

【JSRT-JSMP Joint International Conference on Radiological Physics and Technology (ICRPT) Oral】

April 13 (Thu.) 502

Radiomics

13:30-14:20

Chairperson: Akihiro Takemura
Satoru Utsunomiya

- ★ TPI-001 Topological Imaging Signatures with Tumor Volumes for Prediction of Distant Metastasis after Stereotactic Ablative Radiotherapy for Patients with Stage I Non-small Cell Lung Cancer
Kyushu University Takumi Kodama
- ★ TPI-002 Development of Radiomics-based Deformable Image Registration Algorithm
Iwate Medical University School of Medicine Yoshiro Ieko
- ★ TPI-003 Computed Tomography-based Radiomics for Classifying Neurological Prognosis of Cardiac Arrest Patients
Hokkaido University Takahiro Nakamoto
- ★ TPI-004 Investigation of Repeatability of Persistent Homology Features for Patients with Lung Cancer Based on Computed Tomography Images
Ho Chi Minh City Oncology Hospital, Viet Nam Quoc C. Le
- ★ TPI-005 Multi-institutional Radiomics Phantom Study Using on-board Volumetric Images
Kyoto University Takanori Adachi

Radiation Protection

14:30-15:20

Chairperson: Yasutaka Takei
Keiichi Akahane

- ★ TPI-006 Findings for Manufacturing Novel X-ray Shields Having Elasticity
Kanazawa University Tatsuya Maeda
- ★ TPI-007 A Study on Changes in Exposure Dose through Development of Bismuth Shielding during Pediatric General Radiography Examination
Hanseu University, Korea Beom Chan Park
- ★ TPI-008 Scattered Dose Rate Distribution and Eye Lens Doses of Physicians in over-couch X-ray Tube Geometry: Effect of Radioprotective Curtain Length
Kanazawa University Kosuke Matsubara
- ★ TPI-009 A Study on the Calculation of Entrance Surface Dose from Exposure Index as per IEC in Mobile Chest Radiography
The Graduate School of Dongseo University, Korea Hyejin Jo
- ★ TPI-010 Proposal of New Effective Dose Conversion Factor Using SSDE Obtained from Dose Index Resistry
Tokyo Medical University Ibaraki Medical Center Masato Takanashi

Image Informatics: Classification

15:30-16:20

Chairperson: Chisako Muramatsu
Taiki Magome

- ★ TPI-011 Production of X-ray Image Classification Software Using Convolutional Neural Network And Usability Assessment
Shingu College, Korea Yu-Jeong Lee
- ★ TPI-012 Deep Learning Based Gender Classification of Panoramic Dental X-ray
Chonnam National University, Korea Seung-Min Hwang

- ★ TPI-013 Pilot Study for Deep Learning-based Automatic Classification of Sphenoid Sinus among Head Post-mortem Computed Tomography Images in Drowning Victims
Busan Institute, National Forensic Service, Korea Jin-Haeng Heo
- ★ TPI-014 Preliminary Study on the Classification of Atrial Fibrillation Types Using Deep Learning Models with Attention Mechanism - Comparison of Vision Transformer and CNN Model-
Fujita Health University Hina Kotani
- ★ TPI-015 Deep Learning Based Nuclear Lung Test Classification Model
Shingu University, Korea Min Ju Kim

Treatment Planning Computed Tomography

16:30-17:20

Chairperson: Noriyuki Kadoya
Yoshitomo Ishihara

- ★ TPI-017 Dosimetric Impact of Combined 4D-CT Ventilation and SPECT Perfusion Image-guided Treatment Planning for Lung Cancer
Komazawa University Graduate School Genta Michimata
- ★ TPI-018 Characterization of a New X-ray Computed Tomography Polymer Gel Dosimeter
National Cancer Center Hospital East Hidenobu Tachibana
- ★ TPI-019 Comparison between Planning CT Image and Dose Distribution Signatures for Prediction of Radiation-induced Pneumonitis in Patients with Non-small Cell Lung Cancer before Stereotactic Ablative Radiotherapy
Kyushu University Junya Eda
- ★ TPI-020 Determination of Initial Parameters of Stoichiometric CT Calibration MVCT Model
Hiroshima University Shogo Tsunemine

Photon Dosimetry and Electron Irradiation Technique

17:30-18:20

Chairperson: Motoharu Sasaki
Chie Kurokawa

- ★ TPI-021 Evaluation of Beam Matching Accuracy Comparison for Same Model Linear Accelerator
Choonhae College of Health Sciences, Korea Yonlae Kim
- ★ TPI-022 Investigation of Properties Related to BeO-based OSL Dosimeter Sensitivity in High-energy Photon Beam
Kanazawa University Miku Ando
- ★ TPI-023 Investigation of High Precision of Electron Beam Convergence under Low Vacuum and Practicality of Decompression Chamber for Electron Beam Scanning Irradiation
Tokyo Metropolitan University Yuma Hayashi
- ★ TPI-024 Design, Fabrication and Validation of 3D Printed Specific End Term Applicator for Electron Radiation Therapy
Labaid Cancer Hospital and Super Speciality Center, Bangladesh Md Jobairul Islam
- ★ TPI-025 Study on Convergence Control and Convergence Distance of Electron Beam Using Multiple Solenoids
Tokyo Metropolitan University Ryo Nishida

April 14 (Fri.) 502

Image Informatics: Segmentation

8:00-8:40

Chairperson: Haruyuki Watanabe
Noriyuki Kadoya

- ★ TPI-026 Two-stage X-ray-based Segmentation of Hip Joint Space Using Deep Learning
Hokkaido University Haolin Wang
- ★ TPI-027 Novel Segmentation Model for Well-differentiated Hepatocellular Carcinoma Regions Using

Dense V-net with Three Phase Images of Dynamic Contrast-enhanced CT

Saga University Hospital Noriyuki Nagami

- ★ TPI-028 Development of an Accurate and Rapid Auto-segmentation Method for Alveolar Bone and Teeth Using Virtual Cone-beam Computed Tomography and Artificial Intelligence Technology

Tokushima University Atsushi Takeya

- ★ TPI-029 Rheumatoid Arthritis Synovitis Segmentation Based on Unsupervised Learning and Time-intensity Curve Signal Data on Dynamic Contrast Enhanced MRI

Hokkaido University Yijun Mao

Image Informatics: Detection

8:50-9:30

Chairperson: Rie Tanaka

Jun'ichi Kotoku

- ★ TPI-030 Ensemble Detection Scheme of Pneumonia from Chest X-ray Images Using Multiple Convolution Neural Networks

Fujita Health University Amase Ito

- ★ TPI-031 Improving Calcified Lesion Detection in Coronary Artery Calcium Scan by Using DenseNet: a Phantom Study

Kaohsiung Medical University, Taiwan Ching-Ching Yang

- ★ TPI-032 The Implementation of Automated Intracerebral Hemorrhage Detection and Radiology Report Using Deep Learning

Chang Gung University, Taiwan Yu-Pei Wang

- ★ TPI-033 A State-of-the-art Python Model for Breast Cancer Detection

Gono Bishwabidyalay, Bangladesh Afroja Nahida

Nuclear Medicine-1: Performance Evaluation

9:40-10:20

Chairperson: Kohei Hanaoka

Hideaki Tashima

- ★ TPI-034 Evaluation of the Partial Volume Effects Using Small-sphere Phantom in PET/CT System

Iwate Medical University Toshiaki Sasaki

- ★ TPI-035 Performance Evaluation of Body-contouring Scan in Lu-177 SPECT/CT with Ring-shaped Whole-body CZT-camera

Osaka University Hospital Hidetaka Sasaki

- ★ TPI-036 Imaging Performance of a Brain-dedicated Hemispherical PET over Whole-body Cylindrical Scanners

QST Go Akamatsu

- ★ TPI-037 Tracking the Same Fast-LGSO Crystals by Changing Surface Treatments for Faster Timing Resolution in PET

QST Miho Kiyokawa

Nuclear Medicine-2: Simulation and Others

10:30-11:10

Chairperson: Koichi Okuda

Keisuke Tsuda

- ★ TPI-038 A Monte Carlo Simulation Study of Performance Evaluation for Sensitivity and Scatter Fraction in Gamma Camera Scintigraphy with TlBr Pixelated Semiconductor Detector Using Various Parallel-hole Collimator Designs

Eulji University, Korea Chanrok Park

- ★ TPI-039 Potential of 909 keV Compton Imaging Outperforming PET in ⁸⁹Zr Measurement with Si/LGSO WGI: a Simulation Study

QST Hideaki Tashima

- ★ TPI-040 Comparison of Kinetics of the Produced Positron Emitters after Carbon Beam Irradiation and That of the MRI Contrast Agents in Rat Tumor
QST Chie Toramatsu
- ★ TPI-041 Positronium Lifetime Measurement in Stable Radical Aqueous Solutions for Dose Estimation in Radiotherapy
QST Sodai Takyu

Image Informatics: Image Processing

15:30-16:20

Chairperson: Yoshikazu Uchiyama
Takeyuki Hashimoto

- ★ TPI-042 Development of a Deep Learning-based Bone Suppression Technique for Pediatric Dynamic Chest Radiography Using Virtual Patients
Kanazawa University Futa Goshima
- ★ TPI-043 Tube Deletion in Chest Radiograph Using Cycle Generative Adversarial Networks
Fujita Health University Supanuch Patipipittana
- ★ TPI-044 Development of Super-resolution for Brain MRI Images
National Taiwan University, Taiwan Qian Hua Wu
- ★ TPI-045 Deep Learning Technology for Age Estimation Based on Selected Tooth Condition Using Dental Radiography
Chonnam National University, Korea Jung-Woo Yun
- ★ TPI-046 Dental Estimation Age Using Darknet-19 Based on Dental X-ray Panoramic Images
Chonnam National University, Korea Jihyeong Ko

MR: Analysis and Technique

16:30-17:20

Chairperson: Yasuo Takatsu
Koya Fujimoto

- ★ TPI-047 Quantifying Regional Cerebral Blood Flow Using Motion-compensated Diffusion Imaging with Phase-contrast (mDIP)
Kanazawa University Naoki Ohno
- ★ TPI-048 Evaluation of Submillimeter Non-rigid Registration for Diffusion Tensor Imaging Distortion Using CT Images
The Miyagi National Hospital Tetsuya Kitazawa
- ★ TPI-049 Altered Functional Connectivity and Structural Connectivity in Patients with Focal Epilepsy Using Resting-state Functional MRI and Diffusion MRI
Chang Gung University, Taiwan En-Chi Tsui
- ★ TPI-050 Optimization of Median Modified Wiener Filter for Improving Cerebrospinal Fluid Segmentation Performance in Brain MR Image: A Simulation Study
Gachon University, Korea Sewon Lim
- ★ TPI-051 MR Spectroscopy-based Metabolite Ratio Analysis of MRI Images for Metastatic Lesion
University of Rajshahi, Bangladesh Alamgir Hossain

Particle: Dosimetry and Monte Carlo Simulation

17:30-18:20

Chairperson: Chang Weishan
Shinnosuke Matsumoto

- ★ TPI-052 Investigation of Response Characteristics of Radiophotoluminescence Dosimeter in Intensity-modulated Proton Therapy
Fujita Health University Miuna Hayashi
- ★ TPI-053 Simulation Evaluation of Range-estimation Uncertainty for Therapeutic Carbon-ion Beams by Measuring Secondary Electron Bremsstrahlung with a Large-pinhole X-ray Camera
Gunma University Michiko Tsuda

- ★ TPI-054 Monte Carlo Calculation of Perturbation Correction Factor for Stem in Micro Ionization Chamber in Proton Beam
Fujita Health University Kaito Iwase
- ★ TPI-055 Measurement of the Nuclear Reaction Cross Sections of Positron-emitting Nuclides Using the Annihilation Gamma-ray Detection System nBOLPs
Osaka University Masaki Kato
- ★ TPI-056 Monte Carlo Calculations of Chamber-specific Perturbation Correction Factors for Several Ionization Chamber Types in Carbon-ion Beams
Tokyo Metropolitan University Yuka Urago

April 15 (Sat.) 502

Irradiation and Treatment Planning Technique

8:00-8:50

Chairperson: Kaoru Ono
Shuichi Ozawa

- ★ TPI-057 Robust Beam Delivery with Jaw Margin Expansion in Small Field Linac-based Stereotactic Radiosurgery
Keio University School of Medicine Kohei Oguma
- ★ TPI-058 Optimal Setting of Virtual Bolus Method for Breast Cancer Treated with Volumetric Modulated Arc Therapy
The University of Tokyo Takumi Sakamoto
- ★ TPI-059 Evaluation of Dose Dividing Ratio in a Hybrid Volumetric Modulated Arc Therapy Plan for Non-small Cell Lung Cancer
Juntendo University Kenta Suga
- ★ TPI-060 Fundamental Evaluation of Brass Mesh Bolus in Photon Beam Therapy
Fujita Health University Honoka Inagaki
- ★ TPI-061 What is the Optimal Isodose Line for Stereotactic Radiotherapy for Brain Metastases Using HyperArc?
Osaka International Cancer Institute Tomohiro Sagawa

Quality Assurance and Quality Control

9:00-9:50

Chairperson: Naoki Kinoshita
Naoki Hayashi

- ★ TPI-062 Using Monte Carlo to Simulate Radioactive Materials, Ambient Dose Equivalent H(10) in Linacs Room in FF and FFF Mode
Kyushu University Soai Dang Quoc
- ★ TPI-063 A Study on Lifetime Prediction Using Linear Regression Analysis of Diode Electron Gun for a Linear Accelerator
Osaka Metropolitan University Hospital Tomohiro Sahara
- ★ TPI-064 Prediction of Vertebral Compression Fracture after Stereotactic Body Radiation Therapy for Spinal Metastases Using Radiomic and Dosiomic Features
Komazawa University Syoma Ide
- ★ TPI-065 Generating Fully Random Prediction Results of Patient-specific Quality Assurance
Hiroshima University Hospital Akito Saito
- ★ TPI-066 Prediction of Tumor Growth Trajectories in Patients with Stage I Non-Small Cell Lung Cancer Receiving Stereotactic Body Radio Therapy
Kyushu University Kazuki Mitsushima

Detector

10:00-10:50

Chairperson: Yusuke Oribe
Keisuke Maehata

- ★ TPI-067 A Novel Function for Wearable Dosimeters: to Determine Both Incident Direction and Absolute Dose of X-rays during IVR Procedure
Kanazawa University Takashi Asahara
- ★ TPI-068 Performance Evaluation Standards for Medical Compton Imaging Systems
QST Go Akamatsu
- ★ TPI-069 Application of a Standard Performance Evaluation Method for a Cost-effective Compton Camera Using High-sensitive Inorganic Scintillators
QST Mitsutaka Yamaguchi
- ★ TPI-071 Simulation Study of a Deep-Learning Based Position-Sensitive Forceps-type Coincidence Detector
QST Ryotaro Ohashi

Particle: Treatment Planning Technique

14:10-14:50

Chairperson: Hideyuki Mizuno
Akihiko Matsumura

- ★ TPI-072 Robustness Evaluation of Mean Liver Dose in Proton Therapy under Various Fractionation Scheme and Fraction-specific Random Setup Error
Hokkaido University Koki Kasamatsu
- ★ TPI-073 Evaluation of the Proton Transport Algorithm in Monte Carlo Code PHITS by Fano Test
Fujita Health University Yuya Nagake
- ★ TPI-074 Development of a DNA Damages Repair Model Considered Alternative Non-homologous End Joining
Osaka University Hikaru Yamaguchi
- ★ TPI-075 Spatial Resolution of Compton Camera in BNC Reaction Imaging
Gunma University Makoto Sakai

Particle: Evaluation of Implanted Electronic Device

15:00-15:40

Chairperson: Taku Inaniwa
Taeko Matsuura

- ★ TPI-076 Evaluation of Air Quality in the Radiation Therapy Room
Hanseu University, Korea Kim Dae hyun
- ★ TPI-077 Tolerable Doses of Electronic Devices in Radiation Therapy
Gunma University Hospital Masami Miyajima
- ★ TPI-078 Evaluation of Electronic Device Soft Errors in Heavy Ion Therapy Using a Human Phantom
Gunma University Hospital Hiroaki Masuda
- ★ TPI-079 Contribution Evaluation of Secondary Particles to Soft Errors in Carbon Ion Radiotherapy
Gunma University Yudai Kawakami

Dosimetric Evaluation and Biophysics

15:50-16:30

Chairperson: Masataka Oita
Hiroyuki Okamoto

- ★ TPI-080 Investigation of Longitudinal Magnetic Field Effects on OH Radical
Osaka University Akiho Owada
- ★ TPI-081 Impact of Cherenkov Light Correction Methods and Small-field Effects on the Plastic Scintillation Detector
Komagome Hospital Yu Arai

- ★ TPI-082 Evaluation of the Dosimetric Effect of Interfractional Motion Associated with a High-fluence Beam in a Low-density Area of the Planning Target Volume Using Intensity-modulated Radiation Therapy
Juntendo University Hiroto Adachi
- ★ TPI-083 High-Dose-Rate Brachytherapy for Cervical Cancer: The Effect of Total Reference Air Kerma on the Results of Single-Channel and Tri-Channel Applicators
University of Rajshahi, Bangladesh Alamgir Hossain

X-ray-2: Technique

16:40-17:30

Chairperson: Shinichiro Hirose
Nao Ichikawa

- ★ TPI-084 Cone-beam CT Hepatic Arteriography Image Comparative Evaluation According to the Dilution Ratio of Contrast Agent during Transarterial Chemoembolization
Seoul National University Bundang Hospital, Korea Changjoo Park
- ★ TPI-085 A Study on Image Quality and Dose Evolution According to Exposure Conditions in Ribs X-ray Imaging of Pediatric Patients
Hanseu University, Korea Ho-jun Choi
- ★ TPI-086 Development and Performance Evaluation of Improved X-ray Detector System for Whole Body Scanography Based on CsI Material
General Graduate School of Gachon University, Korea Minji Park
- ★ TPI-087 Development and Usefulness Evaluation of Auxiliary Device for Weight Bearing Radiography
Choonhae College of Health Sciences, Korea Junsik Oh
- ★ TPI-088 Using System Simulation Software Flexsim to Improve the Workflow Line-Taking the Radiology Department of a Hospital in Hsinchu, Taiwan as An Example
The University of Hsinchu, Taiwan Shih-Wei Tseng

April 16 (Sun.) 502

X-ray-1: Analysis

8:00-8:40

Chairperson: Takeshi Takaki
Kuniyuki Hidaka

- ★ TPI-089 A Correction Method for Object Edge Blurring That is Effective for Quantitative Analysis Using Photon Counting Imaging
Kanazawa University Daiki Kobayashi
- ★ TPI-090 Suitability of High-Tube-Voltage Imaging When Using Energy Resolving Photon Counting Detector (ERPCD): Simulation Study
Kanazawa University Rina Nishigami
- ★ TPI-091 A Study on Clinical Exposure Index Using Actual Clinical Data of Mobile Chest Radiography in University Hospital of Korea
Dongseo University, Korea Hyemin Park
- ★ TPI-092 Detection Performance of Pulmonary Impairments with Dynamic Chest Radiography: a Virtual Imaging Trial
Kanazawa University Shunya Yamaguchi

Radiation Measurement

8:50-9:30

Chairperson: Hiroki Saito
Hiroyuki Arakawa

- ★ TPI-093 Evaluation of Backscatter Factor by an Anthropomorphic Phantom for Pediatric in General Radiography
Fujita Health University Thanakrit Suebboonprathueng
- ★ TPI-094 Effect of Patient Position on Radiation Dose in Chest Lateral Radiography with AEC Mode

Hanseu University, Korea Seung Uk Kim

★ TPI-095 Analysis of Adjacent Organs Exposure Doses in X-ray Guided Stereostatic Breast Biopsy 2D Procedure and 3D Procedure

Samsung Medical Center, Korea Beeeun Lee

★ TPI-096 Feasibility Study of Optical Observation of the Boron Dose Distribution as a Quality Assurance Tool for Boron Neutron Capture Therapy

Kyushu University Hideya Maeda

CT-1: Analysis

9:40-10:20

Chairperson: Takanori Masuda

Shohei Kudomi

★ TPI-097 Quantitative Measurement of Small Pulmonary Vessel Volume to Evaluate Right Ventricular Function in Patients with Acute Pulmonary Embolism

General Hospital of Ningxia Medical University, China Yifan Wang

★ TPI-098 Verification of CT Contrast Enhancement Effect by a Systemic Circulating Vascular Phantom

Kitasato University Tatsuya Todoroki

★ TPI-099 Study of Noise Reduction Effect on Temperature Resolution in CT-based Thermometry

Kitasato University Shinya Mizukami

★ TPI-100 Spectral Imaging Performance Evaluation for a Prototype Full-size Photon Counting CT System at Clinical Dose Levels

Canon Medical Research, USA Xiaohui Zhan

CT-2: Dose and Technique

10:30-11:10

Chairperson: Katsuhiro Ichikawa

Hiraku Kawamura

★ TPI-101 Establishment of National Diagnostic Reference Levels and Achievable Doses for CT Protocols in Korea

Daegu Health College, Korea Jaesung Kim

★ TPI-102 Thyroid Dose Reduction Related to the Overranging Effect by Using a Novel Sponge-type Shield during High-pitch Chest CT Examination

Kanazawa University Kazuki Takegami

★ TPI-103 Quantitative Image Quality Comparison between Normal Resolution and Super High Resolution Modes of a Clinical Prototype Photon Counting CT System

Canon Medical Research USA Inc., USA Ruoqiao Zhang

★ TPI-104 Estimating the Artifact Correction Integrity of MAR in Different Density of Metal Tooth Prosthesis

Chang Gung Memorial Hospital, Taiwan Yin-Chun Lin

Image Informatics: Reconstruction

11:20-12:00

Chairperson: Ikuo Kawashita
Akihiro Haga

- ★ TPI-105 Iterative CT Reconstruction with Deep Neural Networks
Hirosaki University Sho Ozaki
- ★ TPI-106 Subject-specific Deep Learning Reconstruction for Fast Free-breathing Cardiac Perfusion MRI
University of Minnesota, USA Mehmet Akcakaya
- ★ TPI-107 Development of a Method for Improvement of SPECT Images Reconstructed from Sparse Projection Data by Deep Learning Technique
Hiroshima International University Reina Yano
- ★ TPI-108 End-to-end Unsupervised CNN-based PET Image Reconstruction with Relative Difference Penalty
Hamamatsu Photonics K.K. Fumio Hashimoto

Image Informatics: Prediction

14:00-14:40

Chairperson: Atsushi Teramoto
Hidetaka Arimura

- ★ TPI-109 A Study on a Predictive Model for Renal Stone Diagnosis Based on Artificial Neural Network
Gimcheon University, Korea. Jang Hye-won
- ★ TPI-110 Automated Response Prediction of the Extracorporeal Shock Wave Lithotripsy Using Abdominal CT Images
Fujita Health University Yuta Suganuma
- ★ TPI-111 Prognoses Prediction of NSCLC Patients with CT Image Features Linked with Gene Expression
Kyushu University Yu Jin
- ★ TPI-112 Artificial Neural Network for Prediction Model of Histological Subtypes for Breast Cancer Using 18F-FDG PET/CT
University of Rajshahi, Bangladesh Alamgir Hossain

Ultrasound

14:50-15:20

Chairperson: Yuhei Wada
Naoyuki Imada

- ★ TPI-113 Application of YOLO-based Deep Learning to Thyroid Ultrasound Imaging
Shingu University, Korea Min Ju Kim
- ★ TPI-114 An End to End Based Computer-aided Diagnosis System for Automatically Quantify the Activity of Rheumatoid Arthritis.
Hokkaido University Yumeng Yan
- ★ TPI-115 Optimization of Window Size for Noise Reduction Filter in Simulated Ultrasound Image
Gachon Universtiy, Korea Hajin Kim