

# JSRT-JSMP Joint International Conference on Radiological Physics and Technology (ICRPT)

## Oral

April 11 (Thu.) 502

### Image Informatics: Classification & Detection

13:30~14:30 Chairperson Shota Ichikawa (Niigata University)  
Noriyuki Kadoya (Tohoku University)

- TPI-001 Subtype prediction in breast MR images using 3DCNN and ensemble learning Meijo University Ayaka Kawai  
TPI-002 Imaging biopsy models for identification of triple-negative breast cancer at preoperative dynamic contrast-enhanced magnetic resonance images Kyushu University Mayu Nakagaki  
TPI-003 Visualization of discriminative features in MRI motion artifact classification using gradient-weighted class activation mapping Juntendo University Masafumi Akanuma  
TPI-004 Deep learning for high risk and low risk ischemic strokes based on MRI images University of Rajshahi, Bangladesh Md. Alamgir Hossain  
TPI-005 Automated detection of lung lesions in low dose CT images for attenuation correction using variational autoencoder Meijo University Yuki Ikuno  
TPI-006 Slab-digitally-reconstructed radiographs inferred from X-ray fluoroscopic images University of Tsukuba Minori Takaoka

### Image Informatics: Segmentation

14:40~15:30 Chairperson Yongsu Yoon (Dongseo University, Korea)  
Jun'ichi Kotoku (Teikyo University)

- TPI-007 3D body composition analysis via body cavity recognition in body CT images Aichi Prefectural University Kosuke Ashino  
TPI-008 Automated segmentation scheme of highly update regions in dedicated breast PET images without manual annotation using Cycle GAN Meijo University Juri Hayashi  
TPI-009 Automatic segmentation and volume measurement of sphenoid sinus fluid in post-mortem CT images of drowning cases based on Deep learning Busan Institute, National Forensic Service, Korea Jin-Haeng Heo  
TPI-010 Individual tooth segmentation using U-net based on dental X-ray panoramic images Chonnam National University, Korea Jihyeong Ko  
TPI-011 Utilizing errors for data augmentation techniques to improve accuracy in segmentation of dental radiographic images Chonnam National University, Korea Seung-Min Kim

### Education

15:40~16:30 Chairperson Hiroko Yamashina (Fukushima Medical University)  
Shuichi Ozawa (HIPRAC)

- TPI-012 Assessing the viability of integrating virtual reality programs in national examination practical tests for radiologic technologists: A nationwide survey of radiology department students Daegu Health College, Korea Jungsu Kim  
TPI-013 Evaluation of the usefulness of nuclear medicine practice programs Shingu College, Korea Yun-Sang Lee  
TPI-014 The application value of Mini-CEX in the transfer training of imaging technicians Affiliated Hospital of Jining Medical College, China Han Wang  
TPI-015 Analysis of the reliability of conversational artificial intelligence in the field of nuclear medicine using AI chatbots Shingu College, Korea Ha-ryun-sol Lee  
TPI-016 Review of artificial intelligence methods in dental age estimation using panoramic radiograph image Chonnam National University, Korea Sasi Sooksatra

### Radiomics

16:40~17:50 Chairperson Tatsuaki Kobayashi (Visionary Imaging Services, Inc.)  
Hidetaka Arimura (Kyushu University)

- TPI-017 Proposal of a differential diagnostic Index for of recurrent brain metastasis or radiation-induced brain necrosis by radiomics analysis using C-11 methionine PET Tokushima University Kanon Monda

|         |   |                        |
|---------|---|------------------------|
| TPI-018 | Mammography-based radiomics for prediction of axillary lymph node metastasis in invasive breast cancer<br>Chulalongkorn University, Thailand                              | Wichasa Sukumwattana   |
| TPI-019 | Recurrence prediction after radiation treatment in patients with esophageal squamous cell carcinoma using CT-based radiomics<br>Chulalongkorn University, Thailand        | Thanakrit Chanchayanon |
| TPI-020 | Novel radiomics/dosimetrics-based treatment failure prediction for pharyngeal cancer patients<br>Teikyo University  | Hidemi Kamezawa        |
| TPI-021 | Prognostic models for distant metastasis based on delta-radiomics features in patients with pancreatic carcinoma<br>Kyoto University                                      | Takanori Adachi        |
| TPI-022 | Homology-based -omics model for radiation pneumonitis in NSCLC stage III patients using whole-lung CT: A more comprehensive way in disease prognosis<br>Tohoku University | WingYi Lee             |
| TPI-023 | Prediction of progression in patients with early-stage non-small cell lung cancer treated with surgery and stereotactic body radiotherapy<br>Kyushu University            | Takuto Fukano          |

## April 12 (Fri.) 502

### Nuclear Medicine: Performance Evaluation

8:00~8:40 Chairperson Kohei Hanaoka (Kindai University)  
Keisuke Tsuda (Juntendo University)

|         |  |                         |
|---------|--|-------------------------|
| TPI-024 | Feasibility of dual-time-point parametric imaging using dynamic <sup>68</sup> Gallium-prostate specific membrane antigen-11 ( <sup>68</sup> Ga-PSMA-11) PET/CT in prostate cancer patients<br>Chulalongkorn University, Thailand | Paphawarin Burasothikul |
| TPI-025 | Development of the next-generation WGI prototype with modified GAGG-CLS scatterer and fast-LGSO TOF absorber detectors<br>NIRS, QST  | Go Akamatsu             |
| TPI-026 | First demonstration of "Scratch-PET" for intraoperative PET with a hand-held probe-type detector<br>Chiba University   | Taiyo Ishikawa          |
| TPI-027 | Imaging simulation of a next-version hemispherical brain PET powered by a novel DOI/TOF detector<br>NIRS, QST  | Kurumi Narita           |

### Nuclear Medicine: Simulation & Others

8:50~9:30 Chairperson Koichi Okuda (Hirosaki University)  
Naotoshi Fujita (Nagoya University Hospital)

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|---------|---|----------------|
| TPI-028 | Feasibility of Iodine-124 for positronium lifetime measurement with TOF-PET detectors<br>NIRS, QST  | Sodai Takyu    |
| TPI-029 | A study on the use of assist device for convenience of upper extremity imaging during bone scan in bed-ridden patients<br>Shingu College, Korea | Hyeon-Hee Lee  |
| TPI-030 | Dual-panel PET system to be enabled by 30-ps super-fast detector: a preliminary simulation study<br>NIRS, QST                                   | Taiga Yamaya   |
| TPI-031 | Intra-tumoral biological washout-rate distribution in range-verification PET: a preliminary rat study with a <sup>12</sup> C-beam<br>NIRS, QST  | Chie Toramatsu |

### Particle Therapy: Cardiac Implantable Electronic Device

9:40~10:10 Chairperson Hiroaki Matsubara (Fujita Health University)  
Takayuki Kanai (Tokyo Women's Medical University)

|         |   |               |
|---------|---|---------------|
| TPI-032 | Energy dependency on soft errors occurrence in carbon ion radiotherapy<br>Gunma University                              | Shogo Shimizu |
| TPI-033 | Impact of treatment planning on soft error risk in carbon ion radiotherapy<br>Gunma University Heavy Ion Medical Center | Makoto Sakai  |
| TPI-034 | Measuring the number of soft errors during proton and carbon ion radiotherapy<br>Gunma University                       | Reika Imazu   |

### Particle Therapy: Imaging & Dosimetric Evaluation

10:20~11:10 Chairperson Naonori Hu (Osaka Medical and Pharmaceutical University,  
Kansai BNCT Medical Center)  
Satoshi Nakamura (National Cancer Center Hospital)

|         |  |                    |
|---------|--|--------------------|
| TPI-035 | A preliminary report of the first clinical study of OpenPET: in-beam range verification for carbon ion therapy<br>NIRS, QST                            | Hideaki Tashima    |
| TPI-036 | Additive manufacturing technology in fabricating dosimetry phantoms for synchrotron radiation therapy<br>University of Wollongong Australia, Australia | John Paul Bustillo |
| TPI-037 | Evaluation of dose calculation algorithm with a combination of Monte Carlo method and removal-diffusion equation for BNCT<br>Kyoto University          | Mai Nojiri         |

|         |  |                  |                     |
|---------|--|------------------|---------------------|
| TPI-038 | Structure optimization of a neutron dosimeter for BNCT irradiation field   | Kyoto University | Liang Zhao          |
| TPI-039 | Development of multilayer liquid neutron spectrometer for neutron spectrum measurement in BNCT irradiation field | Kyoto University | Jakkrit Prateepkaew |

### MR: Technique & Analysis

16:00~16:50 Chairperson Yasuo Takatsu (Fujita Health University)  
Yuki Kanazawa (Tokushima University)

|         |  |  |                           |
|---------|--|--|---------------------------|
| TPI-040 | Perfusion and diffusion after preoperative endovascular embolization in meningioma using IVIM analysis   | Kanazawa University                                    | Li Ling                   |
| TPI-041 | Analysis of cardiac function in standing and supine postures using Gravity MRI   | Kanazawa University                                    | Naoki Ohno                |
| TPI-042 | Assessing portal vein spongy alteration: a comparative study of non-enhanced MR venography with CT venography  | Xi'an People's Hospital (Xi'an Fourth Hospital), China | Bao Liu                   |
| TPI-043 | Prototype positron emission tomography (PET) insert combining proton ( $^1\text{H}$ ) and sodium ( $^{23}\text{Na}$ ) magnetic resonance imaging (MRI) radiofrequency coils for a 3 Tesla clinical MRI | NIRS, QST  | Md Shahadat Hossain Akram |
| TPI-044 | Microstrip transmission line radiofrequency coil combining positron emission tomography (PET) detector for a 7 Tesla magnetic resonance imaging (MRI) system   | NIRS, QST  | Md Shahadat Hossain Akram |

### Radiation Measurement

17:00~17:40 Chairperson Hiroaki Hayashi (Kanazawa University)  
Shinnosuke Matsumoto (Tokyo Metropolitan University)

|         |   |   |                  |
|---------|---|---|------------------|
| TPI-045 | Estimation of absorbed dose to testis during CT examination   | Tokyo Medical University Ibaraki Medical Center | Masato Takanashi |
| TPI-046 | A novel analysis method of surface dose taking into account the incident angle of X-rays during a helical scanning CT examination | Kobe Tokiwa University                          | Sota Goto        |
| TPI-047 | Improvement of crystal identification accuracy for depth-of-interaction detector system with peak-to-charge discrimination method | NHO Hokkaido Cancer Center                      | Kento Miyata     |
| TPI-048 | Verification of basic characteristics to fabricate flexible detectors using a 3D printer  | Fujita Health University                        | Yuri Fukuta      |

### Radiation Protection

17:50~18:30 Chairperson Yohei Inaba (Tohoku University)  
Yusuke Koba (NIRS, QST)

|         |   |   |                      |
|---------|---|---|----------------------|
| TPI-049 | Optimization of male gonad dose in abdominal X-ray imaging: A phantom study                                       | International Islamic University Malaysia, Malaysia | Inayatullah S. Sayed |
| TPI-050 | The study on shielding methods to reduce dose to the breast, thyroid, and lungs during chest lateral radiography  | Samsung Medical Center, Korea                       | Young Cheol Joo      |
| TPI-051 | Korean national CT diagnostic reference levels update using national dose index registry system                   | Daegu Health College, Korea                         | Jungsu Kim           |
| TPI-052 | A study on methods for reducing radiation dose to the breast, thyroid, and lungs during lateral chest radiography | Hanyang University Hospital, Korea                  | Soo Jin Lee          |

**April 13 (Sat.) 502**

### X-ray: Technique & Analysis

8:00~8:50 Chairperson Takeshi Takaki (Junshin Gakuen University)  
Hiraku Kawamura (Gunma Prefectural College of Health Sciences)

|         |  |  |                 |
|---------|--|--|-----------------|
| TPI-053 | Suitability of high tube voltage imaging for general radiography when using energy resolving photon counting detectors                         | Kanazawa University                              | Rina Nishigami  |
| TPI-054 | A correction method for image blurring to derive accurate quantitative material information using an energy resolving photon counting detector | Kanazawa University                              | Daiki Kobayashi |
| TPI-055 | Image quality and dose criterion conformity analysis for evaluating utility of Scattered radiation removal processing on mobile X-ray machine  | Shingu College of Seongnam, Korea                | Ha-yeon Kim     |
| TPI-056 | Evaluation of usefulness of customized shielding plate in posteroanterior chest radiography for pregnant women                                 | Kyung-Hee University Hospital at Gangdong, Korea | Chang-Hyun Lee  |
| TPI-057 | Investigation of optimal irradiation time in chest digital radiography: A virtual imaging trial  | Kinan hospital                                   | Jun Yamasaki    |

**Proton Therapy**

9:00~9:50    Chairperson    Toshiyuki Ogata (Kyoto Prefectural University of Medicine)  
Hidenobu Tachibana (National Cancer Center Hospital  
East)

- TPI-058    Dosimetric comparison of planning methods in robustly optimized stereotactic body proton therapy for lung cancer considering  
interplay effects and setup uncertainty    Shonan Kamakura General Hospital    Akihiro Yamano
- TPI-059    Dosimetric effect of uterine and ovarian doses in craniospinal irradiation using VMAT and SFUD depending on the bowel and  
bladder volumes    Juntendo University    Eiichi Maehara
- TPI-060    Dose perturbations from gold marker in scanning proton therapy    The University of Aichi    Shiyu Hori
- TPI-061    Perturbation correction factors for semiflex-type ionization chambers in proton beams using Monte Carlo simulation PHITS  
Fujita Health University    Hiromu Ooe
- TPI-062    3D prompt gamma imaging in a dual-head multi-slit system for proton beam range monitoring  
Tsinghua University, China    Bo Zhao

**Biophysics**

10:00~10:30    Chairperson    Kohei Sasaki (Hokkaido University of Science)  
Akihiro Takemura (Kanazawa University)

- TPI-063    Assessing tumor volume changes varying the dose delivery time using a novel mathematical model in stereotactic body radiation  
therapy for non-small cell lung cancer    Niigata University Medical and Dental Hospital    Hisashi Nakano
- TPI-064    The unique expression of non-coding microRNAs in radioresistant fraction of acute promyelocytic leukemia HL60 cell  
Hirosaki University    Kazuma Honda
- TPI-065    Development of a robust predictive model for time variant trajectories of tumor growth in lung cancer patients treated with TKI  
Kyushu University    Naoya Fuchiwaki

**Photon Therapy: Dose Calculation & Evaluation**

10:40~11:30    Chairperson    Yoshitomo Ishihara (Japanese Red Cross Wakayama  
Medical Center)  
Kenichi Ito (Tochigi Cancer Center)

- TPI-066    Evaluation of the utility of CT image reconstruction using deep learning for treatment planning  
The University of Aichi    Yuri Kasugai
- TPI-067    Pioneering change in radiotherapy: The transition to biological adaptive radiotherapy (BART)  
Hiroshima University    Daisuke Kawahara
- TPI-068    Comparison of physical and biological dose optimization in dose accumulation with deformable image registration  
Fujita Health University    Sota Tagawa
- TPI-069    Physical and biological treatment plan evaluation of IMRT in the treatment of brain cancer  
Gono University, Bangladesh    Sujan Mahamud
- TPI-070    Tips for effective use in gEUD optimization objective while avoiding dose leverage effect: A case study for brain metastasis  
stereotactic radiotherapy    Kansai Medical University    Yusuke Anetai

**Photon Therapy: IGRT & Dynamic Tumor Tracking**

14:10~15:00    Chairperson    Nobutaka Mukumoto (Osaka Metropolitan University)  
Kaoru Ono (Hiroshima Heiwa Clinic)

- TPI-071    Optimizing kV CBCT protocol for the abdomen on Varian Halcyon linear accelerator  
Kaohsiung Municipal Siaogang Hospital, Taiwan    Hung-Te Yang
- TPI-072    Inter-facility comparison of CT number-density conversion tables for Radixact    Shizuoka Cancer Center    Shogo Tsunemine
- TPI-073    Optimizing patient and target position setup depending on respiration using MVCT  
Japanese Red Cross Medical Center    Daiki Maruyama
- TPI-074    Can synchrony eliminate the effects of setup errors?    Cancer Institute Hospital of JFCR    Satoko Saotome
- TPI-075    Estimation of three-dimensional target positions from a single direction using orthogonal kV X-ray imaging subsystems for  
markerless tumor tracking    Kyoto University    Yukine Shimizu

**Brachytherapy & Others**

15:10~16:00 Chairperson Yuki Otani (Kaizuka City Hospital)  
Takashi Hanada (Keio University)

- TPI-076 High dose rate brachytherapy for cervical cancer using an artificial neural network  
University of Rajshahi, Bangladesh Md. Alamgir Hossain
- TPI-077 Gamma photon imaging in water for the quality assurance of high-dose-rate brachytherapy Nagoya University Katsunori Yogo
- TPI-078 Characteristic evaluation of next generation scintillator dose distribution detector for patient QA and machine QA  
The University of Tokyo Hospital Takeshi Ohta
- TPI-079 Improvement of body surface monitoring accuracy by installing multiple infrared depth cameras  
Fujita Health University Ryoma Tomoda
- TPI-080 Development of the End-to-End phantom for comprehensive coordinate coincidence in multiple image guidance including infrared depth camera  
Fujita Health University Rino Ota

**Image Informatics: Processing**

16:10~17:10 Chairperson Hiroyuki Sugimori (Hokkaido University)  
Akihiro Haga (Tokushima University)

- TPI-081 Performance evaluation of ResNet model for noise reduction according to Gaussian noise level in nuclear medicine images  
Eulji University, Korea Min-Gwan Lee
- TPI-082 A workflow for training DenseNet to reduce image noise in thin-sliced coronary artery calcium scans  
Kaohsiung Medical University, Taiwan Ching-Ching Yang
- TPI-083 Uncertainty-based mixture of a deep image prior and an original reconstructed images in PET  
Hamamatsu Photonics K.K. Fumio Hashimoto
- TPI-084 Iterative CT reconstruction with diffusion model  
Hirosaki University Sho Ozaki
- TPI-085 A generative adversarial network based on Swin Transformer for reducing streak artifacts in sparse-view micro-computed tomography  
Chiba University Takayuki Okamoto
- TPI-086 Multi-modal learning from paired images: Feasibility study for super high-resolution model using DEXA and general radiographic images  
The Graduate School of Dongseo University, Korea Hyejin Jo

**April 14 (Sun.) 502**

**CT: Dose & Analysis**

8:00~8:50 Chairperson Takanori Masuda (Kawasaki University of Medical Welfare)  
Shohei Kudomi (Yamaguchi University Hospital)

- TPI-087 Convenient procedure to determine a dose reduction factor of the collar-type thyroid shield used for the chest CT examination  
Yamaguchi University Hospital Kazuki Takegami
- TPI-088 Discrimination of non-metal dental material using photon counting CT toward identifying human remains  
Okayama University Hospital Takashi Asahara
- TPI-089 A novel evaluation procedure of X-ray shielding ability by estimating X-ray incident direction during helical CT examination  
Kanazawa University Tatsuya Maeda
- TPI-090 Study of various image reconstruction method on temperature resolution in CT-based thermometry  
Kitasato University Shinya Mizukami
- TPI-091 Assessing superior vena caval obstruction syndrome: a comparative study of variable speed injection contrast enhanced CT-venography with DSA  
Xi'an People's Hospital(The No.4 Hospital), China Xuanzi Wang