

## Poster Presentations

- Posters (no oral presentation) can be viewed on website from 9:00 on September 27 (Monday), JST. In addition, only posters can be viewed for two weeks after the end of the symposium.
- Questions will be accepted until 17:00 September 28 (Tuesday).
- Answers may be posted until 12:00 on the September 29 (Wednesday).

### ENVIRONMENTAL DYNAMICS

- PE-01** Activity concentrations of radiocaesium,  $^{90}\text{Sr}$  and  $^{129}\text{I}$  in agricultural crops collected from Fukushima and reference areas, and internal radiation dose  
Hirofumi Tsukada,<sup>1</sup> Tomoyuki Takahashi<sup>2</sup> and Satoshi Fukutani<sup>2</sup>  
<sup>1</sup> Institute of Environmental Radioactivity, Fukushima University, Japan, <sup>2</sup> Institute for Integrated Radiation Nuclear Science, Kyoto University, Japan
- PE-02** Uptake of  $^{137}\text{Cs}$  from soil and irrigation water by rice plants cultivated with the pot experiment  
Nguyen Phuong Thoa,<sup>1</sup> Yoshitaka Takagai<sup>2</sup> and Hirofumi Tsukada<sup>3</sup>  
<sup>1</sup> Graduate School of Symbiotic Systems Science and Technology, Fukushima University  
<sup>2</sup> Faculty of Symbiotic Systems Science, Fukushima University  
<sup>3</sup> Institute of Environmental Radioactivity, Fukushima University, Japan
- PE-03** Activity ratios of uranium isotopes in soil near Fukushima Dai-ichi Nuclear Power Station using the multi-collector inductively coupled plasma mass spectrometry (MC-ICP-MS)  
Rajamanickam Murugan,<sup>1</sup> Sarata Kumar Sahoo,<sup>1</sup> Atsuyuki Sorimachi<sup>2</sup> and Tatsuo Aono<sup>1</sup>  
<sup>1</sup> National Institutes for Quantum and Radiological Sciences and Technology (QST), Japan  
<sup>2</sup> Fukushima Medical University, Japan
- PE-04** Behaviour of  $^{238}\text{Pu}$  and  $^{236}\text{U}$  isotopes in soil samples affected due to FDNPS accident  
Sharayu Kasar,<sup>1</sup> Atsuyuki Sorimachi,<sup>2</sup> Yasutaka Omori,<sup>2</sup> Tatsuo Aono<sup>1</sup> and Sarata Kumar Sahoo<sup>1</sup>  
<sup>1</sup> National Institutes for Quantum and Radiological Science and Technology (QST), Japan  
<sup>2</sup> Fukushima Medical University, Japan
- PE-05** Vertical profile of Sr-90 in a Fukushima soil column  
Sarata Kumar Sahoo,<sup>1</sup> Norbert Kavasi,<sup>1,2</sup> Hideki Arae,<sup>1</sup> Atsuyuki Sorimachi,<sup>2</sup> Yasutaka Omori<sup>2</sup> and Tatsuo Aono<sup>1</sup>  
<sup>1</sup> National Institutes for Quantum and Radiological Science and Technology (QST), Japan  
<sup>2</sup> Jožef Stefan Institute, Slovenia, <sup>3</sup>Fukushima Medical University, Japan
- PE-06** Evaluation of radioactive cesium movement on ungrazed pasture by air radiation dose rate measurement  
Mikinori Tsuiki  
Iwate University, Japan

- PE-07** Impact of radiocesium contamination in flooded sediments after the 2019 typhoon on decontaminated fields in Fukushima  
Ikumi Asano,<sup>1</sup> Nodoka Harada,<sup>1</sup> Atsushi Nakao,<sup>1</sup> Olivier Evrard<sup>2</sup> and Junta Yanai<sup>1</sup>  
<sup>1</sup> Graduate School of Life and Environmental Sciences, Kyoto Prefectural University, Kyoto, Japan  
<sup>2</sup> Laboratoire des Sciences du Climat et de l'Environnement (LSCE/IPSL), Unité Mixte de Recherche 8212 (CEA/CNRS/UVSQ), Université Paris-Saclay, Gif-sur-Yvette, France
- PE-08** Distributions of <sup>210</sup>Pb, <sup>137</sup>Cs, and physical properties in bottom sediments of West Nanao Bay, Japan  
Shinya Ochiai,<sup>1</sup> Atsushi Fujita,<sup>1</sup> Takeo Tokunari,<sup>1</sup> Koichi Kawamura,<sup>1</sup> Hideo Sakai<sup>2</sup> and Seiya Nagao<sup>1</sup>  
<sup>1</sup> Kanazawa University, Japan, <sup>2</sup> University of Toyama, Japan
- PE-09** Contribution of CsMP on Cs runoff in the Takase River watershed during a rainfall event in 2021  
Takahiro Tatsuno,<sup>1</sup> Hiromichi Waki,<sup>2</sup> Minato Kakuma,<sup>2</sup> Nihei Naoto<sup>1</sup> and Nobuhito Ohte<sup>2</sup>  
<sup>1</sup> Fukushima University, Japan, <sup>2</sup> Kyoto University, Japan
- PE-10** Distribution of absorbed dose rate in air in urban areas after the Fukushima Daiichi Nuclear Power Plant accident  
Mai Ichihara,<sup>1</sup> Kazumasa Inoue,<sup>1</sup> Hideo Shimizu,<sup>2</sup> Hiroshi Tsuruoka,<sup>2</sup> Mizuho Tsukada,<sup>1</sup> Nimelan Veerasamy<sup>1</sup> and Masahiro Fukushi<sup>1</sup>  
<sup>1</sup> Tokyo Metropolitan University, Japan, <sup>2</sup> Tsukuba International University, Japan
- PE-11** Influence of sampling flow rate on thoron exhalation rate measurements by circulation method  
Masahiro Hosoda, Hiromu Kobayashi, Yuki Tamakuma, Eka Djatnika Nugraha, Ryoju Negami, Kranrod Chutima, Hirofumi Tazoe, Naofumi Akata and Shinji Tokonami  
Hirosaki University, Japan
- PE-12** Activity concentration of radiocaesium in self-consumed crops collected from evacuation order cancellation preparation zone and internal radiation doses  
Mihoko Kikuchi<sup>1</sup> and Hirofumi Tsukada<sup>2</sup>  
<sup>1</sup> Graduate School of Symbiotic Systems Science and Technology, Fukushima University, Japan  
<sup>2</sup> Institute of Environmental Radioactivity, Fukushima University, Japan
- PE-13** Distribution in soil radioactive concentrations in the eight Izu-Islands after the Fukushima Daiichi Nuclear Power Plant accident  
Hideo Shimizu,<sup>1,2</sup> Kazumasa Inoue,<sup>2</sup> Hiroshi Tsuruoka<sup>1,2</sup> and Masahiro Fukushi<sup>1,2</sup>  
<sup>1</sup> Tsukuba International University, Japan, <sup>2</sup> Tokyo Metropolitan University, Japan

- PE-14** Concentrations of  $^7\text{Be}$  and  $^{210}\text{Pb}$  for total deposition collected at Okinawa Island, Southwestern part of Japan  
Kaori Nakamura,<sup>1</sup> Shunya Nakasone,<sup>1</sup> Shigekazu Hirao,<sup>2</sup> Yoshitaka Shiroma,<sup>1</sup> Naofumi Akata,<sup>3</sup> Masahiro Tanaka,<sup>4</sup> Akinobu Ishimine<sup>5</sup> and Masahide Furukawa<sup>1</sup>  
<sup>1</sup>University of the Ryukyus, Japan, <sup>2</sup>Institute of Environment Radioactivity, Fukushima University, Japan, <sup>3</sup>Institute of Radiation Emergency Medicine, Hirosaki University, Japan, <sup>4</sup>National Institute for Fusion Science, National Institutes of National Science, Japan, <sup>5</sup>Institute for Environmental Sciences, Japan
- PE-15** Analysis of Pb-210 deposition distribution Characteristics based on high resolution atmospheric transport/deposition model calculation  
Yu Cai,<sup>1</sup> Yamazawa Hiromi,<sup>1</sup> Moriizumi Jun<sup>1</sup> and Hidenao Hasegawa<sup>2</sup>  
<sup>1</sup> Nagoya University, Japan, <sup>2</sup> Institute for Environmental Sciences, Japan
- PE-16** Development of an Ocean Circulation Model for Estimating the Radionuclide Migration in the Coastal Waters of Rokkasho Village, Aomori, Japan: the Diurnal Variation of Ocean Velocities  
Teiji In, Tomoharu Nakayama, Hisaki Kofuji, Tomoyuki Kuji  
 Japan Marine Science Foundation
- PE-17** Dispersion Rate of Released Water from Rokkasho Nuclear Fuel Reprocessing Plant Estimated from  $^3\text{H}$  and  $^{129}\text{I}$  in Seawater Samples Collected at 2006-2019  
Hisaki Kofuji, Shinichi Gasa, Natsuko Akihama, Tomoyuki Kuji and Tomoharu Nakayama  
 Japan Marine Science Foundation
- PE-18** Vertical Mixing near the Sea Surface Observed by Short-lived Natural Radionuclides ( $^{214}\text{Pb}$  and  $^{214}\text{Bi}$ )  
Hisaki Kofuji  
 Japan Marine Science Foundation
- PE-19** Development of a robot for the measurement of radioactive contamination and fertility of the soil in farmland  
Minoru Tanigaki,<sup>1</sup> Yoshio Inoue,<sup>2</sup> Sadao Momota,<sup>3</sup> Takashi Saito,<sup>4</sup> Tomoaki Nemoto,<sup>4</sup> Tsukasa Ono,<sup>4</sup> Akira Wada,<sup>5</sup> Masaharu Ohashi,<sup>5</sup> Koichi Tsuno,<sup>6</sup> Masahiro Kano,<sup>6</sup> Takahiro Matsuura,<sup>7</sup> Tadaaki Yasuoka,<sup>7</sup> Hiroyuki Hanai<sup>8</sup> and Koichi Arakawa<sup>8</sup>  
<sup>1</sup> Kyoto University, Japan, <sup>2</sup> The University of Tokyo, Japan, <sup>3</sup> Kochi University of Technology, Japan, <sup>4</sup> Hama Agricultural Regeneration Research Centre, Fukushima Agricultural Technology Center, Japan, <sup>5</sup> Hitachi Zosen Corporation, Japan, <sup>6</sup> Kokusai Kogyo Co., Ltd., Japan, <sup>7</sup> Matsuura Denkosha Co., Ltd., Japan, <sup>8</sup> S2 Factory Inc., Japan
- PE-20** Microbiological flora around Fukushima Daiichi Nuclear Power Plant area and its change by contact with fuel debris  
Yuma Dotsuta,<sup>1</sup> Liu Jiang,<sup>1</sup> Toru Kitagaki,<sup>1</sup> Tomoaki Kato,<sup>1,2</sup> Masahiko Nakase,<sup>2</sup> Kenji Takeshita<sup>2</sup> and Toshihiko Ohnuki<sup>2</sup>  
<sup>1</sup> Japan Atomic Energy Agency, Japan, <sup>2</sup> Tokyo Institute of Technology, Japan

- PE-21** Changes in air dose rates of Katsushika-Ku, Tokyo after the Fukushima Daiichi Nuclear Power Plant accident  
Mizuho Tsukada,<sup>1</sup> Kazumasa Inoue,<sup>1</sup> Mai Ichihara,<sup>1</sup> Hiroshi Tsuruoka,<sup>2</sup> Nimelan Veerasamy<sup>1</sup> and Masahiro Fukushi<sup>1</sup>  
<sup>1</sup> Tokyo Metropolitan University, Japan, <sup>2</sup> Tsukuba International University, Japan
- PE-22** Long-term decrease of Cs-137 concentration in Lake Onuma on Mt. Akagi: Model with Gamma-distribution  
Yuko Hatano,<sup>1</sup> Eiichi Suetomi,<sup>1</sup> Yukiko Okada,<sup>2</sup> Kyuma Suzuki<sup>3</sup> and Shun Watanabe<sup>3</sup>  
<sup>1</sup> University of Tsukuba, Japan, <sup>2</sup> Tokyo City University, Japan, <sup>3</sup> Gunma Prefectural Fisheries Experiment Station, Japan
- PE-23** Measurement of equilibrium factors in various environments  
Hiroki Hashimoto,<sup>1</sup> Yuki Tamakuma,<sup>2</sup> Ryohei Yamada,<sup>3</sup> Masahiro Hosoda<sup>1</sup> and Shinji Tokonami<sup>1</sup>  
<sup>1</sup> Hirosaki University, Japan, <sup>2</sup> National Institutes for Quantum and Radiological Science and Technology (QST), Japan, <sup>3</sup> Japan Atomic Energy Agency, Japan
- PE-24** New portable  $\alpha$ -ray spectrum survey meter with an ion-implanted silicon detector development  
Hiroshi Tsuruoka,<sup>1</sup> Kazumasa Inoue,<sup>2</sup> Masaru Takabatake,<sup>2</sup> Hideo Shimizu,<sup>1</sup> Nimelan Veerasamy<sup>2</sup> and Masahiro Fukushi<sup>1</sup>  
<sup>1</sup> Tsukuba International University, Japan, <sup>2</sup> Tokyo Metropolitan University, Japan
- PE-25** Distribution of gamma radiation dose rate and activity concentration in soil related with natural radionuclides in Taiwan  
Kyoko Saito,<sup>1</sup> Yuya Ishita,<sup>2</sup> Kazumasa Inoue<sup>3</sup> and Masahiro Fukushi<sup>4</sup>  
<sup>1</sup> Nihon Institute of Medical Science, Japan, <sup>2</sup> Shizuoka Cancer Center, Japan, <sup>3</sup> Tokyo Metropolitan University, Japan, <sup>4</sup> Tsukuba International University, Japan
- PE-26** Dynamics of radioactive cesium in river environment in Ukedo River  
Hirofumi Tazoe,<sup>1</sup> Ryo Tachizaki,<sup>2</sup> Yuto Tomisaka,<sup>2</sup> Haruka Kuwata<sup>1,3</sup> and Naofumi Akata<sup>1</sup>  
<sup>1</sup> Institute of Radiation Emergency Medicine, Hirosaki University, Japan, <sup>2</sup> School of Health Sciences, Hirosaki University, Japan, <sup>3</sup> Graduate School of Health Sciences, Hirosaki University, Japan
- PE-27** Characterization of radioactive cesium in sediments at the Nogawa river, Japan  
Satoshi Inose,<sup>1</sup> Yusuke Nanri,<sup>2</sup> Rintaro Saito<sup>1</sup> and Yuya Koike<sup>2</sup>  
<sup>1</sup> Graduate School of Science and Technology, Meiji University, Japan, <sup>2</sup> School of Science and Technology, Meiji University, Japan
- PE-28** Activity-weighted particle size distributions of radon/thoron progeny in the outdoor environment  
Mizuki Kiso, Aoi Sanpei, Chutima Kranrod, Oumar Bobbo Moudibo, Eka Djatnika Nugraha, Hiroki Hashimoto, Yuki Oda, Masahiro Hosoda and Shinji Tokonami  
Hirosaki University, Japan

- PE-29** Fixed point observation and characterization of  $^{137}\text{Cs}$  in soil collected at Kawasaki, Japan  
Rintaro Saito,<sup>1</sup> Satoshi Inose,<sup>1</sup> Masahiro Tanimoto<sup>2</sup> and Yuya Koike<sup>2</sup>  
<sup>1</sup> Graduate School of Science and Technology, Meiji University, Japan, <sup>2</sup> School of Science and Technology, Meiji University, Japan
- PE-30** Development of *in-situ*  $^{13}\text{CO}_2$  exposure and  $^{13}\text{C}$  fixation rate determination systems for whole apple tree and fruit-bearing shoots and a precise  $^{13}\text{CO}_2$  exposure chamber for young potted trees  
Yasuhiro Tako,<sup>1</sup> Ryuji Arai,<sup>1</sup> Yoshiyuki Yanagawase<sup>2</sup> and Syu-ichi Nishikawa<sup>3</sup>  
<sup>1</sup> Institute for Environmental Sciences, <sup>2</sup> CLIMATEC, Inc., Japan, <sup>3</sup> Ohnishi Netsugaku Co., LTD, Japan.
- PE-31** Experimental evaluation of distribution of  $^{14}\text{C}$  photo assimilated into carbohydrates in different growth stages of fruit-bearing apple shoots using a  $^{13}\text{CO}_2$  *in-situ* exposure system  
Yuhi Satoh,<sup>1</sup> Shogo Imada,<sup>1</sup> Yasuhiro Tako<sup>1</sup> and Yuki Moriya<sup>2</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan.<sup>2</sup> NARO Institute of Fruit Tree and Tea Science, Japan
- PE-32** Temporal variation of post-accident  $^{129}\text{I}$  in atmospheric particulate matter collected from an evacuated area of Fukushima Prefecture, Japan  
Hidenao Hasegawa,<sup>1</sup> Hideki Kakiuchi,<sup>1</sup> Shinya Ochiai,<sup>1,2</sup> Naofumi Akata,<sup>1,3</sup> Shinji Ueda<sup>1</sup> and Shinji Tokonami<sup>3</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Kanazawa University, Japan, <sup>3</sup> Hirosaki University, Japan
- PE-33** Tritium and Iodine-129 in water samples collected adjacent to a spent nuclear fuel reprocessing plant in Rokkasho, Japan  
Shinji Ueda, Hidenao Hasegawa, Hideki Kakiuchi  
 Institute for Environmental Sciences, Japan
- PE-34** Variation of exposure dose rates of discharging radio materials from the spent nuclear fuel reprocessing plant in Rokkasho under different yearly weather conditions  
Koichi Abe,<sup>1</sup> Kazuhiro Oshima,<sup>1,2</sup> Jing-Hsien Chiang,<sup>3</sup> Hiroji Suwa<sup>3</sup> and Shun'ichi Hisamatsu<sup>1</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Aomori University, Japan, <sup>3</sup> Japan NUS Co. Ltd., Japan
- PE-35** Temperature-dependent degradation of soil organic matter in farmlands and pastures  
Masaru Nagai<sup>1</sup> and Shizuo Suzuki<sup>1,2</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> National Institute of Technology, Numazu College, Japan (Present address)
- PE-36** Investigation of short-term chemical change in stable ruthenium added to rainwater using X-ray absorption fine structure analysis  
Yusuke Unno,<sup>1</sup> Akira Takeda<sup>1</sup> and Yuichi Takaku<sup>1,2</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Tsukuba University, Japan (Present address)

- PE-37** Soil-soil solution distribution coefficient of radioiodine in surface soils around the spent nuclear fuel reprocessing plant in Rokkasho, Japan  
Akira Takeda,<sup>1</sup> Yusuke Unno,<sup>1</sup> Hirofumi Tsukada,<sup>1,2</sup> Yuichi Takaku<sup>1,3</sup> and Shun'ichi Hisamatsu<sup>1</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Fukushima University, Japan (Present address),  
<sup>3</sup> Tsukuba University, Japan (Present address)
- PE-38** Effect of rice plant root activity on the chemical form of iodine in cultivated soil suspensions  
Mutsumi Yamagami and Masumi Yanai  
Institute for Environmental Sciences, Japan
- PE-39** Inhibitory effect of calcium on cesium absorption by plant roots  
Masashi Kihana and Mutsumi Yamagami  
Institute for Environmental Sciences, Japan
- PE-40** Distribution of radiocesium in black pine tree forests in Rokkasho, Aomori, Japan during 2017–2019  
Yoshihito Ohtsuka,<sup>1</sup> Hidenao Hasegawa,<sup>1</sup> Yoshiko Ayabe<sup>1,2</sup> and Shun'ichi Hisamatsu<sup>1</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Tohoku Research Center, Forestry and Forest Product Research Institute, Japan (Present address)
- PE-41** Direct assimilation of atmospheric carbon by young apple fruits  
Shogo Imada,<sup>1</sup> Yasuhiro Tako<sup>1</sup> and Yuki Moriya<sup>2</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> NARO Institute of Fruit Tree and Tea Science, Japan
- PE-42** Metabolism of <sup>13</sup>C in cattle semitendinosus muscle after administration of <sup>13</sup>C labeled orchard grass  
Tsuyoshi Masuda, Takashi Tani, Ryuji Arai and Yasuhiro Tako  
Institute for Environmental Sciences, Japan
- PE-43** Transfer of cesium and iodine from the surface to the interior of apple fruit  
Hitoshi Kawabata,<sup>1</sup> Masumi Yanai,<sup>1</sup> Yuichi Takaku<sup>1,2</sup> and Shun'ichi Hisamatsu<sup>1</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Tsukuba University, Japan (Present address)
- PE-44** Distribution of iodine-127 in marine organisms from coastal waters around Aomori, Japan  
Shoko Imai,<sup>1</sup> Kensaku Matsushita,<sup>1</sup> Yuichi Takaku,<sup>1,2</sup> Yoshio Ishikawa<sup>1</sup> and Yuhi Satoh<sup>1</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Tsukuba University, Japan (Present address)
- PE-45** Tritium concentrations in atmospheric water vapor and pine needles near the spent nuclear fuel reprocessing plant at Rokkasho, Japan  
Hideki Kakiuchi,<sup>1</sup> Hidenao. Hasegawa<sup>1</sup> and Naofumi Akata<sup>2</sup>  
<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Hirosaki University, Japan

## BIOLOGICAL EFFECTS

**PB-01** Analyses of cancer latency patterns that caused death in B6C3F1 mice continuously exposed to low dose-rate gamma rays using the Armitage-Doll multistage model

Yoshiko Ayabe,<sup>1,2</sup> Isao Kawaguchi,<sup>3</sup> Satoshi Tanaka,<sup>1</sup> Ignacia Braga-Tanaka III,<sup>1</sup> Jun-ichiro Komura<sup>1</sup> and Yoshiya Shimada<sup>1</sup>

<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Tohoku Research Center, Forestry and Forest Product Research Institute, Japan, <sup>3</sup> Center for Radiation Protection Knowledge, National Institutes for Quantum and Radiological Science and Technology (QST), National Institute of Radiological Sciences, Japan

**PB-02** The role of tumor microenvironment formation in radiation-induced tumor

Tsutomu Shimura and Akira Ushiyama

National Institute of Public Health, Japan

**PB-03** On radiation-induced aging: accelerated- or premature-aging

Takahiro Wada,<sup>1</sup> Tetsuhiro Kinugawa<sup>2</sup> and Satoshi Tanaka<sup>3</sup>

<sup>1</sup> Kansai University, Japan, <sup>2</sup> Osaka University, Japan, <sup>3</sup> Institute for Environmental Sciences, Japan

**PB-04** Combined analysis of cancer incidence and lifespan in mice exposed to chronic low dose-rate radiation

Tetsuhiro Kinugawa,<sup>1</sup> Takahiro Wada,<sup>2</sup> Yuichiro Manabe,<sup>1</sup> Fuminobu Sato<sup>1</sup> and Satoshi Tanaka<sup>3</sup>

<sup>1</sup> Osaka University, Japan, <sup>2</sup> Kansai University, Japan, <sup>3</sup> Institute for Environmental Sciences, Japan

**PB-05** Identification of fusion genes in rat mammary carcinomas induced by radiation using RNA sequencing

Hikaru Watanabe,<sup>1,2</sup> Kazuhiro Daino,<sup>1</sup> Atsuko Ishikawa,<sup>1</sup> Tatsuhiko Imaoka,<sup>1,2</sup> Mayumi

Nishimura,<sup>1</sup> Masaru Takabatake,<sup>2</sup> Kazumasa Inoue,<sup>2</sup> Masahiro Fukushi<sup>2</sup> and Shizuko Kakinuma<sup>1</sup>

<sup>1</sup> Department of Radiation Effects Research, National Institutes for Quantum and Radiological Science and Technology (QST), Japan, <sup>2</sup> Department of Radiological Sciences, Graduate School of Human Health Sciences, Tokyo Metropolitan Univ., Japan

**PB-06** Molecular signatures of radiation-induced mouse precursor B-cell lymphoma

Hiroataka Tachibana,<sup>1,2</sup> Kazuhiro Daino,<sup>2</sup> Atsuko Ishikawa,<sup>2</sup> Takamitsu Morioka,<sup>2</sup> Yi Shang,<sup>2</sup> Akira Matsuura,<sup>3</sup> Yoshiya Shimada<sup>2,4</sup> and Shizuko Kakinuma<sup>2</sup>

<sup>1</sup> Department of Biology, Graduate School of Science and Engineering, Chiba University, Japan,

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**PB-07** Radiation-induced DNA Double-strand Break Repair of Progenitor Cells in Rat Mammary Gland

Kento Nagata,<sup>1</sup> Mayumi Nishimura,<sup>1</sup> Kazuhiro Daino,<sup>1</sup> Daisuke Iizuka,<sup>1</sup> Yukiko Nishimura,<sup>1</sup> Yuya Hattori,<sup>2</sup> Ritsuko Watanabe,<sup>3</sup> Akinari Yokoya,<sup>3</sup> Keiji Suzuki,<sup>4</sup> Shizuko Kakinuma<sup>1</sup> and Tatsuhiko Imaoka<sup>1</sup>

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**PB-08** Age-dependent thymic regeneration by activation of PI3K-AKT-mTOR signaling in B6C3F1 mice after fractionated irradiation

Masaaki Sunaoshi,<sup>1</sup> Benjamin J. Blyth,<sup>2</sup> Yi Shang,<sup>1</sup> Chizuru Tsuruoka,<sup>1</sup> Takamitsu Morioka,<sup>1</sup> Mayumi Shinagawa,<sup>1</sup> Mari Ogawa,<sup>1</sup> Yoshiya Shimada,<sup>3</sup> Akira Tachibana,<sup>4</sup> Daisuke Iizuka<sup>1</sup> and Shizuko Kakinuma<sup>1</sup>

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**PB-09** The role of DNA double-strand break repair through non-homologous end joining in the dose-rate effect in terms of clonogenic ability

Hisayo Tsuchiya,<sup>1</sup> Mikio Shimada,<sup>1</sup> Kaima Tsukada,<sup>1</sup> Qingmei Meng,<sup>2</sup> Junya Kobayashi<sup>3</sup> and Yoshihisa Matsumoto<sup>1</sup>

<sup>1</sup> Tokyo Institute of Technology, Japan, <sup>2</sup> Kyoto University, Japan, <sup>3</sup> International University of Health and Welfare, Japan

**PB-10** Comparison analysis between in vivo irradiation and ex vivo irradiation of hematopoietic stem cells at a low dose-rate suggests that the niche protects hematopoietic stem cells from radiation damage and attenuates myeloid cell reduction

Tokuhisa Hirouchi

Institute for Environmental Sciences, Japan

**PB-11** Radiation hypersensitivity of the oocyte causes premature menopause and obesity in female mice chronically exposed to low dose-rate of  $\gamma$ -rays at 20 mGy per day

S. Nakamura, I. B. Tanaka III, J. Komura, S. Tanaka

Institute for Environmental Sciences, Japan

**PB-12** Adaptive response of mice continuously irradiated with low dose rate radiation (Yonezawa effect)

Takashi Sugihara,<sup>1</sup> Hayato Murano<sup>2</sup> and Jun-ichiro Komura<sup>1</sup>

<sup>1</sup> Institute for Environmental Sciences, <sup>2</sup> Tohoku Environmental Sciences Services Corporation



**PB-13** The frequency of chromosome aberrations in lymphocytes of mice continuously irradiated with very low dose-rate ionizing radiation

Atsushi Kohda,<sup>1</sup> Takuo Toyokawa,<sup>2</sup> Tomoyuki Umino,<sup>2</sup> Yoshiko Ayabe,<sup>3</sup> Ignacia Braga Tanaka III<sup>1</sup> and Jun-ichiro Komura<sup>1</sup>

<sup>1</sup> Institute for Environmental Sciences, Japan, <sup>2</sup> Tohoku Nuclear Co., Ltd., Japan, <sup>3</sup> Forestry and Forest Product Research Institute, Japan

**PB-14** Effects of Calorie Restriction on the Life Span of Mice Continuously Exposed to Low-Dose-rate Gamma-rays

Kazumi Yamauchi

Institute for Environmental Sciences, Japan

**PB-15** Effects of Continuous Exposure to Low Dose-Rate Gamma-Rays on the Hematopoiesis of Mice Differs from Exposures at High Dose-Rates

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**PB-16** Genome-wide gene expression analysis of the liver from low dose-rate irradiated mice

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## TRITIUM

- PT-01** Investigation of the concentration of tritiated water vapor in the air around the FDNPP  
Shigekazu Hirao,<sup>1</sup> Hideki Kakiuchi,<sup>2</sup> Toshiya Tamari,<sup>3</sup> Shinji Sugihara,<sup>4</sup> Nagayoshi Shima,<sup>3</sup>  
Naofumi Akata<sup>5</sup> and Masahiro Tanaka<sup>6,7</sup>  
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University, Japan, <sup>6</sup> National Institutes of Natural Sciences, Japan, <sup>7</sup> SOKENDAI, Japan
- PT-02** Performance evaluation of commercial scintillation cocktails for low-level tritium counting  
Haruka Kuwata,<sup>1</sup> Naofumi Akata,<sup>1</sup> Hirofumi Tazoe,<sup>1</sup> Chutima Kranrod,<sup>1</sup> Kenso Fujiwara,<sup>2</sup> Motoki  
Terashima,<sup>2</sup> Makoto Matsueda<sup>2</sup> and Shigekazu Hirao<sup>3</sup>  
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for Advanced Decommissioning Science, Japan Atomic Energy Agency, <sup>3</sup> Institute of  
Environmental Radioactivity, Fukushima University
- PT-03** Deuterium transfer analysis including the food chain from seawater into abalone  
Toshihiro Shibata<sup>1,2</sup> and Yoshio Ishikawa<sup>1</sup>  
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address)
- PT-04** Characteristics of temporal variation for tritium concentration and stable isotope ratio in  
environmental water collected from Okinawa Island, subtropical region of Japan  
Shunya Nakasone,<sup>1</sup> Akinobu Ishimine,<sup>2</sup> Kaori Nakamura,<sup>1</sup> Yuji Ishizu,<sup>1</sup> Yoshitaka Shiroma,<sup>1</sup>  
Masahiro Tanaka,<sup>3</sup> Naofumi Akata,<sup>4</sup> Hideki Kakiuchi,<sup>2</sup> Tetsuya Sanada<sup>5</sup> and Masahide Furukawa<sup>1</sup>  
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Institute for Fusion Science, National Institutes of Natural Sciences, Japan, <sup>4</sup> Hirosaki  
University, Japan, <sup>5</sup> Hokkaido University of Science, Japan
- PT-05** Environmental Impact of gaseous tritium discharge from fusion test facility on atmospheric  
tritium  
Masahiro Tanaka,<sup>1</sup> Chie Iwata,<sup>1</sup> Miki Nakada,<sup>1</sup> Akemi Kato<sup>1</sup> and Naofumi Akata<sup>2</sup>  
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- PT-06** Retention of organically bound deuterium in grass plants exposed to heavy water vapor at  
different growth stages  
Takashi Tani and Masaru Nagai  
Institute for Environmental Sciences, Japan
- PT-07** Development of a method to quantify non-exchangeable organically bound tritium in mice  
organs  
Nimelan Veerasamy, Tsuyoshi Masuda, Hideki Kakiuchi and Haruki Nagashima  
Institute for Environmental Sciences, Japan