Nanostructure of Gliadin Hydrates as Revealed by SAXS N. Sato <i>et al.</i> (30074)	168
CO4-16	Ar ⁺ -Irradiation-Induced Defects in GdB ₂ Cu ₃ O _y Superconducting Films Probed by Positrons T. Ozaki <i>et al.</i> (30075)	s 169
CO4-17	Vacancy Migration Behavior in Co-Cr-Fe-Mn-Ni Medium/High Entropy Alloys K. Sugita <i>et al.</i> (30076)	170
CO4-18	Recovery Behaviors of Irradiation-Induced Vacancies in Tungsten Probed by Positrons A. Yabuuchi <i>et al.</i> (30077)··································	171
CO4-19	Spectrum of Amino Acid in the Sub-THz Region Using Coherent TR (II) T. Takahashi (30080)	172
CO4-20	Hydrogen Retention on Plasma Facing Material Irradiated by High Energy Particle Beam K. Tokunaga <i>et al.</i> (30085)	173
CO4-21	Defects Structure and Characterization of Electron Irradiated B2 Ordered Alloys F. Hori <i>et al.</i> (30092)······	174
CO4-22	Synthesis of Pd Nanoparticles on Various Support Materials by γ -Ray Irradiation Reduction Method F. Hori <i>et al.</i> (30093)	175
CO4-23	Free Volume in γ-Rays-Irradiated Fused Quartz by Positron Age-Momentum Correlation (AMOC) Measurements H. Tsuchida <i>et al.</i> (30101)	176
CO4-24	Complex Structure of Ions Coordinated with Hydrophilic Polymer 19. Application for Metaric Plating on Resin Surface. (3) A. Kawaguchi and Y. Morimoto (30102)	177
CO4-25	Compositional Dependence of Mössbauer Spectra for Fe ₂ O ₃ -Al ₂ O ₃ Solid Solution S. Takai <i>et al.</i> (30121)······	178
CO4-26	Study of Resonant Frequency Change with Irradiation Dose of Piezoelectric PZT Element M. Kobayashi <i>et al.</i> (30124)	179
CO4-27	Evaluation of Structural Vacancies in Icosahedral Cluster Solids Using Positron Annihilation J. Takahashi <i>et al.</i> (30125)	180

	CO4-28	Porosity Measurements of Sintered-Silver Bonding Plates K. Wakamoto <i>et al.</i> (30129)	181
	CO4-29	Radiation Resistivity of Ferrite Permanent Magnets Against Neutrons Y. Iwashita <i>et al.</i> (30130)	182
	CO4-30	Neutron Irradiation to Optiacal Devices for ITER Diagnostics System E. Yatsuka and M. Ishikawa (30133)	183
	CO4-31	A Study on Destruction of Cesium Aluminosilicate Compounds by Gamma Ray Irradiation H. Ohashi <i>et al.</i> (30134) · · · · · · · · · · · · · · · · · · ·	184
5.	-	and Environmental Science	
	CO5-1	Ar-Ar Dating of Sub-Milligram Extraterrestrial Materials and Evaluation of the Irradiation Conditions R. Okazaki and S. Sekimoto (30011)	185
	CO5-2	Volcanic and Tectonic History of Philippine Sea Plate (South of Japan) Revealed by ⁴⁰ Ar/ ³⁹ Ar Dating Technique O. Ishizuka <i>et al.</i> (30012)	186
	CO5-3	Concentration Change of Soil Origin Elements(Al,Ca,Th) in the Aerosols Observed at Sakai, Osaka N. Ito <i>et al.</i> (30030)	187
	CO5-4	Instrumental Neutron Activation Analysis of the Steelmaking Slag, Compost and Their Mixtures in Artificial Seawater with Various Redox Conditions M. Matsuo <i>et al.</i> (30031)	188
	CO5-5	Analysis of Cd and As in the Rice Seed Detected from the Remains in the Yayoi Period by NAA T. Inamura <i>et al.</i> (30035)	189
	CO5-6	Trace Amounts of Halogens (Cl, Br and I) in U.S. Geological Survey Reference Materials S. Sekimoto <i>et al.</i> (30049)	190
	CO5-7	Application of Neutron Activation Analysis to Micro Gram Scale of Solid Samples S. Sekimoto <i>et al.</i> (30050)	191
	CO5-8	Determination of Abundance of Rare Metal Elements in Seafloor Hydrothermal Ore Deposits by INAA Techniques-5: Evaluation of Analytical Accuracy J. Ishibashi <i>et al.</i> (30051)	192
	CO5-9	Siderophile Element Fractionation in Impact Glass from the Wabar Impact Crater N. Shirai <i>et al.</i> (30063)	193
	CO5-10	Change of Uptake of Radioactive Cesium from Contaminated Soil to Rice Plants M. Yanaga <i>et al.</i> (30068)	194
	CO5-11	Thermal History of Early Archean Metamorphic Rocks H. Hyodo <i>et al.</i> (30069)	195
	CO5-12	Fission Track Age and Cooling History of Granitoids in Oku-Izumo Area, Shimane Prefecture H. Ohira <i>et al.</i> (30070)	196
	CO5-13	Halogen Systematics in Mantle Xenoliths from the Western Pacific Subduction Zones H. Sumino <i>et al.</i> (30090)	197
	CO5-14	Neutron Activation Analysis for Environmental Materials (Sediments of Lake) Y. Okada <i>et al.</i> (30098)	198
	CO5-15	Research on Earth Surface Processes by Use of Mineral Luminescence N. Hasebe <i>et al.</i> (30123)	199
	CO5-16	Elemental Composition of Atmospheric Fine Particulate Matter (PM2.5) Y. Oura <i>et al.</i> (30128)	200

Life Science	e and Medical Science
CO6-1	Study of DNA DSB End Structure Induced by Ionizing Radiation A. Akamatsu <i>et al.</i> (30001)
CO6-2	Oligomeric Structures of HspB1 from CHO Cell M. Yohda <i>et al.</i> (30002)······
CO6-3	Effect of Ligand Binding on Solution Structure of Multi-Domain Protein, MurD H. Nakagawa <i>et al.</i> (30008)
CO6-4	Structural Characterization of Circadian Clock Potein Complexes H. Yagi <i>et al.</i> (30010)
CO6-5	Sustainable Photoproduction of Medical ¹⁸ F and ^{99m} Tc Isotopes T. Takeda <i>et al.</i> (30019)···································
CO6-6	Conformational Characterization of Archaeral Homolog of Proteasome-Assembly Chaperone PbaA M. Yagi-Utsumi <i>et al.</i> (30023) ····································
CO6-7	Time-Resolved Small Angle X-ray Scattering (SAXS) Measurements on the Formation of Insulin B Chain Prefibrillar Intermediates N. Yamamoto <i>et al.</i> (30028)···································
CO6-8	Analysis of the Initial Step of Fibrillation by Amyloid-β Peptide T. Nakagawa <i>et al.</i> (30029)···································
CO6-9	Generation of Radioresistant Escherichia Coli by Adaptive Evolution Using Gamma Rays as Selection Pressure T. Saito <i>et al.</i> (30032)
CO6-10	Physicochemical Study on ILEI Suppressing Amyloid-β Generation E. Hibino <i>et al.</i> (30033)······
CO6-11	Structural Characterization of the <i>S. Pombe</i> Nucleosome Containing Histone Variant H2A.Z M. Koyama <i>et al.</i> (30041)
CO6-12	Production of Medical Radioisotopes Using Electron Linear Accelerator S. Sekimoto and T. Ohtsuki (30048)
CO6-13	Determination of Degree of Deutteartion Level of Deuterated Protein Through Small-Angle Neutron Scattering R. Inoue <i>et al.</i> (30058)
CO6-14	Measurement of Trancemitance Spectra of a Humann Calcificated Aorta Tissue in the Sub-Terahertz Region, which Related with a SEM-EDX Elements Imaging (II) N. Miyoshi and T. Takahashi1 (30079)
CO6-15	Preparation of Bovine Intact FoF1ATP Synthase for a Cryo-EM Structural Analysis C. Jiko <i>et al.</i> (30088)······
CO6-16	Potential of Boron Neutron Capture Therapy (BNCT) for Metastatic Bone: Study with Human Breast Cancer-Bearing Animal Model T. Andoh <i>et al.</i> (30105)
CO6-17	Coherent Transition Radiation mm-Wave Light Source with an Electron Linac for Absorption Spectroscopy and Irradiation S. Okuda <i>et al.</i> (30127)
Neutron Ca	pture Therapy
CO7-1	Establishment of Protocol for Neutron Capture Therapy for Head and Neck Cancer I. Ota <i>et al.</i> (30015)
CO7-2	Adjuvant Therapy with BNCT for Advanced or Recurrent Head and Neck Cancer N. Kamitani <i>et al.</i> (30018)

CO7-3	as a New Boron Agent for Neutron Capture Therapy N. Nakamura <i>et al.</i> (30024)	220
CO7-4	The Effect of Boron Neutron Capture Therapy to Normal Bones in Mice R. Iwasaki <i>et al.</i> (30053)	221
CO7-5	Establichment of a Novel Mutation Breeding Using Boron Neutron Capture Reaction (BNO) M. Kirihata <i>et al.</i> (30055)	CR) 222
CO7-6	A Fundamental Investigation on Using Known Samples as a Standard to Evaluate Various Constrction Materials K. Kimura <i>et al.</i> (30065)	223
CO7-7	Pathological Findings after GdNCT Using Gd-DTPA-Incorporated Calcium Phosphate Nanoparticles	223
CO7-8	H. Xuan <i>et al.</i> (30071) The Feasiblity Study of Eu:LiCAF Neutron Detector for an Accelerator-Based BNCT D. Nio <i>et al.</i> (30078)	224 225
CO7-9	Evaluation of Relative Biological Effectiveness of the Splenic Cells in SCID Mice Following Thermal Neutron Irradiation	
CO7-10	Y. Kinashi and T. Takata (30094) Effect of BNCT on Dissemination and Invasion of Brain Tumor Cells N. Kondo <i>et al.</i> (30097)	226 227
CO7-11	Response Assessment of Meningioma Treated by BNCT S-I. Miyatake <i>et al.</i> (30100)	228
CO7-12	Development of a Silica Nano Particle Installed with Gd(III)-Thiacalixarene Complex as a Gadolinium Carrieres to Tumor for Gd-NCT T. Yamatoya <i>et al.</i> (30107)	229
CO7-13	Development of New Gadrinium Neutron Capture Therepy Agent for Bone Cancer T. Matsukawa <i>et al.</i> (30109)	230
CO7-14	Enhanced Neutron Sensitivity by Overexpression of <i>LAT1</i> in Human Cancer Cells K. Ohnishi <i>et al.</i> (30110)	231
CO7-15 CO7-16	Clarify the Heterogeneity of Boron Distribution in BNCT S. Takeno <i>et al.</i> (30112) The Effect of Boron Neutron Capture Therapy (BNCT) on Normal Lung in Mice	232
CO7-17	M. Suzuki <i>et al.</i> (30113)	233
	Y. Tamari and M. Suzuki (30114)	234
8. Neutron Rad	diography and Radiation Application	
CO8-1	Mercury Recovered from Smeared Solution by the Organo-Mercury Lyase Enzyme Reveal and Detected by an <i>in-Cell</i> Radioactive Analysis	
CO8-2	K. Takamiya and Y. Morimoto (30089)	235236
CO8-3	Test Result of Various Scintillator Sheet for Neutron Flat Panel Detector T. Fujiwarwa and M. Hino (30117)	237
9. TRU and Nu CO9-1	Investigation of Coprecipitation with Sm Hydroxide Using KUR Multitracer Y. Kasamatsu <i>et al.</i> (30062)	220
CO9-2	Y. Kasamatsu <i>et al.</i> (30062) Stability of Pyrrolidone Derivative against γ-Ray Irradiation in HCl D. Nitta <i>et al.</i> (30106)	238239

00101		
CO10-1	Assessment of Internal Doses from Environmental Medias Contaminated by the	
	Fukushima Daiichi Nuclear Power Plant Accident: Absorption Fraction of Cs-137	
	from Contaminated Wild Boars Lived in Fukushima Prefecture	2
CO10.2	S. Takahara <i>et al.</i> (30043)	2
CO10-2	Transfer of Cesium and Potassium to Lettuce (<i>Lactuca sativa var. crispa</i>)	
	in Hydroponic Culture T. Kubota <i>et al.</i> (30072) ······	1
CO10-3		2
CO10-3	Analysis of Radiocesium Interception Potential of Coniferous and Deciduous Forest-Floor Soil H.A. Pratama <i>et al.</i> (30081)	2
	H.A. Pratama et al. (50081)	4
. Others		
CO12-1	Research and Development of a High Counting Rate ³ He Position Sensitive Detector Syste	em
	S. Satoh <i>et al.</i> (30003)	2
CO12-2	Dependency of Coherent Cherenkov Radiation Matched to the Circular Plane on Apex	
	Angles of a Hollow Conical Dielectric	
	N. Sei and T. Takahashi (30025)	2
CO12-3	Neutron Activation Analysis for the Stability Monitoring of Reference Materials	
	T. Takatsuka <i>et al.</i> (30036)	2
CO12-4	Friction Reduction by the Combination Use of MoDTC and Organic Friction Modifier	
0012 4	T. Hirayama <i>et al.</i> (30038)	4
CO12 5		•
CO12-5	Strutctural Studies of Water-Solubule Menaquinone-7 from <i>Bacillus subtilis natto</i> T. Chatake <i>et al.</i> (30042)	,
CO12-6	Neutron Activation Analysis of Cultivated Oysters in Miyagi Prefecture	
	M. Fukushima <i>et al.</i> (30044) ······	
CO12-7	Monuments of Contaminated Objects and Memories Nagadoro Area, Iitate Village, Fukushima·	
	M. Takagi et al. (30045)	2
CO12-8	Development of Neutron Imager Based on Hole-Type MPGD with Glass Capillary Plate	
00120	F. Tokanai <i>et al.</i> (30052)	2
CO12.0		
CO12-9	Radius of Gyration of Polymer for Viscosity Index Improver at Various Temperatures	
	Evaluated by Small-Angle X-Ray Scattering T. Hirayama <i>et al.</i> (30054)	,
CO12-10	Study of Isotope Separation via Chemical Exchange Reaction	
	R. Hazama <i>et al.</i> (30087)	
CO12-11	Instrumental Neutron Activation Analysis of Iridium in a Chemical Reagent	
	T. Miura et al. (30119)	
CO12-12	Neutron Activation Analysis of Household Al foils in Chemical Experimental Class for	
	Undergraduate Students	
	Y. Oura and N. Shirai (30120)	
CO12-13	Neutron Induced Prompt Gamma Ray Measurement for Nuclear Power Monitoring	
	K. Okada et al. (30122)	
CO12-14	Beam Test of a Micro-Cell MWPC for a Muon-Electron Conversion Search Experiment,	
	DeeMe	
	M. Aoki et al. (30126)	4
CO12-15	Research on Activation Assessment of a Reactor Structural Materials for Decommissioning	
	M. Seki <i>et al.</i> (30131)	2