

【General Session】

April 10 (Thu.) 418

Dosimetry (Particle)

11:00–11:30

Chairperson: Akihiro Nohtomi
Keisuke Yasui

- POP-001. Accurate measurement of dose and dose rate for carbon beam FLASH effect research
Gunma University Masao Nakao
- POP-002. Verification of LET dependence of ion recombination correction factor for FLASH monitor
Osaka University Naoki Ishino
- POP-003. Validation of commissioning data for newly released state-of-the-art scanned proton therapy system
Central Japan International Medical Center Masato Horita

Dose Evaluation (Particle-1)

13:00–13:50

Chairperson: Sodai Tanaka
Hikaru Souda

- POP-004. Comparison of CT number to stopping power ratio conversion methods in dose calculation of carbon ion therapy
Osaka Heavy Ion Therapy Center Jun Takeno
- POP-005. Dosimetric evaluation of MR-derived synthetic CT for carbon ion treatment planning
Yamagata University Miyu Ishizawa
- POP-006. Dose evaluation using monte carlo calculations with whole-body patient CT data for retrospective dose analysis in carbon ion radiotherapy
Tokyo Metropolitan University Yuta Hirai
- POP-007. Implementation of MRI-based elemental composition data to Monte Carlo simulation for yielding positron emitters in proton therapy
Niigata University Ryuga Matsumoto
- POP-008. Evaluation of the effect of differences in calculation parameters on LET and lineal energy distribution in proton therapy
Gunma Prefectural College of Health Sciences Kenta Takada

Dose Evaluation (Particle-2)

14:00–14:50

Chairperson: Kenji Hotta
Yuya Azuma

- POP-009. Experimental validation of 4D dynamic dose calculation method to deal with simulated amplitude changes over time in scanned proton therapy
Osaka Proton Therapy Clinic Yuki Tominaga
- POP-010. Evaluating the accuracy of dose calculation in proton therapy using energy absorbers
Fujita Health University Miku Yamamoto
- POP-011. Determination of irradiation dose and measurement time for range verification using PET: toward establishing "pre-irradiation" procedure in proton therapy
Osaka University Jun Nakao
- POP-012. Time-saving proton therapy planning system using diagnostic CT and deformable image registration
Hokkaido University Hospital Keiji Nakazato

POP-013. Beam modeling of the new scanned proton therapy system at Central Japan International Medical Center

Central Japan International Medical Center

Ryo Tanokura

Particle Therapy

15:00–15:50

Chairperson: Hideyuki Mizuno
Yuki Tominaga

POP-014. Conceptualization of ionization dose to water to quantify radiation therapy doses

QST Nobuyuki Kanematsu

POP-015. Initial simulation study on proton beam imaging with flat panel detector

Hokkaido University Ryoya Sakai

POP-016. Dynamic collimation with multi-leaf collimator in scanned proton therapy for liver cancer

Osaka Proton Therapy Clinic Yushi Wakisaka

POP-017. Development and implementation of mesh ripple filter for multi-ion therapy

QST Sodai Tanaka

POP-018. Current status of ultra-high dose-rate (FLASH) research in Japan

Osaka University Shinichi Shimizu

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Brachytherapy

8:00–8:40

Chairperson: Yutaka Takahashi
Ryuta Hirai

POP-019. High dose rate ^{192}Ir brachytherapy source model Monte Carlo dosimetry: mHDR-v2 and mHDR-v2r

Kawasaki Medical School Shuhei Tsuji

POP-020. Study on body movement measurement for confirming internal source position in high dose-rate brachytherapy

Kyushu University Hiroyuki Arakawa

POP-021. Usefulness of CT scans of plastic applicators for HDR brachytherapy QA

University of the Ryukyus Masashi Kinjyo

POP-022. Energy response characteristic of radiophotoluminescence dosimeter to establish the postal audit in brachytherapy

Fujita Health University Maho Morishita

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Dosimetry (Photon)

15:30–16:00

Chairperson: Shuichi Ozawa
Yukio Fujita

POP-023. Underwater measurement of X-rays from linear accelerator using UVC camera

Tokyo Metropolitan University Atsushi Myojoyama

POP-024. On the use of bolus for electron-streaming dose measurements on a 1.5 T MR-Linac and dose reduction superficial in radiotherapy

Chiba University Hospital Ryo Morimoto

POP-025. Impact of updating LINAC and the primary standard on the results of absorbed dose to water calibration

AIST

Yuka Urano

Treatment Planning (Photon)

16:10–17:00

Chairperson: Takeshi Ohta
Sayaka Kihara

POP-026. Quality assessment of radiotherapy treatment plans created by qualified treatment planning support staffs in Intensity Modulated Radiation Therapy in Japan

EuroMediTech Co., Ltd.

Akihisa Wakita

POP-027. Impact of isocenter position and gantry rotation angle on dose distribution in VMAT treatment planning

Kyorin University Hospital

Masato Mizuno

POP-028. Evaluation of AI automated plans for different treatment planning policies of the VMAT for advanced lung cancer

Tohoku University

Takeru Nemoto

POP-029. Evaluation of radiation therapy planning assistant software for postoperative uterine cervical cancer

Kitasato University Hospital

Kyohei Fujii

POP-030. Towards a simulation-less approach to MR image-guided adaptive radiation therapy for prostate cancer

Chiba University Hospital

Yukinao Abe

Dose Evaluation (Photon)

17:10–17:50

Chairperson: Hideki Kojima
Ryohei Miyasaka

POP-031. Development of a rapid independent dose verification system for online adaptive radiation therapy using Monte Carlo simulation.

Hitachi, Ltd.

Shusuke Hirayama

POP-032. Impact of image uniformity of magnetic resonance imaging on three-dimensional dose distribution measurement using a polymer gel dosimeter

National Cancer Center Hospital East

Hidenobu Tachibana

POP-033. Effect of dose rate changes on beam alignment in medical linear accelerators

Tsukuba International University

Yoshiaki Nagai

POP-034. Development of evaluation and verification methods for Y-axis dose distribution in helical tomotherapy

Izumi City General Hospital

Shigeo Anai

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Image Informatics (AI)

10:00–10:50

Chairperson: Takahiro Nakamoto
Daisuke Kawahara

POP-035. Development of a high-precision medical image synthesis model using transformer-enhanced patch-based contrastive learning applicable to unpaired images

Hiroshima University

Jokichi Kawazoe

POP-036. Feasibility study of non-invasive prediction of hypoxic tumor cells based on radiomics analysis

Teikyo University

Hidemi Kamezawa

- POP-037. A novel bias-harmonized and interpretable radiomics-based prognostic prediction model for head and neck cancer patients
Hiroshima University Shogo Aoki
- POP-038. Topological radiomics feature-based classification for histological subtypes of non-small cell lung cancer using dual energy CT
Teikyo University Ryosei Kawashima
- POP-039. Development of a result-intervention system for organ segmentation in CT images using the superpixel method
Kyorin University Koki Iwabuchi

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Medical Information

10:00–10:30

**Chairperson: Takeyuki Hashimoto
Hodaka Numasaki**

- POP-040. Expression of 2-D AKAIKE information criteria and its application to radiation therapy
University of Tsukuba Takeji Sakae
- POP-041. Feasibility of 1-to-N convolutional neural network facial recognition for patient identification in radiation therapy
Sapporo Kojinkai Memorial Hospital Daisuke Tanii
- POP-042. Virtual clinical trial based on recurrence prediction model using virtual data created by modified Mixup in oropharyngeal cancer patients
Komazawa University Kimika Matsuo

Diagnostic CT

10:40–11:50

**Chairperson: Shingo Ohira
Yuhei Koike**

- POP-043. Fundamental evaluation of Deep-Learning based reconstruction CT for radiotherapy treatment planning
Fujita Health University Hospital Yasunori Saito
- POP-044. Verification of correlation between patient body size index and dose index in CT examination
Tokyo Medical University Ibaraki Medical Center Masato Takanashi
- POP-045. Comparison of energy integrated detector CT and photon-counting CT on organ dose
Tokyo Metropolitan University Yuzuki Saito
- POP-046. A Study of photon-counting X-ray computed tomography scanner and its application to iodine K-edge angiography
Iwate Medical University Hospital Yuichi Sato
- POP-047. Embossed X-ray computed tomography scanner using pixel-shifted dual-energy subtraction
Iwate Medical University Eiichi Sato
- POP-048. Iodine K-edge angiography using a beam hardening X-ray CT scanner
Iwate Medical University Eiichi Sato
- POP-049. Exploring the hidden risk of contrast agent-induced radiation dose amplification in SECT and DECT
Hiroshima University Hina Arisawa

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Machine Learning

11:00–11:40

**Chairperson: Keisuke Usui
Yujiro Nakajima**

- POP-050. Estimation of the atomic number of metals by CT metal artifacts using machine learning
Niigata University Kazuki Abe
- POP-051. Development of customized AI model for auto-contouring system
Fujita Health University Hospital Yuya Nagake
- POP-052. Deep learning-based auto-contouring for organs at risk in three-dimensional image-guided brachytherapy for cervical cancer and endometrial cancer
Tohoku University Kirika Takahashi
- POP-053. Improving the accuracy of real-time markerless tumor segmentation on beam's-eye view with patient-specific deep learning using orthogonal X-ray fluoroscopic images
University of Tsukuba Fumiaki Komatsu

Measurement (Instrument)

16:10–17:00

**Chairperson: Yusuke Koba
Yuka Urago**

- POP-054. Feasibility study on real-time dosimetry for particle beams using BaTiO₃ capacitor dosimeter
Hokkaido University Masayori Ishikawa
- POP-055. Verification of dose rate dependence of radiophotoluminescence dosimeter in ultra-high dose irradiation (FLASH)
Fujita Health University Shiryu Otsuka
- POP-056. The fundamental characteristics of VIPET gel dosimeter in proton beam measurement
National Cancer Center Hospital East Ai Nakaoka
- POP-057. Scintillation imaging for measuring dose distribution of proton beams
Nagoya University Ginga Nakahara
- POP-058. LET and dose dependence of Cr, Si, and Mg co-doped Al₂O₃ thermoluminescent plates in proton beam therapy
Tokyo Metropolitan University Ayano Okubo

Measurement

17:10–17:50

**Chairperson: Shunsuke Yonai
Yusuke Watanabe**

- POP-059. Shape imaging and response simulation of small pieces of inorganic neutron scintillator using a micro-CT system
Japan Atomic Energy Agency Akihisa Ishikawa
- POP-060. Fundamental study on the impact of the puncture twist angle of light diffusers on the photon fluence distribution in Photoimmunotherapy
Hokkaido University Kakeru Izumi
- POP-061. Charge collection characteristics of heteroepitaxial diamond solid-state ionization chambers in the diagnostic X-ray region
Tokyo Metropolitan University Ayaka Yamazaki
- POP-062. Development of high-density 2D matrix dosimeter using BaTiO₃ capacitor dosimeter
Hokkaido University Masayori Ishikawa

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Quality Assurance

9:00–9:50

Chairperson: Asumi Mizoguchi
Satoshi Nakamura

- POP-063. Establishing QA program for accelerator-based boron neutron capture therapy system
National Cancer Center Hospital Yusaku Kasai
- POP-064. Development of a practical CTDI measurement method in kV-CT on Tomotherapy
Nagoya University Hospital Shintaro Okumiya
- POP-065. Feasibility study of quality assurance for surface-guided radiation therapy using variable phantoms
Tokyo Metropolitan University Shinnosuke Matsumoto
- POP-066. Development and validation of 2.5D gamma analysis for patient-specific quality assurance of film measurements
Hiroshima High-Precision Radiotherapy Cancer Center Hideharu Miura
- POP-067. Development of a standardized site visit method for Linac output audits through regional collaboration
Hiroshima High-Precision Radiotherapy Cancer Center Shuichi Ozawa

Image Informatics

10:00–11:00

Chairperson: Hidetake Hara
Hidemi Kamezawa

- POP-068. Simulation study on the nonlinearity of regularized weighted least squares image reconstruction
Tokyo Metropolitan University Hiroyuki Shinohara
- POP-069. Feasibility study of a cost-effective system using the perspective-n-point problem towards surface guided radiation therapy
Sapporo Kojinkai Memorial Hospital Daisuke Tanii
- POP-070. Fundamental study of dynamic x-ray elastography for high spatial resolution internal elasticity mapping
Tohoku University Chika Kamezawa
- POP-071. Development of a mobile patient monitoring system using RGB and depth cameras during radiation therapy irradiation
Chiba University Hospital Koichi Hanada
- POP-072. Analysis of inter-fractional anatomical changes of pelvic organs using deformable image registration in prostate proton therapy
University of Tsukuba Shuto Uematsu
- POP-073. Feasibility of a novel chest and abdomen anthropomorphic phantom for PET exams
Tsukuba International University Hiroaki Sagara

Radiation Biology

11:10–12:00

Chairperson: Yukari Yoshida
Yoshiyuki Hirano

- POP-074. Development of spheroid growth evaluation system and mathematical model to investigate the efficacy of radiation therapy
QST Koki Kasamatsu
- POP-075. Effects of intra-tumoral cellular heterogeneity of oxygen partial pressure on biological effectiveness of hydrogen-, helium-, carbon-, oxygen-, and neon-ion beams
QST Taku Inaniwa

POP-076. Study of LQ-model parameter of carbon ion therapy for prostate cancer

Osaka University

Tatsuaki Kanai

POP-077. Evaluation of the impact of both RBE and range variation on biological dose distribution in proton therapy for pancreatic cancer

Hokkaido University

Yusuke Ono

POP-078. Development of a modified LET-TCP model for carbon ion radiation therapy of head and neck adenoid cystic carcinoma

International University of Health and Welfare

Daisuke Kondo