

【Joint Sessions for Japan Radiology Congress】

Opening Ceremony

- Opening Ceremony: April 15 (Fri.) 13:00–14:30 (Main Hall)

Performance: Ensemble Dunamiz

Keynote lecture

President: Nagara Tamaki (Hokkaido University)
The 75th Annual Meeting of the Japan Radiological Society (JRS)

Conference President: Akio Ogura (Gunma Prefectural College of Health Sciences)
The 72nd Annual Scientific Congress of the Japanese Society of Radiological
Technology (JSRT)

Congress Chair: Fujio Araki (Kumamoto University)
The 111th Scientific Meeting of the Japan Society of Medical Physics (JSMP)

Chairman: Kenichi Komatsu
Japan Medical Imaging and Radiological Systems Industries Association (JIRA)

Joint Special Lecture

- Joint Special Lecture: April 15 (Fri.) 14:00–14:30 (Main Hall)

Universe, Human, and Dream

Moderator: Hokkaido Univ. Nagara Tamaki
Astronaut Naoko Yamazaki

Joint Symposium

- Joint Symposium 1: April 15 (Fri.) 15:10–17:10 (Main Hall)

〔Anticipation of radiology progress in the next quarter of century〕

Moderator: Kyoto College of Medical Science Keigo Endo
Kanazawa Univ. Shigeru Sanada

1. Diagnostic imaging 25 years from now Keio Univ. Masahiro Jinzaki

2. Future perspective in nuclear medicine Tokyo Medical and Dental Univ. Ukihide Tateishi

3. Interventional radiology Kochi Univ. Takuji Yamagami

4. Hopes for progress in radiation oncology in the next 25 years
Tohoku Univ. Keiichi Jingu

5. Expectation for successive innovation in medical physics field
Hokkaido Univ. Masayori Ishikawa

6. For the development of technology in radiology
Sapporo Medical University Hosp. Hiroyuki Takashima

- Joint Symposium 2: April 16 (Sat.) 9:10–11:50 (National Convention Hall)

〔Dose evaluation and control for medical radiation exposure〕

Special Presentation Prelude (9:10–9:40)

Moderator: NIRS Shinichiro Mori

【General Session】

April 14 (Thu) PACIFICO Yokohama Conference Center 418

1. Radiation Therapy (photon/electron) 1 (QA/Measurement 3)

13:00–14:00 Moderator: Hidekazu Nambu

- 0-001** Effect of source positional discrepancy on dose and dose distributions in Cobalt-60 stereotactic radiosurgery units
Fukui Prefectural Hosp. Hisato Nakazawa
- 0-002** Verification of irradiation accuracy for the MLC on CyberKnife
Toyota Memorial Hosp. Junji Suzuki
- 0-003** Detection of jaw position during VMAT applied jaw tracking method using cine image
Juntendo Univ. Toru Kawabata
- 0-004** Kompeito-shot: A study of systematic error of verification system for three-dimensional beam alignment
Hiroshima Univ. Masato Tsuneda
- 0-005** Evaluation of Medi-module water-equivalent phantom
National Center Cancer Hosp. East Yohei Takeda
- 0-006** Development of a postal audit method for IGRT credentialing in multi-institutional clinical trials in Japan
Saitama Medical Univ. International Medical Center Yu Kumazaki

2. Radiation Therapy (photon/electron) 2 (IGRT/Respiratory gated therapy 1)

14:00–15:00 Moderator: Masayori Ishikawa

- 0-007** A concept of respiratory classification for the applicability to respiratory tracking treatment using respiratory tumor kinematics
Osaka Univ. Yusuke Anetai
- 0-008** The development of a hybrid motion sensor using position sensitive detector and infrared camera for respiratory-gated radiation therapy
Kanagawa Cancer Center Kenji Shioiri
- 0-009** Observation of the body surface motion for the respiratory management using laser based optical surface scanning system
Seirei Hamamatsu General Hosp. Takuma Matsunaga
- 0-010** Development of a time delay measurement system for gated radiotherapy
Komazawa Univ. Tomoyuki Kurosawa
- 0-011** Tumor tracking with a gimbaled linac system quality assurance using a light field
HIPRAC Hideharu Miura
- ★ **0-012** Automated localization of anatomical feature points in infrared ray-based range images of patient surfaces by using differential geometry
Kyushu Univ. Mazen Soufi

3. Radiation Therapy (photon/electron) 3 (IGRT/Respiratory gated therapy 2)

15:10–16:10 Moderator: Shuichi Ozawa

- 0-013** Development of cross-type carbon fiber antiscatter grid for cone beam computed tomography in radiation therapy
Juntendo Univ. Keisuke Usui
- 0-014** Artifact reduction processing of kV CBCT using the partial segmentation reconstruction method
Tokyo Metropolitan Univ. Wataru Yokohama

- ★ **0-015** Effect of breathing patterns on three-dimensional target position in X-ray fluoroscopic and four-dimensional cone-beam computed tomography imaging
Kyoto Univ. Hiraku Iramina
- ★ **0-016** Development of a framework for automated estimation of lung tumor locations in MV-CBCT images for target-based patient positioning in SBRT
Kyushu Univ. Beppu Hosp. Satoshi Yoshidome
- ★ **0-017** Reconstruction of megavoltage computed tomography with rapid scan time and extended field of view
The Univ. of Tokyo Hosp. Taiki Magome
- ★ **0-018** Time-ordered 4D cone-beam CT iterative reconstruction for pelvic region
Tokyo Univ. Masahiro Nakano

4. Radiation Therapy (photon/electron) 4 (IGRT/Respiratory gated therapy 3)

16:10–17:00

Moderator: Yuji Nakaguchi

- 0-019** A fundamental study of patient-setup based on the dose distribution during a course of radiotherapy
Tohoku Univ. Suguru Dobashi
- 0-020** Analysis of the effects of inter-fractional motion on dose distributions in intensity-modulated radiotherapy of prostate cancer
Tohoku Univ. Ryohei Kato
- 0-021** Analysis for the pressure level and intra-fractional motion using a mask system in intra-cranial treatment
Saiseikai Imabari Hosp. Hiroki Inata
- 0-022** A study for quantification of actual patient dose for MVCT with helical tomotherapy unit using general treatment planning system
Shonan Kamakura General Hosp. Hironori Nagata
- 0-023** The energy spectra of the MV images by electron mode of linear accelerator
Tokyo Metropolitan Univ. Atsushi Myojoyama

5. Radiation Therapy (photon/electron) 5 (Radiation biology/Other)

17:00–17:50

Moderator: Hajime Monzen

- 0-024** Determination of the cell survival curve considering the lethal lesion number per nucleus after irradiation
Hokkaido Univ. Ryota Yamada
- 0-025** SimCell: The virtual cell Monte Carlo simulator for radiation therapy
Miyakojima IGRT Clinic Hiroya Shiomi
- ★ **0-026** Assessment of early tumor response to chemoradiotherapy based on repeated FDG-PET images: from lung cancer to head and neck
Karolinska Institutet, Sweden Marta Lazzeroni
- ★ **0-027** Estimation of cell-killing based on the probability density of DNA contents in cell population
Hokkaido Univ. Yusuke Matsuya
- ★ **0-028** Radiobiological modelling of tumour response in search for optimal radiotherapy treatment parameters: the impact of time, dose and fractionation
Stockholm Univ., Sweden Emely Lindblom

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6. Radiation Therapy (heavy particle) 1 (Irradiation technique 1)

13:00–13:50

Moderator: Kyo Kume

- ★ **0-030** Benchmarking of proton spot scanning beam at Skandion clinic with the Monte Carlo code MCNP6
Stockholm Univ., Sweden Oscar Ardenfors
- ★ **0-031** The development of a proton-beam grid therapy (PBGT)
Stockholm Univ., Sweden Thomas Henry
- ★ **0-032** A development of a ripple filter for proton line scanning
Sumitomo Heavy Industries, Ltd. Nagaaki Kamiguchi
- ★ **0-033** Development of new Carbon-Knife treatment system
Gunma Univ. Keawsamur Mintra
- ★ **0-034** Design and development of CT-based three-dimensional image guided adaptive proton therapy
The National Cancer Center Hosp. East Hidenobu Tachibana

7. Radiation Therapy (heavy particle) 2 (Irradiation technique 2/Other)

13:50–14:40

Moderator: Masataka Komori

- 0-035** Evaluation of wide-angle scattering generated by beamline components in case of proton beam spot scanning method
Hokkaido Univ. Hideaki Ueda
- 0-036** Improvement of dose uniformity with spiral wobblers method at SAGA HIMAT Foundation
SAGA HIMAT Takeshi Himukai
- 0-037** A novel shape ridge filter for particle beam therapy
Hitachi, Ltd. Taisuke Takayanagi
- 0-038** Commissioning status of new carbon-ion radiotherapy facility i-ROCK (2)
Kanagawa Cancer Center Shinichi Minohara
- 0-039** Trial of on-site audit for carbon ion radiotherapy facilities
NIRS Hideyuki Mizuno

8. Radiation Therapy (heavy particle) 3 (Biological effect)

14:50–15:50

Moderator: Taeko Matsuura

- ★ **0-040** Optimization of the spread-out bragg peak (SOBP) design considering the oxygen effect
Gunma Univ. Athena Evalour S. Paz
- ★ **0-041** Microdosimetric approach to the modelling of oxygen effect for the inclusion in treatment planning for charged particle therapy
NIRS Cécile Bopp
- ★ **0-042** The impact of a variable RBE for different combinations of dose, LET and α/β in proton therapy
Stockholm Univ., Sweden Jakob Ödén
- ★ **0-043** A treatment planning comparison of radiation therapy with either photon- or proton-beams for stomach and liver cancer
Stockholm Univ., Sweden Gracinda Mondlane
- 0-044** NTCP parameter of mucositis in head and neck cancer patients treated by carbon ion radiotherapy.
Gunma Univ. Kyohei Fukata
- 0-045** Radioprotection of methionine from plasmid DNA damage by carbon ion beam
Kitasato Univ. Katsunori Yogo

9. Radiation Therapy (heavy particle) 4 (Dosimetry/Measurement)

15:50–16:40

Moderator: Makoto Sakama

- 0-046** Luminescence imaging of water during proton-beam irradiation for range estimation
Nagoya Univ. Seiichi Yamamoto
- 0-047** Evaluation of the physical characteristics of grids of carbon microbeams for use in microbeam radiation therapy with the PHITS code
Osaka Univ. Toshiro Tsubouchi
- ★ **0-048** Modeling of recombination characteristics in heavy-ion dosimetry with a track structure model (3)
Tokyo Institute of Technology Minoru Tatebayashi
- 0-049** Measurement of radiation quality of therapeutic carbon ion beams using a silicon detector
Gunma Univ. Kohei Osaki
- 0-050** Investigation of beam component measurement using polymer gel detector for neutron capture therapy 2
Hiroshima Univ. Kenichi Tanaka

10. Radiation Therapy (heavy particle) 5 (QA/Other)

16:50–17:40

Moderator: Teiji Nishio

- ★ **0-051** Water equivalent length calibration for a carbon CT system
Gunma Univ. Sung Hyun Lee
- ★ **0-052** In-beam OpenPET imaging simulation based on patient data
NIRS Hideaki Tashima
- ★ **0-053** Optimization of ^{15}O beam for in-beam PET imaging
NIRS Akram Mohammadi
- 0-054** Measurement of th production cross-section in target nuclear fragmentation reactions for proton therapy(2)
Rikkyo Univ. Keiichiro Matsushita
- 0-055** Basic development of an Electron-Tracking Compton Camera for monitoring a prompt gamma ray in Particle beam therapy
Tokai Univ. Shigeto Kabuki

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11. Radiation Therapy (photon/electron) 6 (Radiation treatment planning 1)

9:10–10:00

Moderator: Satoru Sugimoto

- 0-056** Acceleration of Monte Carlo simulation of scattered photons in a cone-beam CT for radiation therapy
Hosei Univ. Hiroaki Suzuki
- 0-057** Consideration of a dose distribution in a joint of a parapet irradiation field and an irradiation field on the collarbone
Saga National Hosp. Yukio Inoue
- 0-058** Improvement of calculation accuracy in photon transport using the lattice Boltzmann method
Tokyo Metropolitan Univ. Takahito Chiba
- 0-059** Comparison of dose calculation algorithms in lung stereotactic body radiation therapy
Fukuoka Tokushukai Medical Center Shigeo Anai
- ★ **0-060** Algorithm performance evaluation: gradient-descent, simulated annealing, and hybrid method for finding an optimum of a function
Kyushu Univ. Mohammad Haekal

12. Radiation Therapy (photon/electron) 7 (Radiation treatment planning 2)

10:00–10:50

Moderator: Iori Sumida

- 0-061** Transference of IMRT planning data to the different site: from 10mm-width-MLC to 5mm-width-MLC
Kawasaki Saiwai Hosp. Saori Itoh
- ★ **0-062** Cumulative segmental MU-weighted field edges for estimating the deviation in the absolute dose verification of Intensity-Modulated Radiation Therapy
Hiroshima Univ. Hosp. Akito Saito
- ★ **0-063** Impact of VMAT dose calculations with respiratory movements in lung
Kumamoto Univ. Kazuki Komatsu
- ★ **0-064** Integral dose to normal structures from cervix rapid-arc radiotherapy planning
Rajiv Gandhi Cancer Institute & Research Center, India Lalit Kumar
- ★ **0-065** Development of knowledge-based NTCP prediction tools for IMRT treatment planning
Niigata Univ. Medical and Dental Hosp. Satoshi Tanabe

13. Radiation Therapy (photon/electron) 8 (Radiation treatment planning 3)

11:00–11:50

Moderator: Satoru Utsunomiya

- ★ **0-066** Analysis of multicenter contouring data for stereotactic radiosurgery
Stockholm Univ. and Karolinska Institutet, Sweden Helena Sandström
- ★ **0-067** An approach for evaluation of dose distributions in intensity modulated radiotherapy planning for prostate cancer
Kyushu Univ. Ryosuke Asamura
- 0-068** Study of model creation to be used in the Knowledge based planning
Seirei Hamamatsu General Hosp. Yumiko Adachi
- 0-069** Comparison of irradiation time and dose distribution for cases with different jaw width via tomotherapy
Radiation Therapy Center, Koga21 Hosp. Shigeaki Kitajima
- 0-070** Comparison of CyberKnife treatment times:fixed,iris,MLC
Toyota Memorial Hosp. Hironori Takahashi

14. Radiation Therapy (photon/electron) 9 (Radiation treatment planning 4)

15:40–16:30

Moderator: Shinichiro Mori

- 0-071** Estimation of internal deformation using boundary conditions and optimum organ material parameters
Teikyo Univ. Shinobu Kumagai
- ★ **0-072** Quantification of imaging doses from four-dimensional computed tomography scans with orthogonal dual source kV X-ray tubes
Kyoto Univ. Mitsuhiro Nakamura
- 0-073** Does dual-kV subtraction of CT images for electron density calibration offer a virtual 1-MeV CT image?
Niigata Univ. Masatoshi Saito
- ★ **0-074** Theoretical consideration of material decomposition with prior information compressed sensing
The Univ. of Tokyo Hosp. Akihiro Haga
- 0-075** Design and development of ventilated and non-rigid phantom quantitatively evaluating CT-based pulmonary ventilation imaging
Univ. of Komazawa Shin Miyakawa

15. Radiation Therapy (photon/electron) 10 (IMRT/VMAT)

16:30–17:20

Moderator: Takehiro Shiinoki

- 0-076** Dose calculation accuracy for volumetric modulated arc therapy in multiple brain metastases
Kumamoto Radiosurgery Clinic Hirofumi Tominaga
- 0-077** Attempt to visualization of impact on IMRT dose distribution by MLC parameter value
Univ. of Niigata Ayami Numata
- 0-078** Comparison of the peripheral dose due to different IMRT techniques for pediatric head and neck radiation therapy
Kagoshima Univ. Medical and Dental Hosp. Masahiko Toyota
- ★ **0-079** An optimization model for VMAT technique based exclusively on patient image data
Univ. of Stockholm, Sweden Ana Ureba
- ★ **0-080** Evaluation of the statistical dose-uncertainty in prostate VMAT
Juntendo Univ. Urayasu Hosp. Tatsuya Inoue

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16. Diagnostic Imaging (X-Ray/CT) 1

9:10–10:00

Moderator: Shinichi Wada

- 0-081** Adaptive Statistical Iterative Reconstruction in X-ray CT for Visualization of Acute Ischemic Stroke
Kitasato Univ. Hidetake Hara
- 0-082** Generating nodule-like object functions for evaluating CAD performance in lung cancer CT screening
Niigata Univ. Akihiro Narita
- ★ **0-083** Accurate volume measurement for lung nodule in CT image by Deconvolution method
Niigata Univ. Hideyoshi Sugawara
- 0-084** Investigation of plane depiction performance in mammography tomography
Nagasaki Harbor Medical Center City Hosp. Yoshihiro Tokita
- 0-085** Image fusion of a dental CT image with a face image
Hosei Univ. Kohei Kawai

17. Diagnostic Imaging (X-Ray/CT) 2

10:00–10:50

Moderator: Masao Matsumoto

- 0-086** Dual-energy computed tomography system utilizing a silicon X-ray diode and an energy-selecting device
Iwate Medical Univ. Hosp. Yuichi Sato
- 0-087** Dual-energy X-ray computed tomography system using a CdTe detector and two energy-selecting devices
Iwate Medical Univ. Michiaki Sagae
- 0-088** Spectral X-ray computed tomography system using a cadmium telluride detector
Iwate Medical Univ. Eiichi Sato
- 0-089** A novel photon counting CT operating at low dose using multi-pixel photon counter
Waseda Univ. Hayato Morita
- 0-090** Investigation of a metal artifact reduction using energy dispersive X-ray computed tomography
Iwate Medical Univ. Satoshi Yamaguchi

18. Radiation Therapy (heavy particle) 6 (Radiation treatment planning)

10:50–11:50

Moderator: Hideyuki Takei

- 0-091** Analyses of daily anatomical variation utilizing in-room CT system for prostate cancer proton therapy and the optimized treatment planning
Fukui Prefectural Hosp. Yoshikazu Maeda

- 0-092** Effectiveness of CT-based three-dimensional image guided adaptive proton therapy
Komazawa Univ. Shunsuke Moriya
- 0-093** Development of a GPU-based optimization method for dose distribution of proton beam scanning
Mizuho Information & Research Institute, Inc Akira Sano
- 0-094** Robustness analysis method with fast estimation of dose uncertainty distributions for carbon-ion therapy treatment planning
NIRS Makoto Sakama
- 0-095** The evaluation of proton plan robustness for spot scanning irradiation
Hokkaido Univ. Hosp. Yuka Matsuzaki
- 0-096** Commissioning of the eclipse proton™ treatment planning system for proton line scanning therapy
Aizawa Hosp. Yuya Sugama

19. Radiation Therapy (heavy particle) 7 (Respiratory motion 1)

15:40–16:40

Moderator: Naoki Miyamoto

- 0-097** Correlation between respiratory motion around body surface and diaphragm breathing motion with body immobilization devices in respiratory-gated carbon ion radiotherapy
SAGA HIMAT Genyu Kakiuchi
- 0-098** A dose comparison between real-time gated and free-breathing irradiation in spot scanning proton therapy for lung cancer
Hokkaido Univ. Takahiro Kanehira
- 0-099** The effect of irradiation delay time in respiratory gated passive proton therapy with fiducial marker
Nagoya Proton Therapy Center Akira Shimomura
- 0-100** Influence of intrafractional motion on the respiratory gated patching and matching techniques in proton beam therapy
Southern Tohoku Proton Therapy Center Masato Kato
- 0-101** The effect of a moving target to the dose at the field junction in a multi-patch technique for proton therapy
Nagoya Univ. Takuya Yabe
- 0-102** Rapid phase-correlated rescanning irradiation improves treatment time in carbon-ion scanning beam treatment under irregular breathing conditions
NIRS Shinichiro Mori

20. Radiation Therapy (heavy particle) 8 (Respiratory motion 2)

16:50–17:50

Moderator: Suguru Dobashi

- 0-103** Evaluation method for depth dose distributions using a multi-layer ionization chamber in respiratory gating irradiation for proton therapy
Shizuoka Cancer Center Yuki Kase
- 0-104** A comparison study of motion interplay effects between IMPT and SFUD in liver real-time-image gated, spot-scanning proton beam therapy
Hokkaido Univ. Taeko Matsuura
- ★ **0-105** Consequence of omitting image guidance in carbon ion radiation therapy
Gunma University Heavy Ion Medical Center Daniel Bridges
- 0-106** Feasibility study of fast cone-beam CT image acquisition with a dual-orthogonal fluoroscopic imaging system
Hokkaido Univ. Hosp. Seishin Takao
- 0-107** Basic verification of motion-target tracking technique using dual energy subtraction method
Hokkaido Univ. Takaaki Fujii

- ★ **0-108** Evaluation of high-precision automatic patient positioning system with fast calculation in carbon ion radiotherapy; patient study

Univ. of Gunma Hayato Hayashi

April 16 (Sat) National Convention Hall

Joint Symposium 2

Special Presentation Prelude

9:10-9:40

Moderator: Shinichiro Mori

- ★ Development of kV X-ray imaging dose calculation system for image guided radiotherapy

Kyoto Univ. Yoshitomo Ishihara

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21. Radiation Therapy (photon/electron) 11 (QA/Dosimetry 2)

9:10-10:00

Moderator: Naoki Hayashi

- ★ **0-109** Quality assurance procedures of Dynamic WaveArc irradiation using electric portal imaging device

Kyoto Univ. Hideaki Hirashima

- ★ **0-110** Measurement of corneal doses during external beam radiotherapy of head and neck malignancies

SMS Medical College, India Arun Chougule

- ★ **0-111** Microdosimetric study focused on biological effect of flattening filter free beam

Shizuoka Cancer Center Tatsuya Segawa

- 0-112** Trying to accuracy improvement of independent MU verification using TG-114

Toho Univ. Sakura Medical Center Teruo Ito

- 0-113** Comparison in confidence limits between NCCHE and multi-institutional trial for independent MU verification

Komazawa Univ. Shunta Jinno

22. Radiation Therapy (photon/electron) 12 (QA/Dosimetry 3)

10:00-10:50

Moderator: Hiroyuki Okamoto

- 0-114** Investigation of the feasibility of in vivo EPID dosimetry for prostate cancer patients

Tohoku Univ. Yoshiki Takayama

- 0-115** A study of verification method of dose gradient using a micro type ionization chamber in prostate VMAT

NTT Medical Center Tokyo Norihisa Osawa

- ★ **0-116** Deblurring measured radiation profile using a Gaussian expansion method with a regularization term of first derivative

Juntendo Univ. Satoru Sugimoto

- 0-117** Consideration of reciprocity method of a parallel plate type dosimeter using an electron beam

Iwate Prefectural Isawa Hosp. Koji Ishita

- 0-118** Study of measurement method of bio-information using near infrared radiation

Hiroshima Univ. Teiji Nishio

23. Brachytherapy

10:50-11:50

Moderator: Yutaka Takahashi

- 0-119** Multi-institutional study of assessment of source dwell position in brachytherapy

NCCH Hiroyuki Okamoto

- 0-120** Development of a deformable woman's pelvis phantom with physiological characteristics for evaluation of DIR accuracy using 3D-printer

Tohoku Univ. Yuya Miyasaka

- 0-121** Study of developing a quality control tool for high-dose-rate brachytherapy unit with light produced by iridium-192 source
 Kitasato Univ. Akihiro Matsushita
- 0-122** Feasibility study of metal artifact reduction in gynecologic brachytherapy
 Ryukyus Univ. Masashi Kinjyo
- ★ **0-123** Influence of tissue heterogeneity on dose distributions in intracavitary brachytherapy for uterine cervical cancer with Monte Carlo simulation
 Kyushu Univ. Takahiro Iwasaki
- ★ **0-124** Absorption and scattering effect from source capsules in ^{125}I brachytherapy dose calculations.
 Kumamoto Univ. Kentarou Tamura

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24. Magnetic Resonance 1 9:10–10:00 Moderator: Masahiro Umeda

- ★ **0-125** Optimization of the asymptotic analysis in intravoxel incoherent motion MRI
 Kyoto Univ. Yen-Peng Liao
- 0-126** Scanning parameter dependence of crossing neuronal fiber depiction accuracy in Diffusion Spectrum Imaging
 Hokkaido Univ. Kazuya Oshinomi
- 0-127** Ultra-high-field MR imaging of the human brain: spatially-inhomogeneous magnetization transfer effects in multislice acquisition
 NICT Takashi Ueguchi
- 0-128** Quantitative accuracy of magnetic field distortion mapped by MRI
 Hokkaido Univ. Takahiko Kaneda
- 0-129** Patient positioning to reduce RF heating of implanted materials
 Hokkaido Univ. Yu Kikuchi

25. Magnetic Resonance 2 10:10–10:50 Moderator: Hidetaka Arimura

- 0-130** Two-dimensional compressed sensing MRI using cartesian sampling- computer simulation study
 Tokyo Metropolitan Univ. Hiroyuki Shinohara
- 0-131** Two-dimensional compressed sensing MRI using radial sampling- computer simulation study
 Tokyo Metropolitan Univ. Hiroyuki Shinohara
- 0-132** Development of learning tool for compressed sensing MRI
 Tokyo Metropolitan Univ. Hiroyuki Shinohara
- ★ **0-133** Development of a PET/RF-coil integrated system for MRI: comparative MRI study for with- and without-PET modules
 NIRS Md Shahadat Hossain Akram

26. Nuclear Medicine 1 14:00–15:00 Moderator: Seiichi Yamamoto

- ★ **0-134** In-beam OpenPET measurement of washout rate in rabbits using ^{10}C , ^{11}C and ^{15}O ion beams
 NIRS Chie Toramatsu
- 0-135** Improved spatial resolution of the 4-layered DOI-PET detector by the quadrisectioned top layer crystals
 Chiba Univ. Genki Hirumi
- 0-136** Feasibility study on novel depth-of-interaction detector using Vp/Q discrimination method
 Hokkaido Univ. Ryo Ogawara
- 0-137** Simulation study on novel depth-of-interaction PET detector by the Vp/Q discrimination method using GEANT4 Monte Carlo code
 Hokkaido Univ. Ryo Ogawara

- ★ **0-138** Feasibility study of a pixilated mouth-insert detector in the helmet PET
NIRS Abdella M. Ahmed
- 0-139** First healthy volunteer study of high sensitive helmet-chin PET prototype
NIRS Eiji Yoshida

27. Nuclear Medicine 2 **15:00–16:00** **Moderator: Eiji Yoshida**

- 0-140** Development of attenuation correction method for helmet-chin PET prototype using CT images
NIRS Yuma Iwao
- 0-141** Evaluation of exposure amount of PET / CT examination at the time in Fukushima Medical University
Fukushima Medcal Univ. Takamitsu Hara
- 0-142** Calibration of clinical PET scanners using a traceable Ge-68/Ga-68 point-like source with a spherical acrylic absorber
Kitasato Univ. Shoji Koyama
- 0-143** Monte Carlo simulation for the multi-pinhole SPECT
Hosei Univ. Yutaro Hemuki
- 0-144** Improving diagnosability of SPECT image by edge preserving smoothing filter
Teikyo Univ. Susumu Nakabayashi
- ★ **0-145** Y-90 bremsstrahlung imaging using compton camera
Gunma Univ. Makoto Sakai

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28. Image (Processing/Analysis/Informatics)/Medical Informatics1 (Imaging simulation and reconstruction)
9:10–10:00 **Moderator: Jun'ichi Kotoku**

- ★ **0-146** Geant4 simulation study of a compton-PET imaging system using advanced 3D positioning detectors
NIRS Jianyong Jiang
- ★ **0-147** Simulation of motion induced data from different real SPECT data using algorithm
BAEC · NINMAS, Bangladesh Md. Nahid Hossain
- 0-148** Effect of metal artifact reduction using continuous-time CT image reconstruction method
Tokushima Univ. Shintaro Harano
- ★ **0-149** The optimization of iteration numbers for CBCT used OSEM and image evaluation with NPS: comparison filtered back projection
Sapporo Medical Univ. Hosp. Hiroki Shishido
- ★ **0-150** Phase recognition system for tracking tumor using pre-4DCBCT in FFF mode: A markerless study
University of Tokyo Ritu Bhusal Chhatkuli

29. Image (Processing/Analysis/Informatics)/Medical Informatics2 (Novel radiation measurement and Medical imaging)
10:00–11:00 **Moderator: Akihiro Haga**

- 0-151** Production of gamma-ray spectrometer for education of radiation physics
Kitasato Univ. Tomoe Maegaki
- 0-152** Discrete tomographic image reconstruction using differential equation
Shimane Prefectural Central Hosp. Kazuhiro Nakahama
- 0-153** Automatic conversion of body surface 3D mesh model to ROI data with portable 3D scanner
Mizuho Information & Research Institute, Inc. Makiko Suitani
- 0-154** Development of a real time tumor tracking system in MV X-ray image using optical flow
Kinki Univ. Yusuke Tenma

- 0-155** Estimation of proton beam dose distribution by emission intensity from a fluorescent plate
The Wakasa Wan Energy Research Center Fuyumi Ito
- 0-156** Evaluation of the spatial resolution of heavy ion CT system using MTF by radial-edge method
Kitasato Univ. Mamoru Yokose

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30. Radiation Measurement 1 9:10-10:10 Moderator: Yoshinobu Shimohigashi

- 0-157** The influence of container size on polymer gel dosimetry
Nagoya Univ. Yume Kojima
- 0-158** Construction of optical CT system for evaluation of polymer gel dosimeters
Ibaraki Pref. Univ. Hiraku Kawamura
- 0-159** A potential uncertainty estimation in optical density to dose conversion for film-based dose analysis with Gradient method
Hokkaido Univ. Masayori Ishikawa
- 0-160** Depth dependence of TL response of Al₂O₃ ceramic TLSD for 6 MV X-ray beam
Tokyo Metropolitan Univ. Shin Yanagisawa
- ★ **0-161** Study of dosimetric characteristics of a commercial OSL system
SMS Medical College, India Arun Chougule
- ★ **0-029** Thyroid dysfunction following therapeutic external radiation to head and neck cancer
SMS Medical College, India Arun Chougule

31. Radiation Measurement 2 10:10-10:50 Moderator: Akihiro Nohtomi

- 0-162** Application of Bayesian inference to the on-line neutron/gamma discrimination with a recoil-proton proportional counter.
Univ. of Kyushu. Ryoko Matsuo
- 0-163** Development of real-time gamma-ray spectrum / dose measurement system (1)
Univ. of Osaka Mina Kobayashi
- 0-164** Development of an all-sky RI imaging monitor capable of measuring high-dose-rate gamma-ray sources
Kitasato Univ. Takara Watanabe
- ★ **0-165** Development of an efficient application of a NaI survey meter system in a high dose rate environment
The Wakasa Wan Energy Research Center Kyo Kume

32. Radiation Measurement 3 11:00-11:50 Moderator: Toru Kawachi

- ★ **0-166** A comparison study of four patient dose indices for cone-beam computed tomography
Kyushu Univ. Hidemi Kamezawa
- 0-167** Gamma-ray dose measurement in neutron field using a radio-photoluminescence glass dosimeter
Osaka Univ. Kosuke Hiramatsu
- 0-168** Development of in-vivo dosimeter specialized for heavy-ion radiation therapy
Tokyo Women's Med. Univ. Hiroaki Matsubara
- 0-169** Evaluation of 1D-profile of wideband prompt gamma-ray emission and optimization toward on-line monitor for the future proton therapy
Waseda Univ. Ayako Koide
- 0-170** Comparison of the standards for absorbed dose to water of the NMIJ and the BIPM in high-energy photon beams
NMIJ Morihito Shimizu

1. Development of kV X-ray imaging dose calculation system for image guided radiotherapy

Kyoto University Graduate School of Medicine Yoshitomo Ishihara

2. Evaluation of K-factor (DLP to effective dose) with ICRP 110 reference phantom

Fujita Health Univ. Masanao Kobayashi

3. Fundamental study on patient radiation dose measurement in catheter ablation using the real time dosimeter.

Akita Research Institute of Brain and Blood Vessels Mamoru Kato

Symposium (9:40–11:50)

Moderator: NIRS Keiichi Akahane

Kyoto College of Medical Science Kazuko Ohno

1. Dose metrics in CT, mammography, radiography, and fluoroscopy: practical implications for clinical relevancy

Univ. of California Davis Medical Center, USA John M. Boone

2. Report from the working group of recommended Diagnostic Reference Level (DRL) for interventional radiology

Osaka City Univ. Hosp. Takao Ichida

3. Dose evaluation and control for CT

Kanazawa Univ. Kosuke Matsubara

4. Diagnostic and functional imaging using low dose chest CT

Kobe Univ. Hisanobu Koyama

5. Dose evaluation and control for nuclear medicine

Kindai Univ. Makoto Hosono

• Joint Symposium 3: April 17 (Sun.) 9:30–11:50 (Main Hall)

「Benefit to radiological diagnosis of the contrast media」

Moderator: Iwate Prefectural Kamaishi Hosp. Katsumi Hayakawa

Gunma Prefectural College of Health Sciences Akio Ogura

1. Development of contrast media: history and future perspective

Bayer Yakuhin Ltd. Masaharu Yamaoka

2. Consideration of intravenous contrast medium administration and scan timing at X-ray CT

Butsuryo College of Osaka Isao Yamaguchi

3. The transition of diagnostic process caused by emergence of novel contrast media

Kanazawa Univ. Satoshi Kobayashi

4. Risk management of contrast media

Gunma Univ. Yoshito Tsushima

5. The Gadolinium deposition in the brain: The new trend in Japan and in the world

Teikyo Univ. Tomonori Kanda

Reception for all participants (Congress Party)

- Reception for all participants (Congress Party): April 15 (Fri.) 18:15–19:30

(Yokohama Bay Hotel Tokyu B2F Queen's Grand Ballroom)

Closing and Awards ceremony

- Closing and Awards ceremony: April 17 (Sun.) 15:00–16:15 (Main Hall)

「Performance: JRC Festival Orchestra」

Program: 「Valse des fleurs」 others

【JSMP Program】

(A) Plenary Lectures [JSMP-JSRT Joint Session]

(1) April 15 (Fri) 11:00-11:50 (503)

Moderator: Kumamoto Univ. Fujio Araki

New concepts in CT dosimetry

Invited Speaker: Univ. of California, Davis Medical Center, USA John M. Boone

(2) April 15 (Fri) 14:40-15:30 (503)

Moderator: Teikyo Univ. Shinji Kawamura

Integrated MRI-Linacs: A new weapon in the battle against cancer

Invited Speaker: Univ. of Sydney, Australia Paul Keall

(B) Morning Educational Lectures

(1) April 15 (Fri) 8:15-8:55 (418, 419)

Moderator: The Univ. of Tokyo Hosp. Akihiro Haga

An introduction to Bayesian data analysis

Invited Speaker: Teikyo Univ. Jun'ichi Kotoku

(2) April 16 (Sat) 8:15-8:55 (418, 419)

Moderator: Hiroshima Heiwa Clinic Kaoru Ono

Foundations of diffusion MR Image analysis

Invited Speaker: Hiroshima City Univ. Yoshitaka Masutani

(3) April 17 (Sun) 8:15-8:55 (418, 419)

Moderator: Kyushu Univ. Hidetaka Arimura

The technologies of digital color image analysis for quantitative pathology

Invited Speaker: Tokyo Institute of Technology Masahiro Yamaguchi

(C) Lunch Time Lecture (Educational Lecture)

(1) April 15 (Fri) 12:00-12:50 (418, 419)

Moderator: NIRS Shigekazu Fukuda

Image guided application in radiation therapy

Invited Speaker: The Catholic University of Korea, Korea Tae-Suk Suh

(2) April 16 (Sat) 12:00-12:50 (418, 419)

Moderator: Kansai Rosai Hosp. Kazutoshi Yabuta

Laser-driven particle acceleration and its potential for medical applications

Invited Speaker: Japan Atomic Energy Agency Yuji Fukuda

(3) April 17 (Sun) 12:00-12:50 (418, 419)

Moderator: Kyoto Univ. Yoshitomo Ishihara

Prediction of treatment response of radiation therapy using nuclear medicine

Invited Speaker: Kyushu Univ. Shingo Baba

(D) JSMP & JSRT Joint Symposium

April 16 (Sat) 14:30-17:00 (F201・202)

Current status of real-time tumor tracking therapy

Moderator: The Univ. of Tokyo Hosp. Akihiro Haga
Tohoku Univ. Noriyuki Kadoya

1. Real-time radiotherapy: motion management from bench to bedside
Univ. of Sydney, Australia Paul Keall
2. Respiratory motion management in locally advanced pancreatic cancer
Kyoto Univ. Mitsuhiro Nakamura
3. Real-time tumor-tracking radiotherapy (RTRT) system and development of database system for inter-fractional organ motion estimated by RTRT
Hokkaido Univ. Hosp. Ryusuke Suzuki
4. Carbon-ion pencil beam scanning treatment with gated real-time markerless tumor tracking
NIRS Shinichiro Mori

(E) The 111th JSMP Symposium

April 17 (Sun) 13:00-14:40 (418, 419)

Application of Monte Carlo simulation in medical physics

Moderator: Tokyo Metropolitan Univ. Hidetoshi Saitoh
Kitasato Univ. Tomoyuki Hasegawa

1. Application of Monte Carlo simulation in photon radiation therapy
Kumamoto Univ. Takeshi Ohno
2. Particle therapy
Nagoya Proton Therapy Center Toshiyuki Toshito
3. Monte Carlo simulation in nuclear medicine
Kyushu Univ. Toshioh Fujibuchi
4. Dose evaluation of X-ray CT using Monte Carlo simulation and introduction of WAZA-ARI
NIRS Yusuke Koba
5. Discussion

(F) Dose calibration session

April 15 (Fri) 17:20-18:00 (418)

Separated calibration service of ionization chambers and electrometers

Moderator: Chiba Cancer Center Toru Kawachi

- (1) An outline of separated calibration service currently under development
Association for Nuclear Technology in Medicine Nobuhiro Takase
- (2) Electrometer calibration coefficients in pulsed radiation beams from a clinical linac
National Metrology Institute of Japan, AIST Morihito Shimizu
- (3) Notification of firmware updates for Ramtec Duo reference dosimeter
Development Group R&D Div., TOYO MEDIC CO., Ltd. Hideki Yamaoka

[JSMP-JSRT Joint Session]

(G) How to get Grants-in-Aid, -Research field “Medical Physics and Radiological Technology”

April 15 (Fri) 9:00-10:30 (414+415)

Moderator: Osaka Univ. Masahiko Koizumi
Kumamoto Univ. Junji Shiraiishi

(1) Outline of Grants-in-Aid for Scientific Research(KAKENHI)

Ministry of Education, Culture, Sports, Science and Technology (MEXT) Yasuhito Suzuki

(2) How to prepare the application form for KAKENHI -From the viewpoint of an ex-primary judge-

Kyushu Univ. Hidetaka Arimura

(3) Toward a research grant application - from my experience -

National Cancer Center Hidenobu Tachibana

(4) The survey results for the acquisition of grants-in-Aid

Osaka Univ. Masahiko Koizumi

(5) An attitude to obtain grants-in-aid by a young researcher

Fujita Health Univ. Naoki Hayashi

(6) Apply the JSPS KAKENHI at a private clinic

Miyakojima IGRT Clinic Daisaku Tatsumi

[JSMP-JSRT Joint Session]

(H) RPT Doi Awards Ceremony and Winners’Lectures

April 17 (Sun) 12:00–12:50 (414+415)

General Moderator: RPT Editor-in-Chief Kunio Doi

Moderator: Teikyo Univ. Shinji Kawamura

1) Diagnostic Imaging

Moderator: RPT Deputy Editor Sigeihiko Katsuragawa

RPT Vol.8, No.2

Aliased noise in X-ray CT images and band-limiting processing as a preventive measure

Tohoku Univ. Hosp. Kazuhiro Sato

2) MR, Nuclear Medicine and Informatics

Moderator: RPT Deputy Editor Tomoyuki Hasegawa

RPT Vol.8, No.1

Attenuation correction of ^{111}In in planar images by use of dual energy, fundamental study by Monte Carlo simulation

Fujita Health Univ. Seiji Shirakawa

3) Radiation Therapy Physics

Moderator: RPT Deputy Editor Masahiro Endo

RPT Vol.8, No.1

Applicability of self-activation of an NaI scintillator for measurement of photo-neutrons around a high-energy X-ray radiotherapy machine

Kindai University Atomic Energy Research Institute Genichiro Wakabayashi

[JCMP meeting]**(I) Brief meeting of the graduate course and employment for medical physicist**

April 16 (Sat) 13:00-14:10 (418)

Brief meeting of the graduate course and employment for medical physicist Host organization: The Japanese College of Medical Physics (JCMP)

The Japanese College of Medical Physics Shuichi Ozawa

[JBMP meeting]**(J) Briefing on the activities for the national qualification of medical physicist**

April 16 (Sat) 13:00-14:00 (419)

Briefing on the activities for the national qualification of medical physicist

Japanese Board for Medical Physicist Qualification Kumiko Karasawa

[Session for Students Studying in Japan]**(K) Are you satisfied with studying in Japan ?**

April 16 (Sat) 11:00-11:50 (419)

International Affairs Committee Shuichi Ozawa

[JSMP-JSMBE Joint Session]**(L) Exchange meeting with Japanese Society for Medical and Biological Engineering (JSMBE)**

April 17 (Sun) 11:00-11:50 (418)

Moderator: JSMP Shigekazu Fukuda

JSMBE Takeshi Shiina

(1) Purpose of Joint Session and attraction of the World Congress

NIRS Shigekazu Fukuda

(2) Introduction of JSMBE

Tokyo University Ichiro Sakuma

(3) Introduction of topics about JSMBE research

Tokyo Women's Medical University Yoshihiro Muragaki

JSMP Board of Directors

April 14 (Thu) 12:00-17:00 (421)

JSMP General Meeting of Members

April 16 (Sat) 17:10-18:10 (419)

General meeting of Japanese college of Medical physics

April 16 (Sat) 18:10-19:10 (419)

Various Committees**JSMP Official committees meeting**

April 14 (Thu) - April 17 (Sun)