

**II. PUBLICATION LIST**  
**(APRIL 2020 – MARCH 2021)**

## 1. Slow Neutron Physics and Neutron Scattering

### Papers

MONOPOL - A traveling-wave magnetic neutron spin resonator for tailoring polarized neutron beams  
Jericha Erwin, Gösselsberger Christoph, Abele Hartmut, Baumgartner Stefan, Berger Bernhard Maximilian,  
Geltenbort Peter, Hino Masahiro, Oda Tatsuro, Raab Robert, Badurek Gerald  
**Scientific Reports 10(1) (2020) 5815**

Neutron gas scintillation imager with glass capillary plate  
Kondo Haruyasu, Sugiyama Hiroyuki, Okada Teruyuki, Hayashi Masahiro, Moriya Toru, Ishizawa Satoshi, Itoh  
Ryutaro, Tokanai Fuyuki, Hanayama Ryohei, Hino Masahiro, Tasaki Seiji, Hirose Masanori, Sumiyoshi  
Takayuki  
**Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors  
and Associated Equipment 958 (2020) 162804**

Application of Anomalous X-ray Scattering Method to Liquid Electrolytes Used in a Battery: Local Structural  
Analysis around a Dilute Metallic Ion  
Kimura Koji, Kiuchi Hisao, Hayashi Kouichi, Nakata Akiyoshi, Fujisaki Fumika, Nishio Koji, Fukunaga  
Toshiharu, Matsubara Eiichiro  
**Analytical Chemistry 92(14) (2020) 9956-9962**

Hydrogen/deuterium exchange behavior in tetragonal hen egg-white lysozyme crystals affected by solution state  
Kita Akiko, Morimoto Yukio  
**Journal of Applied Crystallography 53(3) (2020) 837- 840**

Development and application of a <sup>3</sup>He Neutron Spin Filter at J-PARC  
Okudaira T., Oku T., Ino T., Hayashida H., Kira H., Sakai K., Hiroi K., Takahashi S., Aizawa K., Endo H., Endo  
S., Hino M., Hirota K., Honda T., Ikeda K., Kakurai K., Kambara W., Kitaguchi M., Oda T., Ohshita H., Otomo  
T., Shimizu H.M., Shinohara T., Suzuki J., Yamamoto T.  
**Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors  
and Associated Equipment 977 (2020) 164301**

Observation of TOF-MIEZE Signals with Focusing Mirrors at BL06, MLF, J-PARC  
Funama F., Hino M., Oda T., Endo H., Hosobata T., Yamagata Y., Tasaki S.  
**Journal of Surface Investigation: X-ray, Synchrotron and Neutron Techniques S1 (2020) S50-S55**

Tuning Neutron Resonance Spin-Echo Spectrometers with Pulsed Beams  
Oda Tatsuro, Hino Masahiro, Endo Hitoshi, Seto Hideki, Kawabata Yuji  
**Physical Review Applied 5 (2020) 54032**

Application of precise neutron focusing mirrors for neutron reflectometry: latest results and future prospects  
Yamada Norifumi L., Hosobata Takuya, Nemoto Fumiya, Hori Koichiro, Hino Masahiro, Izumi Jun, Suzuki  
Kota, Hirayama Masaaki, Kanno Ryoji, Yamagata Yutaka  
**Journal of Applied Crystallography 53(6) (2020) 1462-1470**

Crystallization of magnetic skyrmions in MnSi investigated by neutron spin echo spectroscopy  
Nakajima Taro, Oda Tatsuro, Hino Masahiro, Endo Hitoshi, Ohishi Kazuki, Kakurai Kazuhisa, Kikkawa Akiko,  
Taguchi Yasujiro, Tokura Yoshinori, Arima Taka-hisa  
**Physical Review Research 4(2) (2020) 043393**

Neutron lifetime measurement with pulsed cold neutrons  
Hirota K, Ichikawa G, Ieki S, Ino T, Iwashita Y, Kitaguchi M, Kitahara R, Koga J, Mishima K, Mogi T, Morikawa  
K, Morishita A, Nagakura N, Oide H, Okabe H, Otono H, Seki Y, Sekiba D, Shima T, Shimizu H M, Sumi N, Sumino  
H, Tomita T, Uehara H, Yamada T, Yamashita S, Yano K, Yokohashi M, Yoshioka T  
**Progress of Theoretical and Experimental Physics 2020(12) (2020) 123C2**

Deuteration Aiming for Neutron Scattering  
Okuda Aya, Inoue Rintaro, Morishima Ken, Saio Tomohide, Yunoki Yasuhiro, Yagi-Utsumi Maho, Yagi  
Hirokazu, Shimizu Masahiro, Sato Nobuhiro, Urade Reiko, Kato Koichi, Sugiyama Masaaki  
**Biophysics and Physicobiology 18 (2021) 16-27**

Neutron Imaging Using a Fine-Grained Nuclear Emulsion  
Hirota Katsuya, Ariga Tomoko, Hino Masahiro, Ichikawa Go, Kawasaki Shinsuke, Kitaguchi Masaaki,  
Mishima Kenji, Muto Naoto, Naganawa Naotaka, Shimizu Hirohiko M.  
**Journal of Imaging 7(1) (2021) 4**

## Proceedings

Probing the Open Spaces Channels in CPL-1 with Positron Lifetime Spectroscopy  
M. Kanaji, Y. Irie, Y. Ishikawa, M. Shibata and A. Taniguchi  
**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 77-82** (in Japanese)

Search for isomers and  $\beta$ -decay spectroscopic studies of fission products using a through-hole type clover detector Daiki Ueda, Kiminori Sato, and Takafumi Kitazawa  
**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 60-63** (in Japanese)

Development of neutron focusing mirror and feasibility study of directional neutron source  
Tatsuro Oda, Masahiro Hino, Yuji Kawabata, Hitoshi Endo, Hidetoshi Ohshita, Tomohiro Seya, Yoshiji Yasu, Hideki Seto  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 22** (in Japanese)

Present status of the neutron resonance spin echo spectrometers VIN ROSE at BL06 at J-PARC MLF  
Yuya Nagata, Michinori Suginome, Masaaki Sugiyama, Rintaro Inoue, Nobuhito Sato, Ken Morishima  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 30** (in Japanese)

Elucidation of the mechanism of the solvent-dependent helix inversion of polymer backbones by using quasielastic neutron scattering and light measurements  
Masahiro Hino, Tatsuro Oda, Fumiaki Funama, Hisao Yoshinaga, Abe Yutaka, Yuji Kawabata, Takuya Hosobata, Yutaka Yamagata, Hitoshi Endo, Norifumi L Yamagata  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 21** (in Japanese)

A Study of Focusing TOF-MIEZE Spectrometer with Small-angle Neutron Scattering  
Funama Fumiaki, Hino Masahiro, Oda Tatsuro, Endo Hitoshi, Hosobata Takuya, Yamagata Yutaka, Tasaki Seiji, Kawabata Yuji  
**JPS Conference Proceedings 33 (2021) 11088**

Commissioning of Versatile Compact Neutron Diffractometer (VCND) at the B-3 Beam Port of Kyoto University Research Reactor (KUR)  
Mori Kazuhiro, Okumura Ryo, Yoshino Hirofumi, Kanayama Masaya, Satoh Setsuo, Oba Yojiro, Iwase Kenji, Hiraka Haruhiro, Hino Masahiro, Sano Tadafumi, Kawabata Yuji, Kamiyama Takashi, Otomo Toshiya, Fukunaga Toshiharu  
**JPS Conference Proceedings (J-PARC2019) 33 (2021) 11093**

## Reviews

C3-1-2(MINE)ポートの現状と展望  
日野正裕, 小田達郎  
**日本中性子科学会誌 31 (2021) 36-37** (in Japanese)

## 2. Nuclear Physics and Nuclear Data

### Papers

Per atom muon capture ratios and effects of molecular structure on muon capture by  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> and Fe<sub>3</sub>O<sub>4</sub>  
Ninomiya Kazuhiko, Kajino Meito, Inagaki Makoto, Terada Kentaro, Sato Akira, Tomono Dai, Kawashima Yoshitaka, Shinohara Atsushi  
**Journal of Radioanalytical and Nuclear Chemistry 324 (2020) 403-408**

Measurement of cesium isotopic ratio by thermal ionization mass spectrometry for neutron capture reaction studies on <sup>135</sup>Cs  
Shibahara Yuji, Nakamura Shoji, Uehara Akihiro, Fujii Toshiyuki, Fukutani Satoshi, Kimura Atsushi, Iwamoto Osamu  
**Journal of Radioanalytical and Nuclear Chemistry 325 (2020) 155-165**

Neutron capture cross-section measurement and resolved resonance analysis of <sup>237</sup>Np  
Rovira Gerard, Katabuchi Tatsuya, Tosaka Kenichi, Matsuura Shota, Terada Kazushi, Iwamoto Osamu, Kimura Atsushi, Nakamura Shoji, Iwamoto Nobuyuki, Segawa Mariko, Maeda Makoto  
**Journal of Nuclear Science and Technology 57(1) (2020) 24-39**

In-gas-cell laser ionization spectroscopy of Os194, 196 isotopes by using a multireflection time-of-flight mass spectrograph  
Choi H., Hirayama Y., Choi S., Hashimoto T., Jeong S. C., Miyatake H., Moon J. Y., Mukai M., Niwase T., Oyaizu M., Rosenbusch M., Schury P., Taniguchi A., Watanabe Y. X., Wada M.  
**Physical Review C 102(3) (2020) 034309**

Measurements of thermal-neutron capture cross-section of Cesium-135 by applying mass spectrometry  
Nakamura Shoji, Shibahara Yuji, Kimura Atsushi, Iwamoto Osamu, Uehara Akihiro, Fujii Toshiyuki  
**Journal of Nuclear Science and Technology 4 (2020) 388-400**

Absolute X-ray energy measurement using a high-accuracy angle encoder  
Masuda Takahiko, Watanabe Tsukasa, Beeks Kjeld, Fujimoto Hiroyuki, Hiraki Takahiro, Kaino Hiroyuki, Kitao Shinji, Miyamoto Yuki, Okai Koichi, Sasao Noboru, Seto Makoto, Schumm Thorsten, Shigekawa Yudai, Tamasaku Kenji, Uetake Satoshi, Yamaguchi Atsushi, Yoda Yoshitaka, Yoshimi Akihiro, Yoshimura Koji  
**Journal of Synchrotron Radiation 28(1) (2021) 111-119**

Mixed-valence state and structure changes of EuH<sub>x</sub> (x=2 and 2<x≤3) under high-pressure H<sub>2</sub> atmosphere  
Kuno Keiji, Matsuoka Takahiro, Masuda Ryo, Mitsui Takaya, Seto Makoto, Machida Akihiko, Fujihisa Hiroshi, Hirao Naohisa, Ohishi Yasuo, Shimizu Katsuya, Sasaki Shigeo  
**Journal of Alloys and Compounds (2021) 158637**

Monte Carlo perturbation calculation for geometry change in fixed source problems with the perturbation source method  
Yamamoto Toshihiro, Sakamoto Hiroki  
**Progress in Nuclear Energy 132 (2021) 103611**

Appearance of pentavalent Fe ion as a result of a charge disproportionation in Fe-substituted Li<sub>2</sub>MnO<sub>3</sub>  
Tabuchi Mitsuharu, Kobayashi Yasuhiro  
**Journal of Physics and Chemistry of Solids 150 (2021) 109862**

### Proceedings

Investigation of Valence Fluctuation Behaviors Using Synchrotron-Radiation-Based Mössbauer Spectroscopy and X-ray Absorption Spectroscopy H. Miyatake  
**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 1-7 (in Japanese)**

Development of Oxygen NMR Probe Nucleus <sup>19</sup>O  
W. Sato, S. Komatsuda, H. Shimizu, R. Moriichi, S. Abe, S. Watanabe, S. Komatsu, T. Terai, S. Kawata, and Y. Ohkubo

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 21-24 (in Japanese)**

<sup>57</sup>Mn/<sup>57</sup>Fe Emission Mössbauer Study on Local Increase of Currie Temperature of Y<sub>3</sub>Fe<sub>5</sub>O<sub>12</sub>  
M. Mihara, K. Matsuta, M. Fukuda, R. Wakabayashi, N. Okimoto, M. Fukutome, T. Izumikawa, N. Noguchi, M. Ogose, T. Ohtsubo, D. Nishimura, A. Gladkov, A. Kitagawa, and S. Sato

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 25-30 (in Japanese)**

Researches of nuclear spectroscopy at KISS facility

S. Komatsuda, W. Sato, and Y. Ohkubo

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 35-37 (in Japanese)**

Present Status and Future Prospects of Mössbauer Spectroscopy using Synchrotron Radiation

Y. Kobayashi, T. Kubota, S. Kitao, M. Saito, R. Masuda, M. Kurokuzu, S. Hosokawa, H. Tajima, N. Umetani and M. Seto

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 38-40 (in Japanese)**

<sup>61</sup>Ni Mössbauer Spectroscopy

K. Matsuta, Y. Masuda, M. Mihara, and T. Yoshida

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 41-45 (in Japanese)**

<sup>61</sup>Ni Mössbauer Spectroscopy for Hofmann-like Spin Crossover Coordination Polymer

S. Tsutsui

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 45-50 (in Japanese)**

Mössbauer spectroscopy of Spin Crossover Complex Fe (3-cyano-4-methylpyridine)<sub>2</sub> [Ag(CN)<sub>2</sub>]<sub>2</sub>

K. Kitase, M. Takahashi, and T. Kitazawa

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 51-54 (in Japanese)**

Mössbauer spectroscopy of Fe–Ag type spin-crossover Hofmann-type complex

S. Kitao

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 55-59 (in Japanese)**

Observation of Local Fields at the <sup>111</sup>Cd(←<sup>111</sup>In) probe in SrTiO<sub>3</sub>

T. Kitazawa, K. Kitase, T. Kawasaki, Y. Kobayashi, S. Kitao and M. Seto

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 64-67 (in Japanese)**

Polaronic Local Structures in La<sub>0.7</sub>Ca<sub>0.3</sub>MnO<sub>3</sub> Observed through Spin Relaxation of Unstable Nuclei

Y. Makido, T. Kosone, M. Takahashi, and T. Kitazawa

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 68-71 (in Japanese)**

Compensator of Environmental Magnetic Fields for Neutron EDM Search

K. Nomura, P. B. Krastev, H. P. Gunnlaugsson, K. Bharuth Ram, B. Qi, H. Masenda, T. E. Mølholt, D. Naidoo, S. Ólafsson, A. T. Martín-Luengo, I. Unzueta, K. Johnston, J. Schell and H. P. Gislason

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" Kumatori, Japan (Jan. 16-17, 2020) 87-89** (in Japanese)

Detection of gamma ray from short-lived fission product at KUCA and KURNS-LINAC

Y. NAUCHI, J. HORI, T. SANO, Y. TAKAHASHI, K. KUSUMI and Hi. UNESAKI

**2020 Symposium on Nuclear Data OnLine (Nov. 26-27, 2020)**

Leaching behavior gamma-emitting fission products, iron and uranium from UFeO<sub>4</sub>

Yasutoshi Kuriyama, Hiroki Tanaka, Yoahishisa Iwashita, Yoshihiro Ishi, Tomonori Uesugi, Masahiro Hino

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 36** (in Japanese)

Design of an accelerator driven neutron source using source using a 30MeV Cyclotron

Ryutaro Tonma, Takayuki Sasaki, Taishi Kobayashi, Shun Sekimoto

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 29** (in Japanese)

## Reviews

Artificial Production of the Lowest Energy Nuclear Excited State, <sup>229m</sup>Th

HIRAKI Takahiro, KAINO Hiroyuki, MASUDA Takahiko, OKAI Kouichi, SASAO Noboru, YOSHIMI

Akihiro, YOSHIMURA Koji, KITAO Shinji, SETO Makoto, TAMASAKU Kenji, YODA Yoshitaka

**SPring-8/SACLA Information 25(2) (2020) 88-95** (in Japanese)

## Others

燃料集合体での FP  $\gamma$ 線スペクトル測定

名内泰志, 佐野忠史, 高橋佳之, 宇根崎博信, 楠見紘司, 堀順一

**第 41 回日本核物質管理学会年次大会 On Line 2020** (in Japanese)

## 3. Reactor Physics and Reactor Engineering

### Papers

Basic consideration of a nuclear power monitoring system using neutron-induced prompt gamma rays

Okada Koichi, Fushimi Atsushi, Sekimoto Shun, Ohtsuki Tsutomu

**Journal of Nuclear Science and Technology 57(5) (2020) 514-522**

Detection of subcriticality changes by Simmons-King and Sjöstrand methods

Kitamura Yasunori, Misawa Tsuyoshi

**Annals of Nuclear Energy 138 (2020) 107209**

Reaction Rate Analyses of High-Energy Neutrons by Injection of 100 MeV Protons onto Lead-Bismuth Target

C. H. Pyeon, M. Yamanaka and B. Lee

**Annals of Nuclear Energy 144 (2020) 107498**

First demonstration of coherent resonant backward diffraction radiation for a quasi-monochromatic terahertz-light source

Sei Norihiro, Takahashi Toshiharu

**Scientific Reports 10(1) (2020) 7526**

Local measurements of upward air-water two-phase flows in a vertical 6 × 6 rod bundle

Shen Xiuzhong, Miwa Shuichiro, Xiao Yigeng, Han Xu, Hibiki Takashi

**Experimental and Computational Multiphase Flow 1(3) (2020) 186-200**

Monte Carlo sensitivity analysis method for the effective delayed neutron fraction with the differential operator sampling method

Yamamoto Toshihiro, Sakamoto Hiroki

**Annals of Nuclear Energy 140 (2020) 107108**

Feasibility Study on the Development of A Fiber-Optic Humidity Sensor System for the Monitoring and Detection of Coolant Leakage in a Nuclear Power Plant

H. J. Kim, H. Y. Shin, C. H. Pyeon, S. Kim and B. Lee

**Nuclear Engineering and Technology 52 (2020) 1689-1696**

Meltwater Behavior During the Defrosting Process By Using X-ray Radiography

Ryosuke MATSUMOTO, Takahiro SHIOKAWA, Yuto NISHIURA, Yutaka ODA, Daisuke ITO, Yasushi SAITO

**Transactions of the Japan Society of Refrigerating and Air Conditioning Engineers (2020) 1-8** (in Japanese)

Interaction of Liquid CsI<sub>3</sub> with a Polycrystalline UO<sub>2</sub> Solid Surface

ISHII Hiroto, OHISHI Yuji, MUTA Hiroaki, UNO Masayoshi, KUROSAKI Ken

**Transactions of the Atomic Energy Society of Japan 19(3) (2020) 147-151** (in Japanese)

Single-crystal growth, structure and luminescence properties of Cs<sub>2</sub>HfCl<sub>3</sub>Br<sub>3</sub>

Kodama Shohei, Kurosawa Shunsuke, Fujii Kotaro, Murakami Taito, Yashima Masatomo, Pejchal Jan, Král Robert, Nikl Martin, Yamaji Akihiro, Yoshino Masao, Toyoda Satoshi, Sato Hiroki, Ohashi Yuji, Kamada Kei, Yokota Yuui, Yoshikawa Akira

**Optical Materials 106 (2020) 109942**

Analysis of Hydrogen Content in Pure Palladium via Neutron Radiography and Tomography

Shimizu Kazuyuki, Toda Hiroyuki, Hirayama Kyosuke, Fujihara Hiro, Matsumoto Yoshihisa, Ito Daisuke, Saito Yasushi, Kamada Yasuhiro

**Journal of the Japan Institute of Metals and Materials 84(8) (2020) 270-275** (in Japanese)

Frequency domain Monte Carlo simulations of void velocity measurements in an actual experimental setup using a neutron noise technique

Yamamoto Toshihiro, Sakamoto Hiroki

**Journal of Nuclear Science and Technology 58(2) (2020) 190-200**

Convergence characteristics and Wielandt acceleration of the time source method for Monte Carlo alpha eigenvalue calculations Yamamoto Toshihiro, Sakamoto Hiroki

**Annals of Nuclear Energy 146 (2020) 107627**

Source Multiplication Measurements and Neutron Correlation Analyses for a Highly-Enriched Uranium Subcritical Core Driven by an Inherent Source in Kyoto University Critical Assembly

K. Nakajima, T. Sano, K. Takahashi, A. Sakon, M. Yamanaka, S. Hohara, C. H. Pyeon and K. Hashimoto

**Journal of Nuclear Science and Technology 57 (2020) 1152-1166**

Drift-flux correlation for upward gas-liquid two-phase flow in vertical rod bundle flow channel

Han Xu, Shen Xiuzhong, Yamamoto Toshihiro, Nakajima Ken, Hibiki Takashi

**International Journal of Heat and Mass Transfer 162 (2020) 120341**

Neutron Generation Time in Highly-Enriched Uranium Core at Kyoto University Critical Assembly

C. H. Pyeon, M. Yamanaka, T. Endo, G. Chiba, W. F. G. van Rooijen and K. Watanabe

**Nuclear Science and Engineering 194 (2020) 1116-1127**

New variants of Bennett variance method with correlation indices for reducing delayed-neutron contribution Kitamura Yasunori, Misawa Tsuyoshi

**Annals of Nuclear Energy 148 (2020) 107696**

Development of a Wide Dynamic Range Neutron Flux Measurement Instrument Having Fast Time Response for Fusion Experiments

ITO Daijiro, YAZAWA Hiroyuki, TOMITAKA Makoto, KUMAGAI Tsuyoshi, KONO Shigehiro, YAMAUCHI Michinori, MISAWA Tsuyoshi, KOBUCHI Takashi, HAYASHI Hiroshi, MIYAKE Hitoshi, OGAWA Kunihiro, NISHITANI Takeo, ISOBE Mitsutaka

**Plasma and Fusion Research 16 (2021) 1405018**

Distribution parameter and drift velocity for upward gas-liquid metal two-phase flow

Shen Xiuzhong, Hibiki Takashi

## Applied Thermal Engineering 184 (2021) 116242

Feynman-alpha and Rossi-alpha Analyses for a Subcritical Reactor System Driven by a Pulsed Spallation Neutron Source in Kyoto University Critical Assembly

K. Nakajima, T. Sano, S. Hohara, A. Sakon, K. Takahashi, M. Yamanaka, C. H. Pyeon and K. Hashimoto  
**Journal of Nuclear Science and Technology 58 (2021) 117-135**

Power Spectral Analysis for a Subcritical Reactor System Driven by a Pulsed Spallation Neutron Source in Kyoto University Critical Assembly

K. Nakajima, A. Sakon, T. Sano, S. Hohara, K. Takahashi, M. Yamanaka, C. H. Pyeon and K. Hashimoto  
**Journal of Nuclear Science and Technology 58 (2021) 372-382**

X-Ray Radiography and Numerical Simulation of Bubble Behavior in Centrifugal Pump

ITO Kei, XIONG Rendong, ITO Daisuke, SAITO Yasushi, USHIFUSA Hiroyuki, SHINOZAKI Masaru, ASAI Yugo

**Japanese Journal of Multiphase Flow 35(1) (2021) 101-108 (in Japanese)**

## Proceedings

Measurement of the Internal Pressure of Ultrafine Bubble Using the Perturbed Angular Correlation Technique  
ARAKI Kyoya, MURAKAWA Hideki, SUGIMOTO Katsumi, ASANO Hitoshi, ITO Daisuke

**The Proceedings of the National Symposium on Power and Energy Systems, online (Jun. 20-21, 2020) E144 (in Japanese)**

Effect of Pitch-to-Diameter Ratio on Heat Transfer and Flow Characteristics of Air-Water TwoPhase Flow in Horizontal Tube Bundle"

M.Tanigaki, T. Yamakura, Y. Ueda, A. Taniguchi, Y. Tokuda, and Y. Ohkubo

**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)", Kumatori, Japan (Jan. 16-17, 2020) 72 76 (in Japanese)**

Flow characteristics of upward two-phase flows in a rod bundle geometry

Han, Xu, Shen Xiuzhong, Yamamoto Toshihiro, Nakajima, Ken, Hibiki, Takashi

**Proceedings of ASME' s Power 2020 and Nuclear Engineering Conference powered by ICONE, On-Line (Aug. 4-5, 2020) 14568**

Subcriticality Estimation using Unscented Kalman Filter for Reactivity- and Source-Transients T. Endo, A. Yamamoto, M. Yamanaka and C. H. Pyeon

**Proceeding of theVirtual Winter Meeting of the American Nuclear Society U.S.A. (Nov. 16-19, 2020) 1-4**

燃料集合体からの FP 線スペクトル測定

名内 泰志, 佐野 忠史, 高橋 佳之, 宇根崎 博信, 楠見 紘司, 堀 順一

**第 41 回核物質管理学会 On Line (Nov. 19-20, 2020) (in Japanese)**

Study on neutron capture cross sections of <sup>241</sup>Am

Xu Han, Xiuzhong Shen, Toshihiro Yamamoto, Ken Nakajima, Takashi Hibiki

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 14 (in Japanese)**

Distribution parameter and drift velocity for low and high pressure two-phase flows in rod bundle geometry  
Yasuhito Goto, Nobuhiro Sato, Yasuki Okuno, Masafumi Akiyoshi, Mitsuru Imaizumi, Tomohiro Kobayashi, Tamotsu Okamoto

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 27 (in Japanese)**

Leaching behavior of fission products from simulated fuel debris in the UO<sub>2</sub> system

Takayuki Sasaki, Yuji Kodama, Ryutarō Tonna, Taishi Kobayashi, Yuta Kumagai, Ryoji Kusaka, Masayuki Watanabe, Daisuke Akiyama, Akira Kirishima, Nobuaki Sato, Kouichi Takamiya, Shun Sekimoto

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 15 (in Japanese)**

Datailed stractire of gas-liquid two-phase flow in a packed bed of spheres

Kazushi Terada



**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 12-13** (in Japanese)

Measurement of current induced on coaxial cables under gamma-ray irradiation

Naoya Odaira, Yuji Arita

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 44-46** (in Japanese)

Measurements of turbulence in a gas-liquid two-phase flow by using PIV methods and an electro-magnetic probe

Yukihide Doda, Naoya Odaira, Daisuke Ito, Kei Ito, Yasushi Saito

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 39** (in Japanese)

Internal pressure induced by lead bismuth eutectic (LBE) and its behavior

Akito Fujitsu, Naoya Odaira, Daisuke Ito, Kei Ito, Yasushi Saito

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 26** (in Japanese)

## Reviews

Subcriticality - from basics to applications (6)

Katano Ryota, Yamanaka Masao

**Journal of the Atomic Energy Society of Japan 62(3) (2020) 158-162**

Subcriticality - from basics to applications (8)

Toshihiro Yamamoto

**Journal of the Atomic Energy Society of Japan 62(5) (2020) 285-289**

## Books

Fundamentals of Nuclear Physics

C. H. Pyeon and D. Ito

Fundamental of Thermal and Nuclear Power Engineering

**Elsevier (2020)**

Accelerator-Driven System at Kyoto University Critical Assembly

C. H. Pyeon

**Springer (2021)**

## 4. Material Science and Radiation Effects

### Papers

Accurate Synchrotron Hard X-ray Diffraction Measurements on High-Temperature Liquid Oxides

K. Ohara, Y. Onodera, S. Kohara, C. Koyama, A. Masuno, A. Mizuno, J. T. Okada, S. Tahara, Y. Watanabe, H. Oda, Y. Nakata, H. Tamaru, T. Ishikawa, O. Sakata

**International Journal of Microgravity Science and Application 37(2) (2020) 370202**

Controlling oxygen coordination and valence of network forming cations

T. Aoyagi, S. Kohara, T. Naito, Y. Onodera, M. Kodama, T. Onodera, D. Takamatsu, S. Tahara, O. Sakata, T. Miyake, K. Suzuya, K. Ohara, T. Usuki, Y. Hayashi, H. Takizawa

**Scientific Reports 10 (2020) 7178**

Development of a Field Emission Image Sensor Tolerant to Gamma-Ray Irradiation

Gotoh Yasuhito, Tsuji Hiroshi, Nagao Masayoshi, Masuzawa Tomoaki, Neo Yoichiro, Mimura Hidenori, Okamoto Tamotsu, Igari Tomoya, Akiyoshi Masafumi, Sato Nobuhiro, Takagi Ikuji

**IEEE Transactions on Electron Devices 67(4) (2020) 1660-1665**

Sensitivity of Positrons at Hydrogen Storage Sites in FeCr Alloy Containing Vacancy and Helium Atom

T. Zhu, B.Y. Wang, L.G. Song, X.S. Liu, Y.M. Song, Y.L. Liu, P. Zhang, X.Z. Cao, Q. Xu,

**International Journal of Hydrogen Energy 45 (2020) 15571-15577**

Simultaneous Measurement of  $\gamma$ -ray and Conversion Electron Mössbauer Spectra of Fe Films under Total Reflection Conditions Using Synchrotron Mössbauer Source  
Mitsui Takaya, Mibu Ko, Tanaka Masaaki, Kitao Shinji, Kobayashi Yasuhiro, Masuda Ryo, Seto Makoto  
**Journal of the Physical Society of Japan** 89(5) (2020) 054707

Change in the Positron Annihilation Lifetime of Vacancies Containing Hydrogen Atoms in Electron-Irradiated Tungsten  
K. Sato, Y. Kondo, M. Ohta, A. Hirosako, M. Onoue, M. Hatakeyama, S. Sunada, Q. Xu  
**JPS Conference Proceedings** 28 (2020) 061001

Fluorescence anisotropy study of radiation-induced DNA damage clustering based on FRET  
Akamatsu Ken, Shikazono Naoya, Saito Takeshi  
**Analytical and Bioanalytical Chemistry** 256 (2020) 127021

Migration Behaviour of Vacancies and Damage Structure Recovery in A Fe-Based Fe-Cr-Mn-Cu-Mo Multi-Component Alloy  
Q. Xu, Z.H. Zhong, T. Zhu, X.Z. Cao, H. Tsuchida  
**Philosophical Magazine** 100 (2020) 1733-1748

Positron Annihilation Spectroscopy Characterization of Formation of Helium / Hydrogen-Vacancy Nano-Clusters in FeCr Alloy  
T. Zhu, B.Y. Wang, X.N. Lian, S.X. Jin, R.S. Yu, X.Z. Cao, Q. Xu  
**ACTA PHYSICA POLONICA A** 137 (2020) 235-237

Principal Vibration Modes of the La<sub>2</sub>O<sub>3</sub>-Ga<sub>2</sub>O<sub>3</sub> Binary Glass by Diverse Coordination Environments of Oxygen Atoms  
K. Yoshimoto, A. Masuno, I. Sato, Y. Ezura, H. Inoue, M. Ueda, M. Mizuguchi, Y. Yanada, T. Kawashima, T. Oya, Y. Onodera, S. Kohara, K. Ohara  
**The Journal of Physical Chemistry B** 124(24) (2020) 5056-5066

Quantitative Structure Analysis of a Near-Ideal Polymer Network with Deuterium Label by Small-Angle Neutron Scattering  
Ohira Masashi, Tsuji Yui, Watanabe Nobuyuki, Morishima Ken, Gilbert Elliot P., Li Xiang, Shibayama Mitsuhiro  
**Macromolecules** 53(10) (2020) 4047-4054

Vanadium coordination environment in phospho-vanadate glass for improving water durability  
T. Aoyagi, D. Takamatsu, Y. Onodera, T. Naito, T. Onodera, T. Miyake, S. Kohara, T. Ina, Y. Hayashi, H. Takizawa  
**Journal of the Ceramic Society of Japan** 128 (2020) 273-278

<sup>57</sup>Fe Mössbauer study of high-valent Fe ions in Fe-substituted Li<sub>2</sub>MnO<sub>3</sub>  
Kobayashi Yasuhiro, Tabuchi Mitsuharu, Seto Makoto  
**Hyperfine Interactions** 57(1) (2020) 241

Very sharp diffraction peak in nonglass-forming liquid with the formation of distorted tetraclusters  
C. Koyama, S. Tahara, S. Kohara, Y. Onodera, D. R. Smabratén, S. M. Selbach, J. Akola, T. Ishikawa, A. Masuno, A. Mizuno, J. T. Okada, Y. Watanabe, Y. Nakata, K. Ohara, H. Tamaru, H. Oda, I. Obayashi, Y. Hiraoka, O. Sakata  
**NPG Asia Materials** 12 (2020) 43

Correction to: Development of <sup>166</sup>Er Mössbauer spectroscopy in KURNS  
Nakamura Shin, Yokota Hiroko, Kitao Shinji, Kobayashi Yasuhiro, Saito Makina, Masuda Ryo, Seto Makoto  
**Hyperfine Interactions** 240 (2020) 75

Correlation between structure and physical properties of binary ZnO-P<sub>2</sub>O<sub>5</sub> glasses  
H. Masai, Y. Onodera, S. Kohara, T. Ohkubo, A. Koreeda, Y. Fujii, M. Koshimizu, M. Yamawaki  
**Physica Status Solidi B** 257 (2020) 2000186

D<sub>2</sub> Retention Behavior and Microstructural Evolution of “W-2wt.%Y<sub>2</sub>O<sub>3</sub> Alloy during He-Ion Irradiation at High Temperatures  
Q. Xu, L.M. Luo, Z. Chen, M. Hirakawa, M. Miyamoto, H.C. Chen, K. Sato, H. Tsuchida  
**Journal of Nuclear Materials** 539 (2020) 152273

Dynamics Study of Superionic Conducting Glass Na<sub>3</sub>PS<sub>4</sub> Using Quasi-Elastic Gamma-ray Scattering: Analysis Based on Diffraction and RMC-DFT Modeling

Makina Saito, Yohei Onodera, Koji Ohara, Masayuki Kurokuzu, Yoshitaka Yoda, Makoto Seto

**Physica Status Solidi B 257(11) (2020) 2000113**

Nanostructural Characterization of Oleyl Acid Phosphate in Poly- $\alpha$ -olefin Using Small-angle X-ray Scattering  
Oba Yojiro, Motokawa Ryuhei, Hino Masahiro, Adachi Nozomu, Todaka Yoshikazu, Inoue Rintaro, Sugiyama Masaaki

**Chemistry Letters 49(7) (2020) 823-825**

Preparation Technology of Ultra-Fine Tungsten Carbide Powders: An Overview

Y.C. Wu, Y. Yang, X.Y. Tan, L.M. Luo, X. Zan, X.Y. Zhu, Q. Xu, J.G. Cheng

**Frontiers in Materials 7 (2020) 94**

The Influence of Different Isochronal Annealing Temperature on Helium Ion Irradiation Damage of W-Nb Composites  
H.Y. Chen, Y.F. Zhou, M.Y. Xu, L.M. Luo, Q. Xu, X.Y. Zhu, Y.C. Wu

**Fusion Engineering and Design 159 (2020) 111857**

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Odaira Naoya, Fujiwara Takuma, Arita Yuji

**Nuclear Engineering and Design 365 (2020) 110714**

Enhanced extraction via surface asperities of light generated around the boundary plane in poly (ethylene naphthalate)

Nakamura Hidehito, Mori Kazuhiro, Sato Nobuhiro, Kamata Takashi, Kanayama Masaya

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Metamagnetic transitions and magnetoelectric responses in the chiral polar helimagnet Ni<sub>2</sub>InSbO<sub>6</sub>

Araki Y., Sato T., Fujima Y., Abe N., Tokunaga M., Kimura S., Morikawa D., Ukleev V., Yamasaki Y., Tabata C., Nakao H., Murakami Y., Sagayama H., Ohishi K., Tokunaga Y., Arima T.

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Short positron lifetime at vacancies observed in electron-irradiated tungsten: Experiments and first-principles calculations

A. Yabuuchi, M. Tanaka, A. Kinomura

**Journal of Nuclear Materials 542 (2020) 152473**

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Yoshiie T., Kinomura A.

**Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms 479 (2020) 51- 54**

Valence Transition of EuRh<sub>2</sub>Si<sub>2</sub> Studied by Synchrotron Mössbauer Spectroscopy

Mitsuda Akihiro, Wada Hirofumi, Masuda Ryo, Kitao Shinji, Seto Makoto, Yoda Yoshitaka, Kobayashi Hisao

**Journal of the Physical Society of Japan 89(10) (2020) 104703**

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Qi Qiang, Wang Jing, Zhou Qilai, Zhang Yingchun, Zhao Mingzhong, Gu Shouxi, Nakata Moeko, Zhou Haishan, Oya Yasuhisa, Luo Guang-Nan

**Journal of Nuclear Materials 539 (2020) 152330**

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M.P. Wan, T. Zhu, Q. Xu

**Rare Metal Materials and Engineering 49 (2020) 3377-3381**

Effect of gamma-irradiation on complexation of humic substances with divalent calcium ion

Zhao Qi, Goto Ryohei, Saito Takeshi, Kobayashi Taishi, Sasaki Takayuki

**Chemosphere 256 (2020) 127021**

Chemical state of Fe<sup>3+</sup> in a Fe<sup>3+</sup>-type cation exchange resin for the removal and recovery of phosphate ions and the adsorption mechanism of phosphate ion to the resin

Juntarasakul Onchanok, Yonezu Kotaro, Kawamoto Daisuke, Ohashi Hironori, Kobayashi Yasuhiro, Sugiyama Takeharu, Watanabe Koichiro, Yokoyama Takushi

**Colloids and Surfaces A: Physicochemical and Engineering Aspects 605 (2020) 125314**

Design and properties of FeAl/Al<sub>2</sub>O<sub>3</sub>/TiO<sub>2</sub> composite tritium-resistant coating prepared through pack cementation and sol-gel method

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Effect of grain boundary on the friction coefficient of pure Fe under the oil lubrication

Adachi Nozomu, Matsuo Yasutaka, Todaka Yoshikazu, Fujimoto Mikiya, Hino Masahiro, Mitsuhashi

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Effect of Irradiation on Randomness of Element Distribution in CoCrFeMnNi Equiatomic High-Entropy Alloy

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**Intermetallics 126 (2020) 106942**

Synchrotron Mössbauer Diffraction of Natural Iron Fe<sub>3</sub>BO<sub>6</sub>

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**Journal of the Physical Society of Japan 89(12) (2020) 125001**

Characterization of the effect of ion irradiation on industrially produced GdBa<sub>2</sub>Cu<sub>3</sub>O<sub>7-δ</sub> superconducting tapes using a slow positron beam

Yabuuchi Atsushi, Ozaki Toshinori, Sakane Hitoshi, Okazaki Hiroyuki, Koshikawa Hiroshi, Yamamoto

Shunya, Yamaki Tetsuya

**Applied Physics Express 13 (2020) 123004**

Magnetic Friedel Oscillation at the Fe(001) Surface: Direct Observation by Atomic-Layer-Resolved Synchrotron Radiation <sup>57</sup>Fe Mössbauer Spectroscopy

Mitsui T., Sakai S., Li S., Ueno T., Watanuki T., Kobayashi Y., Masuda R., Seto M., Akai H.

**Physical Review Letters 125(23) (2020) 236806**

Microstructure Evolution and Effect on Deuterium Retention in Oxide Dispersion Strengthened Tungsten during He<sup>+</sup> Irradiation

X.Y. Ding, Q. Xu, X.Y. Zhu, L.M. Luo, J.J. Huang, B. Yu, X. Gao, J.G. Li, Y.C. Wu

**Nuclear Engineering and Technology 52 (2020) 2860-866**

Relationship between the First Sharp Diffraction Peak and Physical Properties of Silicon Dioxide (SiO<sub>2</sub>) Glasses Possessing Different Fictive Temperatures

H. Masai, S. Kohara, Y. Onodera, A. Koreeda, K. Saito, E. H. Sekiya, N. Kitamura

**Journal of the Ceramic Society of Japan 128 (2020) 1038-1044**

Research Status and Development Trend of Preparation Technology of Ceramic Particle Dispersion Strengthened Copper-Matrix Composites

Y.Q. Qin, Y. Tian, Y.Q. Peng, L.M. Luo, X. Zan, Q. Xu, Y.C. Wu

**Journal of Alloys and Compounds 848 (2020) 156475**

Structure and properties of densified silica glass: characterizing the order within disorder

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Anita, Shiga Motoki, Masuno Atsunobu, Inoue Hiroyuki, Tahara Shuta, Polidori Annalisa, Fischer Henry E.,

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Jaakko, Fujii Yasuhiro, Ohara Koji, Taniguchi Takashi, Sakata Osami

**NPG Asia Materials 12 (2020) 85**

Change in the Positron Annihilation Lifetime of Vacancy Clusters Containing Hydrogen Atoms in Electron-Irradiated F82H

Sato Koichi, Kondo Yohei, Ohta Masakiyo, Xu Qiu, Yabuuchi Atsushi, Kinomura Atsushi, Onoue Masahira,

Onitsuka Takashi, Hatakeyama Masahiko, Iwakiri Hiroto, Kato Daiji, Watanabe Yoshiyuki, Tanigawa

Hiroyasu

**Materials Science Forum 1024 (2021) 71-78**

Gamma-irradiation-induced molecular-weight distribution and complexation affinity of humic acid with Cs<sup>+</sup>, Sr<sup>2+</sup>, and Eu<sup>3+</sup>

Zhao Qi, Kobayashi Taishi, Saito Takeshi, Sasaki Takayuki

**Journal of Hazardous Materials 411 (2021) 125071**

Gamma-ray induced photo emission from GaN single crystal wafer

Nakamura Toshihiro, Nishimura Tomoaki, Kuriyama Kazuo, Nakamura Tohru, Kinomura Atsushi

**Applied Physics Letters 3 (2021) 032106**

Irradiation resistance mechanism of the CoCrFeMnNi equiatomic high-entropy alloy

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Uncertainty derived from elemental analysis and its effect on the separation of radioactive waste into low-level radioactive waste and waste for clearance

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A feasibility study of inverse contrast-matching small-angle neutron scattering method combined with size exclusion chromatography using antibody interactions as model systems

Sato Nobuhiro, Yogo Rina, Yanaka Saeko, Martel Anne, Porcar Lionel, Morishima Ken, Inoue Rintaro, Tominaga Taiki, Arimori Takao, Takagi Junichi, Sugiyama Masaaki, Kato Koichi

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Effect on <sup>99</sup>Mo-adsorption/<sup>99m</sup>Tc-elution properties of alumina with different surface structures

Fujita Yoshitaka, Seki Misaki, Sano Tadafumi, Fujihara Yasuyuki, Kitagawa Tomoya, Matsukura Minoru, Hori Junichi, Suzuki Tatsuya, Tsuchiya Kunihiko

**Journal of Radioanalytical and Nuclear Chemistry 3 (2021) 1355-1363**

Comparison of Hydrogen Thermal Desorption Analysis Curves of Electron-Irradiated F82H and Creep-Ruptured Pure Fe Obtained by Experiments and Simulations

Kamimura Takuya, Yamashita Hayato, Sato Koichi, Ohyama Tsunakazu, Kimoto Yoshinori, Xu Qiu, Komazaki Shin Ichi

**Materials Science Forum 1024 (2021) 135-144**

Effects of Alloying Elements Mn, Mo, Ti, Si, P and C on the Incubation Period of Void Swelling in Austenitic Stainless Steels

T. Yoshiie, Q. Xu

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Perpendicular magnetic anisotropy at the Fe/Au(111) interface studied by Mössbauer, x-ray absorption, and photoemission spectroscopies

Okabayashi Jun, Li Songtian, Sakai Seiji, Kobayashi Yasuhiro, Mitsui Takaya, Tanaka Kiyohisa, Miura Yoshio, Mitani Seiji

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Plasma-surface interaction experimental device: PSIEC and its first plasma exposure experiments on bulk tungsten and coatings

Xu Yue, Xu Yunfeng, Wu Zuosheng, Luo Laima, Zan Xiang, Yao Gang, Xi Ya, Wang Yafeng, Ding Xiaoyu, Bi Hailin, Zhu Xiaoyong, Xu Qiu, Wu Jiefeng, Wu Yucheng

**Fusion Engineering and Design 164 (2021) 112198**

Radiophotoluminescence of Cu-doped silica glass derived from phase-separated sodium borosilicate glass

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The influence of the long-term heating under H<sub>2</sub> atmosphere on the tritium release behavior from the neutron-irradiated Li<sub>2</sub>TiO<sub>3</sub>

Ipponsugi Akito, Katayama Kazunari, Hoshino Tsuyoshi

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Chemical states of Fe atoms in Iron hydride

M. Sato, Y. Kobayashi, Y. Yamada, M. K. Kubo, M. Mihara, W. Sato, T. Nagatomo, A. Okazawa, Y. Sato, M. Kiji, K. Hamano, S. Sato, and A. Kitagawa

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Can we trace lithium diffusion on interference in between solid electrode and solid electrolytes in lithium battery?

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Effects of heat treatments on metastable iron carbide thin films produced by pulsed laser deposition of iron in methane atmosphere

H. Ishiyama, S.C. Jeong, Y.X. Watanabe, Y. Hirayama, M. Oyaizu, M. Wada, H. Miyatake, K. Nishio, H. Makii, A. Osa, Y. Otokawa, M. Matsuda, T.K. Sato, N. Kuwata, I. Katayama, A. Takamine, S. Iimura, H. Ueno, S. Kimura and M. Mukai

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Development of RF Carpet Type Gas Cell in SLOWRI for BigRIPS Beam

S. Iimura, A. Takamine, M. Rosenbusch, M. Wada, S. Chen, J. Liu, P. Schury, T. Sonoda, T. M. Kojima, Y. X. Watanabe, A. Odahara, and H. Ishiyama

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Development of multi-element Mössbauer spectroscopy probed by specific isotope

Kenji Murotan, Hidetsugu Tsuchida, Qiu XU

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 37 (in Japanese)**

Aggregation removal analysis with concerted use of small angle scattering and analytical ultracentrifugation (AUC-SAS)

Ken Morishima, Yousuke Miyamoto, Aya Okuda, Masahiro Shimizu, Nobuhiro Sato, Rintaro Inoue, Reiko Urade, Msaaki Sugiyama

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 25 25 (in Japanese)**

Effect of Mo addition on deuterium accumulation in W-Y<sub>2</sub>O<sub>3</sub>

Tomoko Hirayama, Naoki Yamashita, Masahiro Hino, Norifumi Yamada

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 43 (in Japanese)**

Structural analysis of boundary layer formed by multiple adducts by neutron reflectometry

Shinji Kitao, Yasuhiro Kobayashi, Makina Saito, Takumi Kubota, Masayuki Kurokuzu, Shuichi Hosokawa, Hiroyuki Tajima, Shinichiro Yazaki, Naoki Umetani, Hiroki Taniguchi, Keiji Shinoda, Hiroshi Fujii, Yimi

Yakiyama, Yoko Akiyama, Yasuko Yamamoto, Norimichi Kojima, Hironori, Ohashi, Shigeomi Takai, Yoshiteru Meno, Yoichi Kamihara, Haruno Murayama, Goro Miyamoto, Ryo Masuda, Makoto Seto  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 7-9** (in Japanese)

Change in the Annihilation Lifetime of Vacancy Clusters Containing Hydrogen Atoms in Electron-Irradiated F82H  
K. Sato, Y. Kondo, M. Ohta, Q. Xu, A. Yabuuchi, A. Kinomura, M. Onoue, T. Onitsuka, M. Hatakeyama, H. Iwakiri, D. Kato, Y. Watanabe, H. Tanigawa  
**Materials Science Forum 1024 (2020) 71-78**

Comparison of Hydrogen Thermal Desorption Analysis Curves of Electron-Irradiated F82H and Creep-Ruptured Pure Fe Obtained by Experiments and Simulations  
T. Kamimura, H. Yamashita, K. Sato, T. Ohyama, Y. Kimoto, Q. Xu, S. Komazaki,  
**Materials Science Forum 1024 (2020) 135-144**

Local- and Intermediate-Range Atomic Order in Ga<sub>2</sub>Ge<sub>3</sub>Se<sub>9</sub> Glass: Complementary Use of X-Rays and Neutrons  
Hosokawa Shinya, Stellhorn Jens Rüdiger, Onodera Yohei, Kohara Shinji, Tajiri Hiroo, Magome Eisuke, Puzsai László, Ikeda Kazutaka, Otomo Toshiya, Krbal Milos, Wagner Tomas  
**JPS Conference Proceedings 33 (2021) 011069**

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Structure and Dynamics of Highly Crosslinked Rubber as Studied by Neutron Scattering  
MASHITA RYO, INOUE RINTARO, KISHIMOTO HIROYUKI, KANAYA TOSHIJI  
**Sen'i Gakkaishi 76(6) (2020) 219-224** (in Japanese)

陽電子の消滅と欠陥への捕獲  
藪内敦, 藤浪真紀  
**陽電子科学会誌 15(3) (2020) 3-9** (in Japanese)

ガラスにならない Er<sub>2</sub>O<sub>3</sub> 液体が持つ特異構造  
小山千尋, 小原真司, 田原周太, 小野寺陽平, 石川毅彦  
**放射光 34 (2021) 30-36** (in Japanese)

Origin of the Mixed Alkali Effect in Silicate Glass  
Y. Onodera, Y. Takimoto, H. Hijiya, T. Taniguchi, S. Urata, S. Inaba, S. Fujita, I. Obayashi, Y. Hiraoka, and S. Kohara  
**MLF Annual Report 2019 (2021) 54-56**

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Synchrotron-Radiation-Based Energy-Domain Mössbauer Spectroscopy, Nuclear Resonant Inelastic Scattering, and Quasielastic Scattering Using Mössbauer Gamma Rays  
Seto Makoto, Masuda Ryo, Saito Makina  
Modern Mössbauer Spectroscopy  
Yutaka Yoshida Guido Langouche  
**Springer (2021)**

15章-光学的性質, 10-メスバウアースペクトル  
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日本化学会 編  
**丸善出版 (2021)** (in Japanese)

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事故耐性の高い軽水炉用制御棒の開発 (4) 京大炉による新型中性子吸収材の照射試験  
太田宏一, 中村勤也, 高橋佳之, 佐野忠史

## 5. Geochemistry and Environmental Science

### Papers

The pale grass blue butterfly in ex-evacuation zones 5.5 years after the Fukushima nuclear accident:

Contributions of initial high-dose exposure to transgenerational effects

Sakauchi Ko, Taira Wataru, Hiyama Atsuki, Imanaka Tetsuji, Otaki Joji M.

**Journal of Asia-Pacific Entomology 23(1) (2020) 242-252**

The effects of possible contamination by sample holders on samples to be returned by Hayabusa2

Shirai Naoki, Karouji Yuzuru, Kumagai Kazuya, Uesugi Masayuki, Hirahara Kaori, Ito Motoo, Tomioka

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Kajino Mizuo, Hagino Hiroyuki, Fujitani Yuji, Morikawa Tazuko, Fukui Tetsuo, Onishi Kazunari, Okuda

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Martin Peter, Alhaddad Omran, Verbelen Yannick, Satou Yukihiko, Igarashi Yasuhito, Scott Thomas B.

**Scientific Data 7(1) (2020) 282**

Observation of morphological abnormalities in silkworm pupae after feeding <sup>137</sup>CsCl-supplemented diet to evaluate the effects of low dose-rate exposure

Tanaka Sota, Kinouchi Tadatoshi, Fujii Tsuguru, Imanaka Tetsuji, Takahashi Tomoyuki, Fukutani Satoshi,

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**Scientific Reports 10(1) (2020) 16055**

Paleomagnetism, paleointensity and geochronology of a Proterozoic dolerite dyke from southern West Greenland

Miki Masako, Seki Hanae, Yamamoto Yuhji, Gouzu Chitaro, Hyodo Hironobu, Uno Koji, Otofujii Yo-ichiro

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Rain-induced bioecological resuspension of radiocaesium in a polluted forest in Japan

Kita Kazuyuki, Igarashi Yasuhito, Kinase Takeshi, Hayashi Naho, Ishizuka Masahide, Adachi Kouji,

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**Scientific Reports 10(1) (2020) 15330**

Numerical Analyses of Transport Processes of Bioaerosol Released from a Temperate Deciduous Broad-Leaved Forest

Kotaro MINAMI, Genki KATATA, Kazuyuki KITA, Atsuyuki SORIMACHI, Kentaro HOSAKA, Yasuhito

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Yasumichi, Ching Joseph, Hashimoto Akihiro, Yamamoto Tetsuya, Ikegami Masaaki, Kamada Akane,

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Extractable organochlorine (EOCl) and extractable organobromine (EOBr) in GPC-fractionated extracts from high-trophic-level mammals: Species-specific profiles and contributions of legacy organohalogen contaminants

Mukai Kota, Fujimori Takashi, Anh Hoang Quoc, Fukutani Satoshi, Kunisue Tatsuya, Nomiya Kei,

Takahashi Shin

**Science of The Total Environment (2020) 143843**



Isolation, characterization and source analysis of radiocaesium micro-particles in soil sample collected from vicinity of Fukushima Dai-ichi nuclear power plant  
Futagami Fumiya, Soliman Mohamed, Takamiya Koichi, Sekimoto Shun, Oki Yuichi, Kubota Takumi, Konno Mitsuyuki, Mizuno Satoshi, Ohtsuki Tsutomu  
**Journal of Environmental Radioactivity 223-224 (2020) 106388**

Deposition and Dispersion of Radio-Cesium Released due to the Fukushima Nuclear Accident: 2. Sensitivity to Aerosol Microphysical Properties of Cs-Bearing Microparticles (CsMPs)  
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**Atmospheric Environment 243 (2020) 117856**

Temporal variations of <sup>90</sup>Sr and <sup>137</sup>Cs in atmospheric depositions after the Fukushima Daiichi Nuclear Power Plant accident with long-term observations  
Kinase Takeshi, Adachi Kouji, Sekiyama Tsuyoshi, Thomas, Kajino Mizuo, Zaizen Yuji, Igarashi Yasuhito  
**Scientific Reports 10(1) (2020) 21627**

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Nakaoka Reina, Kado Soko, Hasegawa Shuichi, Suzuki-Kamata Keiko, Ishizuka Osamu, Sekimoto Shun, Kawabata Hiroshi, Tatsumi Yoshiyuki  
**Island Arc 30(1) (2020) 12378**

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Tatsuki KIMURA, Naofumi KOZAI, Fuminori SAKAMOTO, Satoshi FUKUTANI, Maiko IKEGAMI  
**Journal of Japan Society of Civil Engineers, Ser. G (Environmental Research) 76(7) (2020) 375-382** (in Japanese)

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Maiko IKEGAMI, Kenshin KUROKI, Satoshi FUKUTANI, Minoru YONEDA  
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A Paleogene magmatic overprint on Cretaceous seamounts of the western Pacific  
Hirano Naoto, Sumino Hirochika, Morishita Taisei, Machida Shiki, Kawano Takaomi, Yasukawa Kazutaka, Hirata Takafumi, Kato Yasuhiro, Ishii Teruaki  
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Chen Minhsuan, Oshita Kazuyuki, Mahzoun Yahya, Takaoka Masaki, Fukutani Satoshi, Shiota Kenji  
**Science of The Total Environment 752 (2021) 141857**

Widespread distribution of radiocesium-bearing microparticles over the greater Kanto Region resulting from the Fukushima nuclear accident  
Abe Yoshinari, Onozaki Seika, Nakai Izumi, Adachi Kouji, Igarashi Yasuhito, Oura Yasuji, Ebihara Mitsuru, Miyasaka Takafumi, Nakamura Hisashi, Sueki Keisuke, Tsuruta Haruo, Moriguchi Yuichi  
**Progress in Earth and Planetary Science 8(1) (2021) 13**

Co-precipitation behaviour of single atoms of rutherfordium in basic solutions

Kasamatsu Yoshitaka, Toyomura Keigo, Haba Hiromitsu, Yokokita Takuya, Shigekawa Yudai, Kino Aiko, Yasuda Yuki, Komori Yukiko, Kanaya Jumpei, Huang Minghui, Murakami Masashi, Kikunaga Hidetoshi, Watanabe Eisuke, Yoshimura Takashi, Morita Kosuke, Mitsugashira Toshiaki, Takamiya Koichi, Ohtsuki Tsutomu, Shinohara

**Atsushi Nature Chemistry 13(3) (2021) 226-230**

Simple Pretreatment Method for Tritium Measurement in Environmental Water Samples using a Liquid Scintillation Counter

NAKASONE Shunya, YOKOYAMA Sumi, TAKAHASHI Tomoyuki, OTA Masakazu, KAKIUCHI Hideki, SUGIHARA Shinji, HIRAO Shigekazu, MOMOSHIMA Noriyuki, TAMARI Toshiya, SHIMA Nagayoshi, ATARASHI-ANDOH Mariko, FUKUTANI Satoshi, NAKAMURA Kaori, ISHIMINE Akinobu, FURUKAWA Masahide, TANAKA Masahiro, AKATA Naofumi

**Plasma and Fusion Research 16 (2021) 2405035**

Effect of bacterial siderophore on cesium dissolution from biotite

Kimura Tatsuki, Fukutani Satoshi, Ikegami Maiko, Sakamoto Fuminori, Kozai Naofumi, Grambow Bernd, Yoneda Minoru

**Chemosphere 276 (2021) 130121**

Simulation of the transition metal-based cumulative oxidative potential in East Asia and its emission sources in Japan Kajino Mizuo, Hagino Hiroyuki, Fujitani Yuji, Morikawa Tazuko, Fukui Tetsuo, Onishi Kazunari, Okuda Tomoaki, Igarashi Yasuhito

**Scientific Reports 11 (2021) 6550**

## Proceedings

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**Proceedings of the Specialists' Meeting on "Nuclear Spectroscopy and Condensed Matter Physics Using Short-Lived Nuclei VI" and Meeting on "11th Nuclear Spectroscopy Research Using Stop and Slow Unstable Nuclei (SSRI)" 13-16 (in Japanese)**

Crystallography of hydrogen in the deep Earth by scattering

Norio Ito, Akira Mizohata, Hisao Yoshinaga, Yuto Iimura

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 19 (in Japanese)**

Size distribution of Chlorine(Cl) and Bromine(Br) in the atmospheric aerosols

Takuo Okuchi

**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 10-11 (in Japanese)**

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Origin of 1 mSv per Year Regulation and Discussion on Low Level Radiation Risk

Tetsuji Imanaka

**TRENDS IN THE SCIENCES 25(3) (2020) 52-59 (in Japanese)**

Development of a Radiation Mapping System for the Long-Term Contamination after a Nuclear Disaster

Minoru Tanigaki

**Butsuri 75(12) (2020) 766-769 (in Japanese)**

Basics of Fission-track Geo- and Thermo-chronometry: Revisiting Its History to Explore Future Potential

Noriko Hasebe, Shigeru Sueoka, Takahiro Tagami

**RADIOISOTOPES 70(3) (2021) 117 -130 (in Japanese)**

Recent Evolution of Fission-track Chronometry –Advanced Analytical Methods, Understanding of Annealing Kinetics, and Developments of New Dating Systems–

Shigeru Sueoka, Koji Shimada, Noriko Hasebe, Takahiro Tagami

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Yasuhito IGARASHI

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Accurate determination of three halogen elements (Cl, Br, and I) in U.S. Geological Survey geochemical reference materials by radiochemical neutron activation analysis and an exhaustive comparison with literature data: a review

Shun Sekimoto, Mitsuru Ebihara

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Manabu Fukumoto

**Springer Singapore (2021)**

## 6. Life Science and Medical Science

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Site-specific rapid deamidation and isomerization in human lens  $\alpha$ -A-crystallin in vitro

Takata Takumi, Ha Seongmin, Koide Tamaki, Fujii Noriko

**Protein Science 29(4) (2020) 941-951**

Space Radiation Biology for “Living in Space”

Furukawa Satoshi, Nagamatsu Aiko, Neno Mitsuru, Fujimori Akira, Kakinuma Shizuko, Katsube Takanori,

Wang Bing, Tsuruoka Chizuru, Shirai Toshiyuki, Nakamura Asako J., Sakaue-Sawano Asako, Miyawaki

Atsushi, Harada Hiroshi, Kobayashi Minoru, Kobayashi Junya, Kunieda Takekazu, Funayama Tomoo, Suzuki

Michiyo, Miyamoto Tatsuo, Hidema Jun, Yoshida Yukari, Takahashi Akihisa

**BioMed Research International (2020) 4703286**

The combined effect of neutron irradiation and temozolomide on glioblastoma cell lines with different MGMT and P53 status

Kinashi Yuko, Ikawa Tomoyuki, Takahashi Sentaro

**Applied Radiation and Isotopes 163 (2020) 109204**

Versatile whole-organ/body staining and imaging based on electrolyte-gel properties of biological tissues

Susaki Etsuo A., Shimizu Chika, Kuno Akihiro, Tainaka Kazuki, Li Xiang, Nishi Kengo, Morishima Ken, Ono

Hiroaki, Ode Koji L., Saeki Yuki, Miyamichi Kazunari, Isa Kaoru, Yokoyama Chihiro, Kitaura Hiroki, Ikemura

Masako, Ushiku Tetsuo, Shimizu Yoshihiro, Saito Takashi, Saido Takaomi C., Fukayama Masashi, Onoe

Hirota, Touhara Kazushige, Isa Tadashi, Kakita Akiyoshi, Shibayama Mitsuhiko, Ueda Hiroki R.

**Nature Communications 11(1) (2020) 1982**

A Simplified Cluster Analysis of Electron Track Structure for Estimating Complex DNA Damage Yields

Matsuya Yusuke, Nakano Toshiaki, Kai Takeshi, Shikazono Naoya, Akamatsu Ken, Yoshii Yuji, Sato Tatsuhiko

**International Journal of Molecular Sciences 21(5) (2020) 1701**

Amphiphilic Cationic Tricyclic Iridium(III) Complex–Peptide Hybrids Induce Paraptosis-like Cell Death of Cancer Cells via an Intracellular  $Ca^{2+}$ -Dependent Pathway

Yokoi Kenta, Balachandran Chandrasekar, Umezawa Masakazu, Tsuchiya Koji, Mitrić Aleksandra, Aoki Shin

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Design and Synthesis of Cyclometalated Iridium(III) Complexes—Chromophore Hybrids that Exhibit Long-Emission Lifetimes Based on a Reversible Electronic Energy Transfer Mechanism

Kazama Ayami, Imai Yuki, Okayasu Yoshinori, Yamada Yasuyuki, Yuasa Junpei, Aoki Shin

**Inorganic Chemistry 59(10) (2020) 6905-6922**

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Ayyanaar Srinivasan, Balachandran Chandrasekar, Bhaskar Rangaswamy Chinnabba, Kesavan Mookkandi Palsamy, Aoki Shin, Raja Ramachandran Palpandi, Rajesh Jegathalaprathaban, Webster Thomas J, Rajagopal Gurusamy

**International Journal of Nanomedicine 15 (2020) 3333-3346**

Development of Antibody–Oligonucleotide Complexes for Targeting Exosomal MicroRNA

Yamayoshi Asako, Oyama Shota, Kishimoto Yusuke, Konishi Ryo, Yamamoto Tsuyoshi, Kobori Akio, Harada Hiroshi, Ashihara Eishi, Sugiyama Hiroshi, Murakami Akira

**Pharmaceutics 12(6) (2020) 545**

Integral approach to biomacromolecular structure by analytical-ultracentrifugation and small-angle scattering

Morishima Ken, Okuda Aya, Inoue Rintaro, Sato Nobuhiro, Miyamoto Yosuke, Urade Reiko, Yagi-Utsumi Maho, Kato Koichi, Hirano Rina, Kujirai Tomoya, Kurumizaka Hitoshi, Sugiyama Masaaki

**Communications Biology 3(1) (2020) 294**

Participation of TDP1 in the repair of formaldehyde-induced DNA-protein cross-links in chicken DT40 cells

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**PLOS ONE 15(6) (2020) e0234859**

Synthesis, characterization, theoretical, molecular docking and in vitro biological activity studies of Ru(II) ( $\eta^6$ -p-cymene) complexes with novel aniline substituted aroyl selenoureas

Musthafa Moideen, Konakanchi Ramaiah, Ganguly Rakesh, Balachandran Chandrasekar, Aoki Shin, Sreekanth Anandaram

**Journal of Biomolecular Structure and Dynamics 1778531 (2020) 1-16**

Effect of Rapamycin on the Radio-Sensitivity of Cultured Tumor Cells Following Boron Neutron Capture Reaction

Tatebe Hitoshi, Masunaga Shin-ichiro, Nishimura Yasumasa

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Asp isomerization increases aggregation of  $\alpha$ -crystallin and decreases its chaperone activity in human lens of various ages

Fujii Noriko, Takata Takumi, Kim Ingu, Morishima Ken, Inoue Rintaro, Magami Kousuke, Matsubara Toshiya, Sugiyama Masaaki, Koide Tamaki

**Biochimica et Biophysica Acta (BBA) - Proteins and Proteomics 1868(9) (2020) 140446**

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**Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 246 (2020) 118963**

A use of microgravity for the structural investigation in the space : For a high precision anti-cancer drug design

Yukio Morimoto, Masayuki Kamo, Naoki FURUBAYASHI, Yuki Higashino, Koji Inaka

**Radiation biology research communications 55(3) (2020) 197-209 (in Japanese)**

A novel soybean protein disulphide isomerase family protein possesses dithiol oxidation activity: identification and characterization of GmPDIL6

Okuda Aya, Matsusaki Motonori, Masuda Taro, Morishima Ken, Sato Nobuhiro, Inoue Rintaro, Sugiyama Masaaki, Urade Reiko

**The Journal of Biochemistry 168(4) (2020) 393-405**

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Kondo Natsuko, Hikida Masaki, Nakada Mitsutoshi, Sakurai Yoshinori, Hirata Eishu, Takeno Satoshi, Suzuki Minoru

**Cancers (12)10 (2020) 3040**

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Srnc Martin, Iyer Shyam R., Dassama Laura M. K., Park Kiyoun, Wong Shaun D., Sutherlin Kyle D., Yoda Yoshitaka, Kobayashi Yasuhiro, Kurokuzu Masayuki, Saito Makina, Seto Makoto, Krebs Carsten, Bollinger J. Martin, Solomon Edward I.

**Journal of the American Chemical Society 142(44) (2020) 18886-18896**

An attempt to improve the therapeutic effect of boron neutron capture therapy using commonly employed <sup>10</sup>B-carriers based on analytical studies on the correlation among quiescent tumor cell characteristics, tumor heterogeneity and cancer stemness

Masunaga Shin-ichiro, Sanada Yu, Tano Keizo, Sakurai Yoshinori, Tanaka Hiroki, Takata Takushi, Suzuki Minoru, Ono Koji

**Journal of Radiation Research 61(6) (2020) 876-885**

Crystal Structure Analysis of the 20S Proteasome Grown in Space: Comparison between Space and Ground Crystals

Yukio MORIMOTO, Masayuki KAMO, Naoki FURUBAYASHI, Yuuki HIGASHINO, Koji INAKA

**International Journal of Microgravity Science and Application 19 (2020) 370404**

PV1 Protein from Plasmodium falciparum Exhibits Chaperone-Like Functions and Cooperates with Hsp100s  
Hakamada Kazuaki, Nakamura Manami, Midorikawa Rio, Shinohara Kyosuke, Noguchi Keiichi, Nagaoka Hikaru, Takashima Eizo, Morishima Ken, Inoue Rintaro, Sugiyama Masaaki, Kawamoto Akihiro, Yohda Masafumi

**International Journal of Molecular Sciences 21(22) (2020) 8616**

Synthesis, anticancer and molecular docking studies of new class of benzoisoxazolyl-piperidinyl-1, 2, 3-triazoles

Muniyappan Govindhan, Kathavarayan Subramanian, Balachandran Chandrasekar, Kalliyappan Easwaramoorthi, Mahalingam Sakkarapalayam M., Ajees Abdul Salam Abdul, Aoki Shin, Arumugam Natarajan, Almansour Abdulrahman I., Suresh Kumar Raju

**Journal of King Saud University - Science 32(8) (2020) 3286-3292**

Dynamics of proteins with different molecular structures under solution condition

Inoue Rintaro, Oda Takashi, Nakagawa Hiroshi, Tominaga Taiki, Saio Tomohide, Kawakita Yukinobu, Shimizu Masahiro, Okuda Aya, Morishima Ken, Sato Nobuhiro, Urade Reiko, Sato Mamoru, Sugiyama Masaaki

**Scientific Reports 10(1) (2020) 21678**

Effect of a Lens Protein in Low-Temperature Culture of Novel Immortalized Human Lens Epithelial Cells (iHLEC-NY2)

Yamamoto Naoki, Takeda Shun, Hatsusaka Natsuko, Hiramatsu Noriko, Nagai Noriaki, Deguchi Saori, Nakazawa Yosuke, Takata Takumi, Kodera Sachiko, Hirata Akimasa, Kubo Eri, Sasaki Hiroshi

**Cells 9(12) (2020) 2670**

Effect of the Electron Density of the Heme Fe Atom on the Nature of Fe-O<sub>2</sub> Bonding in Oxy Myoglobin

Yamamoto Yasuhiko, Hasegawa Kazuyasu, Shibata Tomokazu, Momotake Atsuya, Ogura Takashi, Yanagisawa Sachiko, Neya Saburo, Suzuki Akihiro, Kobayashi Yasuhiro, Saito Makina, Seto Makoto, Ohta Takehiro

**Inorganic Chemistry (60)2 (2020) 1021-1027**

Protective Effects of p53 Regulatory Agents Against High-LET Radiation-Induced Injury in Mice

Morita Akinori, Wang Bing, Tanaka Kaoru, Katsube Takanori, Murakami Masahiro, Shimokawa Takashi, Nishiyama Yuichi, Ochi Shintaro, Satoh Hidetoshi, Neno Mitsuru, Aoki Shin

**Frontiers in Public Health 8 (2020) 601124**

Elucidation of the mechanism of subunit exchange in  $\alpha$ B crystallin oligomers

Inoue Rintaro, Sakamaki Yusuke, Takata Takumi, Wood Kathleen, Morishima Ken, Sato Nobuhiro, Okuda Aya, Shimizu Masahiro, Urade Reiko, Fujii Noriko, Sugiyama Masaaki

**Scientific Reports 11(1) (2021) 2555**

Histone variant H2A.B-H2B dimers are spontaneously exchanged with canonical H2A-H2B in the nucleosome  
Hirano Rina, Arimura Yasuhiro, Kujirai Tomoya, Shibata Mikihiro, Okuda Aya, Morishima Ken, Inoue Rintaro, Sugiyama Masaaki, Kurumizaka Hitoshi  
**Communications Biology 4(1) (2021) 191**

Recent structural insights into the mechanism of lysozyme hydrolysis  
Tanaka Ichiro, Nishinomiya Ryota, Goto Ryosuke, Shimazaki Shun, Chatake Toshiyuki  
**Acta Crystallographica Section D Structural Biology 77(3) (2021) 288-292**

Solution structure of multi-domain protein ER-60 studied by aggregation-free SAXS and coarse-grained-MD simulation  
Okuda Aya, Shimizu Masahiro, Morishima Ken, Inoue Rintaro, Sato Nobuhiro, Urade Reiko, Sugiyama Masaaki  
**Scientific Reports 11(1) (2021) 5655**

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Analyzing tumor microenvironment and exploiting its characteristics in search of optimizing cancer therapy neutron capture therapy  
Akiko Kita, Yukio Morimoto  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 24** (in Japanese)

Optimizing protein ligation reactions: a molecular modeling approach  
Yosuke Miyamoto, Ken Morishima, Yasuhiro Yunoki, Masahiro Shimizu, Aya Okuda, Nobuhiro Sato, Rintaro Inoue, Reiko Urade, Hirokazu Yagi, Koichi Kato, Masaaki Sugiyama  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 38** (in Japanese)

Neutron structure analysis of the deuterated denatured/refolded protein crystals  
Nobuhiro Sato, Aya Okuda, Masahiro Shimizu, Ken Morishima, Rintaro Inoue, Reiko Urade, Masaaki Sugiyama.  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 42** (in Japanese)

Structural analysis of protein complex in solution under association-dissociation equilibrium  
Masahiro Shimizu, Aya Okuda, Ken Morishima, Nobuhiro Sato, Rintaro Inoue, Reiko Urade, Masayuki Sugiyama  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 16** (in Japanese)

Preparation of deuterated wheat proteins of contrast-variation SANS measurements  
Shin-i-chiro Masunaga, Yu Sanada, Hideko Nagasawa, Hiroshi Harada, Ryoichi Hirayama, Satoshi Kasaoka, Ken Nagasaki, Yoshihiro Uto, Hironobu Yasui, Mitsuko Masutani, Kei Nakai, Yoshitaka, Matsumoto  
**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 13** (in Japanese)

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”オンコサーミア” (Modulated Electro Hyperthermia [mEHT])の臨床応用に関する最近の知見について  
増永慎一郎  
**Thermal Medicine 36(2) (2020) 46-47** (in Japanese)

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増永慎一郎  
患者さんと家族のための放射線治療 Q&A 2020 年版 第2版  
日本放射線腫瘍学会  
**金原出版株式会社 (2020)** (in Japanese)

第VI部 60. 溶液散乱法 I: 静的構造解析  
杉山正明

現代化学増刊 46: 相分離生物学の全貌

白木賢太郎

東京化学同人 (2020) (in Japanese)

第 VI 部 61. 溶液散乱法 II: 動的構造を中心に

井上倫太郎

現代化学増刊 46: 相分離生物学の全貌

白木賢太郎

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第 VI 部 62. 超遠心分析

守島健

現代化学増刊 46: 相分離生物学の全貌

白木賢太郎

東京化学同人 (2020) (in Japanese)

## 7. Neutron Capture Therapy

### Papers

Boron Neutron Capture Therapy Study of  $^{10}\text{B}$  Enriched Nanostructured Boron Carbide Against Cervical Cancer and Glioblastoma Cell Line

Kaur Manjot, Singh Paviter, Meena Ramovatar, Nakagawa Fumiko, Suzuki Minoru, Nakamura Hiroyuki, Kumar Akshay

**Journal of Cluster Science 32 (2021) 221-225**

Development of Optical-fiber-based Neutron Detector Using Li-glass Scintillator for an Intense Neutron Field  
Ishikawa Akihisa, Yamazaki Atsushi, Watanabe Kenichi, Yoshihashi Sachiko, Uritani Akira, Sakurai Yoshinori, Tanaka Hiroki, Ogawara Ryo, Suda Mitsuru, Hamano Tsuyoshi

**Sensors and Materials 32(4) (2020) 1489-1495**

Reevaluation of CBE value of BPA for hepatocytes

Ono, K., Tanaka, H., Suzuki, M.

**Applied Radiation and Isotopes 161 (2020) 109159**

Chemical structure of hydrolysates of cereulide and their time course profile

Naka Toshihito, Takaki Yuka, Hattori Yoshihide, Takenaka Hiroshi, Ohta Yoichiro, Kirihata Mitsunori, Tanimori Shinji

**Bioorganic & Medicinal Chemistry Letters 30(9) (2020) 127050**

Evaluation of a Novel Boron-Containing  $\alpha$ -d-Mannopyranoside for BNCT

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**Cells 9(5) (2020) 1277**

Synthesis and Evaluation of Dodecaboranethiol Containing Kojic Acid (KA-BSH) as a Novel Agent for Boron Neutron Capture Therapy

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Cyclic RGD-Functionalized closo-Dodecaborate Albumin Conjugates as Integrin Targeting Boron Carriers for Neutron Capture Therapy

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**Molecular Pharmaceutics 17(10) (2020) 3740-3747**

A study on remotely-changeable moderators in Bonner sphere spectrometer for irradiation-field characterization in boron neutron capture therapy

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**Applied Radiation and Isotopes 163 (2020) 109213**

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**ACS Omega 5(36) (2020) 22731-22738**

Characterization of a real-time neutron detector for boron neutron capture therapy using a thin silicon diode

Takada Masashi, Nunomiya Tomoya, Masuda Akihiko, Matsumoto Tetsuro, Tanaka Hiroki, Nakamura Satoshi, Endo Satoru, Nakamura Masaru, Aoyama Kei, Ueda Osamu, Narita Masataka, Nakamura Takashi

**Radiation Measurements 137 (2020) 106381**

Deep abscopal response to radiotherapy and anti-PD-1 in an oligometastatic melanoma patient with unfavorable pretreatment immune signature

Watanabe Tsubasa, Firat Elke, Scholber Jutta, Gaedicke Simone, Heinrich Corinne, Luo Ren, Ehrat Nicolas, Multhoff Gabriele, Schmitt-Graeff Annette, Grosu Anca-Ligia, Abdollahi Amir, Hassel Jessica C., von Bubnoff Dagmar, Meiss Frank, Niedermann Gabriele

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Evaluation of the energy resolution of a prompt gamma-ray imaging detector using LaBr<sub>3</sub> (Ce) scintillator and 8 × 8 array MPPC for an animal study of BNCT

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**Applied Radiation and Isotopes 163 (2020) 109214**

Single-dose toxicity study by intra-arterial injection of <sup>10</sup>BSH entrapped water-in-oil-in-water emulsion for boron neutron capture therapy to hepatocellular carcinoma

Yanagie Hironobu, Yanagawa Masashi, Higuchi Tsuyoshi, Mizumachi Ryouji, Fujihara Mitsuteru, Morishita Yasuyuki, Sakurai Yuriko, Mouri Kikue, Dewi Novriana, Nonaka Yasumasa, Shinohara Atsuko, Matsukawa Takehisa, Kubota Ayano, Yokoyama Kazuhito, Suzuki Minoru, Masunaga Shin-ichiro, Sakurai Yoshinori, Tanaka Hiroki, Ono Koji, Yamauchi Haruo, Ono Minoru, Nakajima Jun, Higashi Shushi, Takahashi Hiroyuki

**Applied Radiation and Isotopes 163 (2020) 109202**

A simulation study on beam property of <sup>124</sup>Sb-Be isotope-based neutron for BNCT

Tanaka Kenichi, Kajimoto Tsuyoshi, Sakurai Yoshinori, Bengua Gerard, Endo Satoru

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**Applied Radiation and Isotopes 164 (2020) 109270**

Boron neutron capture therapy using cyclotron-based epithermal neutron source and borofalan (<sup>10</sup>B) for recurrent or locally advanced head and neck cancer (JHN002): An open-label phase II trial

Hirose Katsumi, Konno Akiyoshi, Hiratsuka Junichi, Yoshimoto Seiichi, Kato Takahiro, Ono Koji, Otsuki Naoki, Hatazawa Jun, Tanaka Hiroki, Takayama Kanako, Wada Hitoshi, Suzuki Motohisa, Sato Mariko, Yamaguchi Hisashi, Seto Ichiro, Ueki Yuji, Iketani Susumu, Imai Shigeki, Nakamura Tatsuya, Ono Takashi, Endo Hiromasa, Azami Yusuke, Kikuchi Yasuhiro, Murakami Masao, Takai Yoshihiro

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Sakurai Y., Takata T., Tanaka H., Suzuki M.

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**Applied Radiation and Isotopes 166 (2020) 109324**

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DEVELOPMENT OF A NEUTRON DOSIMETRY SYSTEM BASED ON DOUBLE SELF-ACTIVATED  
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Hanada Yumika, Nohtomi Akihiro, Fukunaga Junichi, Shioyama Yoshiyuki

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Pharmacokinetics of  $^{10}\text{B}$ -p-boronophenylalanine (BPA) in the blood and tumors in human patients: A critical  
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Construction of Boronophenylalanine-Loaded Biodegradable Periodic Mesoporous Organosilica Nanoparticles for BNCT Cancer Therapy

Tamanoi Fuyuhiko, Chinnathambi Shanmugavel, Laird Mathilde, Komatsu Aoi, Birault Albane, Takata Takushi, Doan Tan Le-Hoang, Mai Ngoc Xuan Dat, Raitano Arthur, Morrison Kendall, Suzuki Minoru, Matsumoto Kotaro

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Complementary leucine zippering system for effective intracellular delivery of proteins by cell-penetrating peptides Kitamatsu Mizuki, Yuasa Hiroki, Ohtsuki Takashi, Michiue Hiroyuki

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Research of optimal irradiation method for superficial tumors in a cyclotron-based epithermal neutron source  
Yuki Kakimoto, Shin-ichiro Hayashi, Takushi Takata, Hiroki Tanaka, Yoshinori Sakurai  
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Size distribution of Chlorine(Cl) and Bromine(Br) in the atmospheric aerosols  
Akinori Sakurai, Takushi Takata, Yuki Tamari Tsubasa Watanabe, Naonori Hu, Shinji Kawabata, Yoshihiro Kudo, Toshinori Mitsumoto, Nishiki Matyubayashi, Yoshinori Sakurai, Hiroki Tanaka  
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Study on two-dimensional beam-component discrimination for BNCT using PVA-GTA-I gel dosimeter Hikaru  
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Invention of polyamine derivatives for boron neutron capture Therapy  
Akari Matsushita, Mieko Tsuji, Yu Sanada, Tasuku Hirayama, Shinichiro Masunaga, Hideko Nagasawa  
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Development of real-time neutron detectors for whole body exposure during BNCT  
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Yoshinori Sakurai, Hiroki Tanaka  
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Development of prompt gamma ray imaging detectors for BNCT  
Hiroki Ueda, Tomohiro Tanaka, Minoru Suzuki, Yoshinori Sakurai, Shin Aoki  
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Improvement of efficiency in dose evaluation of tumor-bearing mice irradiation using KUR heavy water neutron  
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Nomoto Takahiro  
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Yuka Yamamoto, Minoru Suzuki

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Horoyuki Nakamura

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## 8. Neutron Radiography and Radiation Application

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Crystal Growth and Scintillation Properties of Carbazole for Neutron Detection

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Organomercury Captured by Lyase Overexpressed *Escherichia coli* and Its Evaluation by *In-Cell* Radiometry

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Wang Yunxia, Ohishi Yuji, Kurosaki Ken, Muta Hiroaki

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**Journal of Radioanalytical and Nuclear Chemistry 327(2) (2020) 681-686**

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T. Kobayashi, P. Wang, T. Sasaki

**Journal of Nuclear and Radiochemical Sciences 20 (2020) 20-24**

High-pressure synthesis of heavily hole-doped cuprates  $Mg_{1-x}Li_xCu_2O_3$  with quasi-one-dimensional structure  
Imai Yoshinori, Sasaki Koya, Aoyama Takuya, Shirasaki Kenji, Yamamura Tomoo, Ohgushi Kenya

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Solubility and solid phase of trivalent lanthanide hydroxides and oxides

Md. Moniruzzaman, Taishi Kobayashi, Takayuki Sasaki

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Katabuchi Tatsuya, Iwamoto Osamu, Hori Jun-ichi, Kimura Atsushi, Iwamoto Nobuyuki, Nakamura Shoji, Shibahara Yuji, Terada Kazushi, Rovira Gerard, Matsuura Shota

**EPJ Web of Conferences 239 (2020) 01044**

Neutron capture and total cross-section measurements of  $^{155}\text{Gd}$  and  $^{157}\text{Gd}$  at ANNRI in J-PARC

Kimura Atsushi, Nakamura Shoji, Iwamoto Osamu, Iwamoto Nobuyuki, Harada Hideo, Katabuchi Tatsuya, Terada Kazushi, Hori Jun-ichi, Shibahara Yuji, Fujii Toshiyuki

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Nakamura Shoji, Shibahara Yuji, Endo Shunsuke, Kimura Atsushi

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**Journal of Radioanalytical and Nuclear Chemistry 326(1) (2020) 303-314**

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**Proceedings of the 55th KURNS Scientific Meeting Web Meeting 2020 (Jan. 28-29, 2021) 31(in Japanese)**

RI production for medical applications in Japanese Research Reactors, JRR-3, KUR and future reactor  
Tomoo Yamamura

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Estimation of dietary  $^{14}\text{C}$  dose coefficient using  $^{13}\text{C}$ -labelled compound administration analysis  
Masuda Tsuyoshi, Yoshioka Toshitada, Takahashi Tomoyuki, Takeda Hiroshi, Hatta Hideo, Matsushita  
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decommissioning  
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Kazuyoshi, Toyoda Akihiro, Matsumura Hiroshi  
**Journal of Radioanalytical and Nuclear Chemistry 325(3) (2020) 801-806**

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Water Samples Using Ion Exchange Resins  
NAKASONE Shunya, YOKOYAMA Sumi, TAKAHASHI Tomoyuki, OTA Masakazu, KAKIUCHI Hideki,  
SUGIHARA Shinji, HIRAO Shigekazu, MOMOSHIMA Noriyuki, TAMARI Toshiya, SHIMA Nagayoshi,  
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Ha Seongmin, Kinouchi Tadatoshi, Fujii Noriko  
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Tani Kotaro, Igarashi Yu, Kim Eunjoo, Iimoto Takeshi, Kurihara Osamu  
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Using an LC-MS-MRM Method  
Fujii Noriko, Takata Takumi, Kim Ingu, Matsubara Toshiya  
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