

## 【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  
Noriyuki Kadoya

- ★ 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  
Jun'ichi Kotoku

- ★ 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  
Shuichi Ozawa

- ★ 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  
Hidetaka Arimura

- ★ 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  
Chulalongkorn University, Thailand Wichasa Sukumwattana
- ★ TPI-019. Recurrence prediction after radiation treatment in patients with esophageal squamous cell carcinoma using CT-based radiomics  
Chulalongkorn University, Thailand Thanakrit Chanchayanon
- ★ TPI-020. Novel radiomics/dosimetrics-based treatment failure prediction for pharyngeal cancer patients  
Teikyo University Hidemi Kamezawa
- ★ TPI-021. Prognostic models for distant metastasis based on delta-radiomics features in patients with pancreatic carcinoma  
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  
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  
Kyushu University Takuto Fukano

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April 12 (Fri.) 502

## Nuclear Medicine: Performance Evaluation

8:00–8:40

Chairperson: Kohei Hanaoka  
Keisuke Tsuda

- ★ TPI-024. Feasibility of dual-time-point parametric imaging using dynamic  $^{68}\text{Ga}$ -prostate specific membrane antigen-11 ( $^{68}\text{Ga}$ -PSMA-11) PET/CT in prostate cancer patients  
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  
QST Go Akamatsu
- ★ TPI-026. First demonstration of "Scratch-PET" for intraoperative PET with a hand-held probe-type detector  
Chiba University Taiyo Ishikawa

- ★ TPI-027. Imaging simulation of a next-version hemispherical brain PET powered by a novel DOI/TOF detector

QST Kurumi Narita

### Nuclear Medicine: Simulation & Others

8:50–9:30

Chairperson: Koichi Okuda  
Naotoshi Fujita

- ★ TPI-028. Feasibility of Iodine-124 for positronium lifetime measurement with TOF-PET detectors

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

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

QST Taiga Yamaya

- ★ TPI-031. Intra-tumoral biological washout-rate distribution in range-verification PET: a preliminary rat study with a  $^{12}\text{C}$ -beam

QST Chie Toramatsu

### Particle Therapy: Cardiac Implantable Electronic Device

9:40–10:10

Chairperson: Hiroaki Matsubara  
Takayuki Kanai

- ★ TPI-032. Energy dependency on soft errors occurrence in carbon ion radiotherapy

Gunma University Shogo Shimizu

- ★ TPI-033. Impact of treatment planning on soft error risk in carbon ion radiotherapy

Gunma University Heavy Ion Medical Center Makoto Sakai

- ★ TPI-034. Measuring the number of soft errors during proton and carbon ion radiotherapy

Gunma University Reika Imazu

### Particle Therapy: Imaging & Dosimetric Evaluation

10:20–11:10

Chairperson: Naonori Hu  
Satoshi Nakamura

- ★ TPI-035. A preliminary report of the first clinical study of OpenPET: in-beam range verification for carbon ion therapy

QST Hideaki Tashima

- ★ TPI-036. Additive manufacturing technology in fabricating dosimetry phantoms for synchrotron radiation therapy

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

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  
Yuki Kanazawa**

- ★ 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  
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  
QST Md Shahadat Hossain Akram

**Radiation Measurement**

17:00–17:40

**Chairperson: Hiroaki Hayashi  
Shinnosuke Matsumoto**

- ★ 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  
Yusuke Koba**

- ★ 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  
Hiraku Kawamura**

- ★ 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  
Hidenobu Tachibana**

- ★ 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  
Fujita Health University 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  
Akihiro Takemura**

- ★ 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

Kenichi Ito

- ★ TPI-066. Evaluation of the utility of CT image reconstruction using deep learning for treatment planning  
Fujita Health University      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

Kaoru Ono

- ★ 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

Takashi Hanada

- ★ 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  
Akihiro Haga

- ★ 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

Dongseo University, Korea

Hyejin Jo

April 14 (Sun.) 502

### CT: Dose & Analysis

8:00–8:50

Chairperson: Takanori Masuda  
Syohhei Kudomi

- ★ 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