

## 【Joint Sessions for Japan Radiology Congress】

Opening Ceremony: April 12 (Fri) 13 : 00 ~ 14 : 30 (Main Hall)

弦楽アンサンブル演奏(アンサンブルデュナミス)

4 団体会長挨拶, 基調講演

Hiroshi Honda Kyushu University (JRS)  
Junji Morishita Kyushu University (JSRT)  
Fukai Toyofuku Kyushu University (JSMP)  
Kenichi Komatsu Japan Medical Imaging and Radiological Systems Industries Association (JIRA)

### Plenary Session: Special Lecture

April 12 (Fri) 14 : 00 ~ 14 : 30 (Main Hall)

「New Horizons Lecture」

Moderator: Kobe University Kazuro Sugimura

Molecular Cancer Imaging Can Evolve to a Cancer-cell Specific Therapy

National Cancer Institute, NIH; Molecular Imaging Program Hisataka Kobayashi

### International Technical Exhibition of Medical Imaging (ITEM) 2013 Opening Ceremony

April 12 (Fri) 9 : 30 ~ 10 : 00 (Exhibition Hall 1F Entrance Area)

### Joint Symposium 1

April 12 (Fri) 14 : 40 ~ 16 : 40 (Main Hall)

「Clinical Applications and Future Prospects for Evolving Imaging Modalities」

Moderator: Kyushu University Hiroshi Honda

Kyushu University Fukai Toyofuku

1. State of the Art and Future Direction in Area-Detector CT  
Kobe University Graduate School of Medicine Yoshiharu Ohno
  2. Iterative Reconstruction  
Hiroshima University Kazuo Awai
  3. Photon Counting CT  
Hosei University Koichi Ogawa
  4. Dual RF Transmission  
Kobe University Hospital Katsusuke Kyotani
  5. Full Digital MRI  
Department of Biomedical Engineering, Tokai University School of Engineering Taro Takahara
  6. Ultra-high Field MRI  
Iwate Medical University Makoto Sasaki
- Discussion

**Joint Symposium 2****April 13 (Sat) 13 : 00 ~ 15 : 00 (Main Hall)**

「Computer-Aided Diagnosis」

Moderator: Kyushu University Junji Morishita  
University of Tokyo Kuni Otomo

## Keynote Lecture

Computer-Aided Diagnosis in Medical Imaging: Current Status and Future Potential

The University of Chicago /

Gunma Prefectural College of Health Sciences, Maebashi, Japan

Kunio Doi

1. Recent Progress and Issues on CAD Research and Development from a Technical Point of View

Gifu University Hiroshi Fujita

2. Expectation and Problems for Mammographic CAD

Department of Advanced Diagnosis, National Hospital Organization

Nagoya Medical Center, Clinical Medical Center

Tokiko Endo

3. Improved Detection of Lung Nodules on Chest Radiographs with a Newly Developed  
Software Program

St. Luke's Internatinal Hospital Masaki Matsusako

4. Problems and Promise in CAD for Effective CTC

National Cancer Center Hospital

Gen Iinuma

5. Usefulness of Automated Image Analysis System on Evaluation of Efficacy of  
Chemotherapeutic Agents

Saga University Naoko Sueoka-Aragane

6. CADの普及に向けて：産業界からの提言

Japan Medical Imaging and Radiological Systems Industries Association

Naoki Morooka

**Joint Symposium 3****April 14 (Sun) 9 : 10 ~ 11 : 10 (Main Hall)**

「Innovative Technologies in Medical Physics」

Moderator: Kyushu University Fukai Toyofuku  
Cancer Institute Hospital Tomoharu Sato

1. X-ray Phase Imaging Reaching Clinics

Tohoku University

Atsushi Momose

2. PET Imaging in Proton Therapy

National Cancer Center Hospital East

Teiji Nishio

3. Next Generation Radiotherapy System and Technologies

Accuthera Inc.

Eiji Tanabe

4. Analyses of Brain Hydrodynamics and Biomechanics Using MRI

Kanazawa University

Tosiaki Miyati

5. New Technology of Radiotherapy Treatment Planning

Kaizuka City Hospital

Hideki Takegawa

## Joint special project

April 13 (Sat) 10 : 30 ~ 11 : 50 (303)

〔Global Human Resource Development〕

Moderator: Keio University School of Medicine Sachio Kuribayashi

Kyushu University Junji Morishita

1. Accreditation for Medical Education based on the Global Standards

Center Education Research in Medicine and Dentistry,

Tokyo Medical and Dental University Nobuo Nara

2. Global Human Resource Development in Industry

経済産業省 産業人材政策室 Daisuke Nakajima

3. JSRT' s Ambitions for Globalization

Kanazawa University Shigeru Sanada

4. “How are academic radiologists evaluated?” : Metrics used to evaluate academic physicians in US

University of Iowa Hospitals and Clinics, USA Yutaka Sato

## Reception for All Participants

April 12 (Fri) 18 : 15 ~ 19 : 30 (Yokohama Bay Hotel Tokyu B2F Queen' s Grand Ballroom)

## Plenary Session : Awards Ceremony and Closing Session

April 14 (Sun) 15 : 15 ~ 16 : 00 (Main Hall)

## 【JSMP Program】

### (A) Plenary Lectures

(1) April 12 (Fri) 11:00–11:55 (418,419)

Moderator: Kyushu University Fukai Toyofuku

〔Initial Stereotactic Ablative Radiotherapy Experience using Vero〕

Invited Speaker: University of Texas Southwestern Medical Center, USA Dr. Timothy D. Solberg

(2) April 13 (Sat) 11:00–11:55 (418,419)

Moderator: Kyushu University Hidetaka Arimura

〔Computational Intelligence in Medical Image Processing, Analysis and Diagnosis〕

Invited Speaker: The University of Chicago, USA Dr. Kenji Suzuki

### (B) International Symposium

April 14 (Sun) 13:00–14:30 (418,419)

〔Education of Medical Physics in Asia – Role of Each Country and Society〕

Moderator: Hiroshima University Shuichi Ozawa

National Institute of Radiological Sciences Shigekazu Fukuda

1. Opening Address and Introduction

Hiroshima University Shuichi Ozawa

2. Current Status, Future of AFOMP and Role of Japan in Asia-Oceania

Osaka University Kiyonari Inamura

3. IAEA-TCS-37 and Education of Radiation Oncology Physics in Thailand

Chulalongkorn University, Thailand Anchali Krisanachinda

4. IAEA-TCS-47 and Education of Diagnostic Radiology Physics in Japan

Nagoya University Yoshie Kodera

5. IAEA-TCS-50 and Education of Nuclear Medicine Physics in Bangladesh

Bangladesh Atomic Energy Commission, Bangladesh Kamila Afroj Quadir

6. Medical Physics Education in Korea

The Catholic University of Korea, Korea Tae-Suk Suh

7. Panel Discussion

Chair: National Institute of Radiological Sciences Shigekazu Fukuda

Hiroshima University Shuichi Ozawa

8. Closing Address

National Institute of Radiological Sciences Shigekazu Fukuda

### (C) Symposium

April 13 (Sat) 13:00–14:30 (418,419)

「Novel Development of Medical Imaging Detector Systems (Special Symposium)」

Moderator: Kyushu University Akihiro Nohtomi

1. Development of transXend Detector (Current Mode Detector for Energy-resolved CT) and Application of it for Low Dose Exposure CT

Kyoto University Ikuo Kanno

2. Micron-CT using PIXE

Tohoku University Keizo Ishii

3. Present and future on radiation imaging system using thermoluminescence slab dosimeter

Tokyo Metropolitan University Kiyomitsu Shinsho

### (D) Lunch Time Lectures (Educational Lecture)

(1) April 12 (Fri) 12:05–12:50 (418,419)

Moderator: Hiroshima University Shuichi Ozawa

「Real-time In-room Imaging for Locating Moving Tumors in Radiotherapy」

University of California, Davis, USA Dr. Tokihiro Yamamoto

(2) April 13 (Sat) 12:05–12:50 (418,419)

Moderator: Kyushu University Yoshiyuki Shioyama

Kanagawa Cancer Center Shinichi Minohara

「Active vs. Passive scanning Technology —Advantages and Drawbacks—」

1. 「Pencil beam scanning method and its potential」

National Institute of Radiological Sciences Taku Inaniwa

2. 「Merits and demerits of a Broad Beam Technique in Particle Beam Therapy」

Hyogo Ion Beam Medical Center Takashi Akagi

(3) April 14 (Sun) 12:05–12:50 (418,419)

Moderator: Nagoya University Seiichi Yamamoto

「History and Perspective of Physics in Nuclear Medicine」

National Institute of Radiological Sciences Hideo Murayama

### (D) Morning Educational Lectures (Power-up Seminar)

(1) April 12 (Fri) 8:15–8:55 (418)

Moderator: National Cancer Center Hospital East Teiji Nishio

「Advance in Dose Standard and Dosimetry Protocol for External Beam Radiation Therapy」

Invited Speaker: Tokyo Metropolitan University Hidetoshi Saitoh

(2) April 13 (Sat) 8:15–8:55 (418)

Moderator: National Institute of Radiological Sciences Hideyuki Mizuno

「Impact of Monte Carlo simulation for Radiotherapy」

Invited Speaker: Kumamoto University Fujio Araki

(3) April 14 (Sun) 8:15–8:55 (418)

Moderator: Niigata University Shinichi Wada

「Basics of Image Segmentation – Good Relationship between Physics and Image Processing –」

Invited Speaker: Kyushu University Hidetaka Arimura

### (E) RPT Doi Awards Ceremony and Winners' Lectures

#### [JSMP-JSRT Joint Session]

April 14 (Sun) 12:10–13:10 (F201)

General Moderator: RPT Editor-in-Chief Kunio Doi

1) Diagnostic Imaging Field

Moderator: RPT Deputy Editor Sigehiko Katsuragawa

RPT Vol.5 No.1

Automated segmentation of psoas major muscle in X-ray CT images by use of a shape model: preliminary study

Gifu University Naoki Kamiya

2) Nuclear Medicine and MR Fields

Moderator: RPT Deputy Editor Tomoyuki Hasegawa

RPT Vol.5 No.2

Optimization of injection dose based on noise-equivalent count rate with use of an anthropomorphic pelvis phantom in three-dimensional  $^{18}\text{F}$ -FDG PET / CT

National Cancer Center Hospital East Kazumasa Inoue

3) Radiotherapy Field

Moderator: RPT Deputy Editor Masahiro Endo

RPT Vol.5 No.2

In-treatment 4D cone-beam CT with image-based respiratory phase recognition

University of Tokyo Hospital Satoshi Kida

### JSMP Board of Directors

April 11(Thu) 12:00–16:00 (421)

### JSMP General Meeting of Members

April 13 (Sat) 17:10–18:40 (419)

### Japanese College of Medical Physics

April 13 (Sat) 18:40–19:40 (419)

### Various Committees

April 11(Thu) –April 14 (Sun)

## 【General Session】

April 11 (Thu) PACIFICO YOKOHAMA Conference Center 418

**1. Photon/Electron Therapy 1 (4DRT/Real Time) 13:00–14:00 Moderator: Yuki Miyabe**

- 0-001 A study of three dimensional tracking method for organ motion on two cross-sectional ultrasound images  
Gunma University Yoshiki Kubota
- 0-002 Real-time tumor-tracking radiotherapy system with mono X-ray fluoroscopy  
Hokkaido University Naoki Miyamoto
- 0-003 Development of a real time motion image prediction system with ROI selection for lung tumor tracking in radiation therapy  
The University of Tokyo Ritu Bhusal Chhatkuli
- 0-004 Impact of respiratory motion on dose profile during VIRTUAL WEDGE delivery  
Osaka University Nobuhide Wakai
- 0-005 Investigation of well-balanced kV x-ray imaging condition between skin dose and noise for dynamic tumor-tracking irradiation in Vero4DRT  
Institute of Biomedical Research and Innovation Takahiro Nakai
- 0-006 Mechanical accuracy of dynamic tumor-tracking during arc irradiation with gimbaled x-ray head  
Kyoto University Tomohiro Ono

**2. Photon/Electron Therapy 2 (CBCT) 14:00–14:50 Moderator: Akihiro Takemura**

- 0-007 Time-ordered four dimensional Cone-Beam CT  
The University of Tokyo Masahiro Nakano
- 0-008 Accuracy evaluation of Atlas-based Auto-Segmentation software in cone-beam CT image  
Fujimoto Hayasuzu Hospital Hidemi Kamezawa
- 0-009 Basic study of 4D CBCT reconstruction using the detection of the target position from 2D projection images.  
Tokai University Hospital Keisuke Usui
- 0-010 Evaluation for 4 dimensional reconstruction of a cone beam CT on a linac with a dynamical tracking system  
Juntendo University Satoru Sugimoto
- 0-011 Improvement of 4D Cone-beam CT image quality with iterative reconstruction  
The University of Tokyo Satoshi Kida

**3. Photon/Electron Therapy 3 (CBCT/Dose Calculation) 15:00–16:00 Moderator: Kunihiko Tateoka**

- 0-012 Dose calculation using in-treatment 4D kilovoltageCBCT and in-treatment linac parameters during VMAT for a lung tumor  
The University of Tokyo Hospital Akira Sakumi
- 0-013 Monte Carlo calculation of patient dose distributions from kV-cone beam CT for image-guided radiation therapy  
Kumamoto University Kazunari Hioki
- 0-014 Monte Carlo dose verification of intensity modulated radiation therapy based on MATLAB  
Kumamoto University Yuuki Tomiyama
- 0-015 Measurement of dose evaluation indices using cone-beam CT for prostate IMRT  
Kyushu University Hospital Taka-Aki Hirose
- 0-016 Study of conversion of energy subtracted CT number to electron density using dual energy CT  
Niigata University Masayoshi Tsukihara

- 0-017 Electron density measurement with dual energy CT for radiation treatment planning: comparison of projection-based versus image-based virtual monochromatic imaging

Kobe Medical Cancer Center Toshiyuki Ogata

#### 4. Photon/Electron Therapy 4 (QA/QC1)

16:00–17:10

Moderator: Iori Sumida

- 0-018 Fundamental study for scanning methods in IMRT verification using Gafchromic EBT3

Institute of Biomedical Research and Innovation Kazuki Kubo

- 0-019 Evaluation of an independent monitor unit calculation software for intensity modulated radiation therapy

Kanagawa Cancer Center Kenji Shioiri

- 0-020 Evaluation of the accuracy of IMRT QA using 3DVH software

Tohoku University Makoto Ogasawara

- 0-021 Creating a daily personal dose management software that can be visually evaluated in IMRT using the MLC Log File

Tama-Hokubu Medical Center Kazunori Watanabe

- 0-022 Characteristic examination of the detector in the verification of VMAT for Prostate with dose distribution.

Seirei Hamamatsu General Hospital Yuta Muraki

- 0-023 Basic characteristic comparison of the COMPASS and the MatriXX Evolution

Kagoshima University Medical and Dental Hospital Masahiko Toyota

- 0-024 Usability of the high-precision measuring instrument to manage the radiation beam of the high-precision radiotherapy equipment

Yokohama CyberKnife Center Mitsuhiro Inoue



April 11 (Thu) PACIFICO YOKOHAMA Conference Center 419

5. Diagnostic 1 13:00–13:40 Moderator: Hidetake Hara

- 0-025 Investigation of the irregularity of the sensitivity in the aged deterioration of the IP for mammography  
Nagasaki Municipal Hospital Soichiro Kawaguchi
- 0-026 Analysis of phase contrast using transmission-type x-ray source and flat panel detector  
Fujita Health University Ai Ikeya
- 0-027 Extraction of obstacles in panoramic x-ray images with a tomosynthesis method  
Hosei University Junpei Yamamoto
- 0-028 3D kinematic estimation of temporomandibular joint using X-ray fluoroscopic images  
MEI Center Osaka University Takaharu Yamazaki

6. Diagnostic 2 (CT) 13:40–14:30 Moderator: Shinichi Wada

- 0-029 Simple noninvasive approach to assess gantry rotation time: Relation between the accuracy and detector position  
Shiga Medical Center for Children Atsushi Fukuda
- 0-030 Study on influence of scattered radiation in ADCT  
Hokkaido University Hospital Michiaki Yamashita
- 0-031 The Characteristic of a Dose to Head Region in Dual Source CT  
Kitasato University Hidetake Hara
- 0-032 Withdrawn
- 0-033 Measurement of linear attenuation coefficients with a photon counting CT  
Hosei University Mariko Matsumoto

7. Diagnostic 3 (Photon Counting) 14:40–15:30 Moderator: Koichi Ogawa

- 0-034 80 kcps energy-dispersive X-ray CT system utilizing a CdTe detector and a comparator  
Iwate Medical University Hospital Yuichi Sato
- 0-035 Dark-count-less photon-counting X-ray CT system using a YAP(Ce)-MPPC detector  
Iwate Medical University Yasuyuki Oda
- 0-036 Energy-dispersive CT system with a Si-PIN X-ray diode and its application to gadolinium K-edge imaging  
Iwate Medical University Eiichi Sato
- 0-037 High-sensitivity CT system using a direct-conversion Si-PIN X-ray diode and its application to gadolinium K-edge imaging  
Iwate Medical University Eiichi Sato
- 0-038 Development of an LSO-MPPC spectrometer and its applications high-speed energy-dispersive X-ray CT system  
Iwate Medical University Eiichi Sato

8. Diagnostic 4 (CAD) 15:30–16:20 Moderator: Hideaki Haneishi

- 0-039 Histogram analysis of 3D cerebral cortical thicknesses on MR images for diagnosis of Alzheimer's disease  
Kyusyu University Hospital Chiaki Tokunaga
- 0-040 Noise-mapping of cerebral infarction CT image obtained in head CT examination with organ-based tube current modulation system  
Nagoya University Chiyo Yamauchi-Kawaura

0-041 Let's consider sensory rating of the vision assessment methods of X-ray examination. Thurstone's Paired Comparison and Scheffe's Paired Comparison

Ureshino Medical Center Yukio Inoue

0-042 Investigation of image property in AIDR3D

Hokkaido University Hospital Michiaki Yamashita

0-043 Reconstruction of CT images with projection data including missing parts

Hosei University Futoshi Kaibuki

## 9. Radiation Protection

16:30-17:00

Moderator: Hiroki Ohtani

0-044 A study on a real-time x-ray entrance dose monitoring system in interventional radiology using Microsoft Kinects

Kyushu University Kenta Kozono

0-045 X-ray detector for real-time dose monitoring in interventional radiology

National Institute of Radiological Sciences Fumihiko Nishikido

0-046 Antioxidant effect of transglycosylated rutin for irradiated CHO cell

The University of Tokyo Shigeaki Sunada

**April 12 (Fri) PACIFICO YOKOHAMA Conference Center 418**

**10. Photon/Electron Therapy 5 (QA/QC2) 9:00–10:00 Moderator: Shimpei Hashimoto**

- 0-047 Energy Spectrum Inference of clinical photon beam by use of PDD  
Teikyo University Jun'ichi Kotoku
- 0-048 Comparison between multiple facilities of depth dose, off-axis ratio and output factor using high-energy photon radiotherapy  
Iwata City Hospital Tomohiro Shimozato
- 0-049 Progress of TPS-QC supporting program by a third-party evaluation agency  
National Cancer Center Kyohei Fukata
- 0-050 Function as an independent quality assurance for designated regional cancer centers  
National Cancer Center Toshiyuki Minemura
- 0-051 Effectiveness of on-site IMRT measurements by a third party organization: An important role of third party evaluation  
Ryukyu University Yasumasa Kakinohana
- 0-052 Verification of the fundamental data about the polymer gel dosimeter for evaluating the pelvic organ dose in brachytherapy  
National Institute of Radiological Sciences Kuniaki Nabatame

**11. Photon/Electron Therapy 6 (QA/QC3) 10:00–11:00 Moderator: Suguru Dobashi**

- 0-053 The characteristics of EPID for in-vivo dosimetry  
The Tokyo University Hospital Naoya Saotome
- 0-054 Analysis of post-irradiation growth effect for development of dose verification technique using a radiochromic film  
Okayama University Takuya Tsunehiro
- 0-055 Examination of measurement of irradiation field by difference of measurement modality  
Iwate prefectural Isawa hospital Koji Ishita
- 0-056 Clearance simulation of Gamma Knife radiosurgery with Leksell skull frame  
Nagoya Kyoritsu Hospital Hisato Nakazawa
- 0-057 Development of a collision detection simulator among treatment apparatus for radiotherapy treatment planning  
Kyoto College of Medical Science Akira Sawada
- 0-058 Patient Collision Simulator for Non-coplanar Stereotactic Body Radiation Therapy  
Washington University Akito Saito

**12. Photon/Electron Therapy 7 (VMAT) 14:40–15:50 Moderator: Akira Sakumi**

- 0-059 To Acquire Tumor Position in Thorax Lesion accompany with Breathing Movement Using EPID Images  
Cancer Institute Hospital Satoko Saotome
- 0-060 Verification of MLC motion during RapidArc delivery by use of an in-house program  
Fujita Health University Yumiko Adachi
- 0-061 Verification of irradiation parameters on VMAT for head and neck cancer  
Seirei Hamamatsu General Hospital Ryuichi Yada
- 0-062 Dose reconstruction for moving targets in VMAT  
The Cancer Institute Hospital Masatoshi Hashimoto
- 0-063 Impact of MLC position errors for VMAT dose distributions  
Tottori University Hospital Yasushi Ono
- 0-064 Independent verification of dynamic machine parameters for VMAT QA using DICOM-RT  
Hyogo College of Medicine Hideharu Miura

- 0-180 [Invited Speaker] Implementation of EPIQA portal dosimetry software for volumetric modulated arc therapy pre-treatment QA

Chulalongkorn University, Thailand Chitchaya Suwanraksa

### 13. Photon/Electron Therapy 8 (Monte Carlo)

15:50–17:00

Moderator: Satoshi Kito

- 0-065 Reduction of the number of remapped respiratory phase images in four-dimensional Monte Carlo dose calculation of dynamic tumor tracking irradiation

Kyoto University Yoshitomo Ishihara

- 0-066 The Effect of The Scatters from the physical wedge filter on the surface dose out of the field

Nagoya University Maiko Niwa

- 0-067 The study of expansion of irradiation field size for IMRT technique vero4DRT gimbal mechanism of radiation therapy equipment

Tokai University Shigeto Kabuki

- 0-068 [Invited Speaker] MONTE CARLO SIMULATION OF ABSORBED DOSE FROM LINAC ON CT PHANTOM VOXEL BY USING MCNP5 CODE IN CASE OF BRAIN TUMOUR

University of Science, VNU-HCMC, Vietnam Nguyen Thi Cam Thu

- 0-069 Dosimetric perturbation due to scattered rays released by a gold marker used for prostate tracking in multiple field radiotherapy

Hiroshima Red Cross Hospital & Atomic-Bomb Survivors Hospital Kosaku Habara

- 0-070 Verification of beam degrader in TSET by GEANT4

Keio University Natsumi Futakami

- 0-071 Dose assessment by the water absorbed dose dosimetry phantom of the Ir-192 brachytherapy source

Kawasaki College of Allied Health Professions Naomasa Narihiro

### 14. Radiation Measurement 1 (Application of Monte Carlo)

17:00–17:50

Moderator: Masao Matsumoto

- 0-072 Monte Carlo-calculated patient organ doses from a diagnostic X-ray CT

Kumamoto University Takeshi Ohno

- 0-073 Material decomposition with a photon counting CT

Hosei University Takeshi Maji

- 0-074 Calculation and evaluation of beam quality correction factor for a parallel-plate chamber by using Monte Carlo with EGS5/PHITS codes

Osaka University Masao Matsumoto

- 0-075 [Invited Speaker] Study on dose rate distribution surrounding to diagnostic X ray facilities and estimate the influence of scattering effect from the shieldings by MCNP5 code

University of Science, VNU-HCM, Vietnam Truong Thi Hong Loan

- 0-076 A Improvement Method for EPID Images using Electron Mode of Linear Accelerator

Tokyo Metropolitan University Atsushi Myojoyama

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15. Particle Therapy 1 (BNCT) 9:00–10:30 Moderator: Shunsuke Yonai

- 0-077 Status Report of Aizawa Hospital Proton Therapy center Project Part1  
Aizawa Hospital Proton Therapy Center Isamu Maeshima
- 0-078 Present Status of the SAGA-HIMAT Project  
SAGA-HIMAT Foundation Mitsutaka Kanazawa
- 0-079 Status Report of Aizawa Hospital Proton Therapy Center Project Part2  
Aizawa Hospital Proton Therapy Center Yuya Sugama
- 0-080 Beam property of Double-decker compact proton therapy system  
Sumitomo Heavy Industries, Ltd. Daizo Amano
- 0-081 Proton beam tuning for the breast cancer treatment at the Medipolis Proton Therapy and Research Center  
Medipolis Proton Therapy and Research Center, Ibusuki City Yuya Toi
- 0-082 Respiratory Rate and Synchrotron Pattern Cycle Dependence of Treatment Time  
Medipolis Medical Research Institute Naoaki Kondo
- 0-083 Improving Efficiency of Proton Therapy by Utilizing a Rotating Gantry Port as a Horizontal Fixed Port  
Medipolis Medical Research Institute Naoaki Kondo
- 0-084 Status of the Development of Acc-Based BNCT Irradiation System at a Down Town Hospital  
Kyoto University Research Reactor Institute Tooru Kobayashi
- 0-085 Dose Estimation for Internal Organs in Body-trunk BNCT  
Kyoto University Research Reactor Institute Yoshinori Sakurai

16. Particle Therapy 2 (PET) 14:40–15:50 Moderator: Teiji Nishio

- 0-086 Study of fragmentation reaction in the body for proton therapy  
Rikkyo University Keiichiro Matsushita
- 0-087 Washout effect in RI beam irradiation of rat using small OpenPET  
National Institute of Radiological Sciences Yoshiyuki Hirano
- 0-088 Clinical application of autoactivated PET-CT after Carbon Ion therapy in G.H.M.C.  
Gunma University Hospital Takayoshi Ishii
- 0-089 The PET-based tumor tracking with error reduction method  
Chiba University Tetsuya Shinaji
- 0-090 In-Beam Imaging Test of a Small Prototype for the Second Generation OpenPET  
National Institute of Radiological Sciences Taiga Yamaya
- 0-091 Estimation of standard deviation of range in 3-D irradiation by using Fisher's Information  
Tokyo Institute of Technology Yasunori Nakajima
- 0-092 A Monte Carlo simulation of real-time tumor tracking by the OpenPET: a feasibility study  
National Institute of Radiological Sciences Hideaki Tashima

17. Particle Therapy 3 (QA/Measurement) 15:50–17:00 Moderator: Mutsumi Tashiro

- 0-093 Dose Measurement Program in Quality Assurance for Broad Beam Therapy at HIMAC  
National Institute of Radiological Sciences Manabu Mizota
- 0-094 The positional accuracy of robotic arm treatment bed using Micrometer Drive  
National Cancer Center Hospital East Tsunemichi Akita
- 0-095 Evaluation of the phantom for cone-beam CT to create CT number-linear stopping power ratio conversion table for proton treatment  
Tokyo Metropolitan University Ryuta Hirai

- 0-096 Examination of the daily QA method of the isocenter positions in In-room CT and orthogonal DR  
National Cancer Center Hospital East Tatsuya Mogaki
- 0-097 Development of the Phantom Based on ROI Information in Radiotherapy Planning  
Fukui Prefectural Hospital Makoto Sasaki
- 0-098 Derivation of the lateral beam spread with concentric electrode ionization chamber in heavy-ion therapy  
National Institute of Radiological Sciences Yousuke Hara
- 0-099 Measurement of field size dependence of radiation quality of carbon beams using silicon detector.  
Gunma University Tatsuaki Kanai

**April 13 (Sat) PACIFICO YOKOHAMA Conference Center 418**

**18. Nuclear Medicine 9:10-9:50 Moderator: Hiroshi Watabe**

- 0-100 Simulation study of an axially extendable multiplex cylinder PET  
National Institute of Radiological Sciences Eiji Yoshida
- 0-101 Monte-Carlo simulation of sensitivity and NECR of a 2m-long PET scanner  
Tokyo Institute of Technology Ismet Isnaini
- 0-102 Accuracy of Attenuation Coefficients with Dual Energy Virtual Monochromatic Imaging for SPECT Attenuation Correction  
Osaka University Hospital Takashi Ueguchi
- 0-103 The Performance Evaluation of The Electron Tracking Compton Camera  
Kyoto University Shinya Sonoda

**19. Nuclear Medicine/MRI 10:00-10:50 Moderator: Toru Yamamoto**

- 0-104 Development of an integrated PET/MRI detector: Evaluation of magnetic-field distortion caused by eddy-current in shield boxes  
Chiba University Kodai Shimizu
- 0-105 Vascular properties obtained from spin-echo signal fluctuations in the human brain  
Hokkaido University Minghui Tang
- 0-106 Development of a DOI-PET detector "X'tal cube": optimal position calculation for each optical condition in the scintillation crystal block  
National Institute of Radiological Sciences Naoko Inadama
- 0-107 Performance of laser-processed X'tal cube PET detectors with reduced the numbers of SiPM readout surfaces  
National Institute of Radiological Sciences Yoshiyuki Hirano
- 0-108 Optical simulation of a novel DOI detector with a stack of planer scintillators : Impact of surface roughness on spatial resolution  
Chiba University Akane Gondo

**20. Photon/Electron Therapy 9 (Treatment Planning) 14:40-15:50 Moderator: Kazunori Miyaura**

- 0-109 The Potential of Virtual Non-Contrast CT for Radiotherapy Treatment Planning  
Osaka University Hospital Sachiko Yamada
- 0-110 Development of an Open Source Platform for adaptive radiotherapy  
Teikyo University Shinobu Kumagai
- 0-111 [Invited Speaker] The Evaluation of Respiratory Errors and Breast Shape Changes from Set-up Errors on Tangential Whole Breast Irradiation  
The Catholic University of Korea, Korea Seu-Ran Lee
- 0-112 Intrafractional prostate motion using fiduciary gold markers in hypofractionated IMRT  
Kitasato University Hospital Minoru Ishigami
- 0-113 The evaluation of dose accumulation in replanning during the course of intensity modulated radiotherapy in head and neck region  
Osaka University Masao Matsumoto
- 0-114 Study of treatment planning with split field technique in IMRT  
Gunma University Heavy Ion Medical Center Motohiro Kawashima
- 0-115 Evaluation method of cumulative dose of organs at risk in head and neck IMRT using deformable image registration  
Tohoku University Kazuhiro Arai

21. Photon/Electron Therapy 10 (Treatment Support)      15:50–17:10      Moderator: Hiroyuki Okamoto
- 0-116 Optimization method of beam directions based on similar cases in stereotactic body radiotherapy for lung cancers  
Kyushu University      Taiki Magome
- 0-117 Computer-Aided Delineation of Lung Tumor Regions in Treatment Planning CT Images by Localized Level Set Method Combined with PET/CT Images  
Kyushu University      Ze Jin
- 0-118 Automated method for monitoring of patient positioning during treatment time based on range images acquired from time-of-flight camera  
Kyushu University      Mazen Soufi
- 0-119 Actual method of SBRT for lung cancer in Ogaki Municipal Hospital  
Ogaki Municipal Hospital      Hitoshi Takagi
- 0-120 Development of three-dimensional summation method for rectal doses combined with seed implant brachytherapy and external beam radiotherapy for prostate cancer  
Iwate Medical University      Satoshi Yamaguchi
- 0-121 Which is better for Patient?  
Otsu Red Cross Hospital      Makoto Hirata
- 0-122 Examination of the preliminary-treatment way of the bladder at prostate IMRT  
Hitachinaka General Hospital      Yoshiyuki Kawasaki
- 0-181 [Invited Speaker] Magnetic Resonance Imaging Based Treatment Planning for Brain tumor  
Chulalongkorn University, Thailand      Kittipol Dachaworakul



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22. Particle Therapy 4 (Scanning) 9:00–10:40 Moderator: Takeji Sakae

- 0-123 Measurement of neutron ambient dose equivalent in carbon-ion radiotherapy with active scanned beam  
National Institute of Radiological Sciences Shunsuke Yonai
- 0-124 Dependence of dose distortion on the scanning direction in proton beam therapy for a respiratorily moving target  
University of Tsukuba Hospital Satoshi Kamizawa
- 0-125 Commissioning of moving target irradiation with scanned-ion beam  
National Institute of Radiological Sciences Takuji Furukawa
- 0-126 Proposal of Intensity Modulated Composite Ion Therapy (IMCIT)  
National Institute of Radiological Sciences Taku Inaniwa
- 0-127 Development of IMPT optimization algorithm for proton therapy with fiducial markers  
Hitachi Research Laboratory Rintaro Fujimoto
- 0-128 Beam Technology and Its Stability Verification for Scanning Delivery at NIRS-HIMAC  
National Institute of Radiological Sciences Kota Mizushima
- 0-129 Report of a biological experiment with scanning beam in GHMC  
Gunma University Heavy-Ion Medical Center Eri Takeshita
- 0-130 Systematic evaluation of four-dimensional hybrid depth scanning for carbon-ion lung therapy  
National Institute of Radiological Sciences Shinichiro Mori
- 0-131 A study on a gated proton spot-scanning beam therapy integrated with a real-time tumor-monitoring: an initial phantom study using patient tumor trajectory data  
Hokkaido University Taeko Matsuura
- 0-132 A comparative study of dose distribution in proton spot scanning and that in patch irradiation  
University of Tsukuba Shohei Mizutani

23. Particle Therapy 5 (Simulation) 14:40–15:40 Moderator: Toshiyuki Toshito

- 0-133 Evaluation of impurity components of secondary particles generated in particle therapy equipment  
Osaka University Keita Kurosu
- 0-134 Nuclear Reaction Data for Particle Therapy  
Osaka University Takuma Horaguchi
- 0-135 Study of proton therapy simulation included effect of secondary particle generated in nuclear reaction  
Rikkyo University Seiichi Tamaki
- 0-136 A clinical use of Monte Carlo simulation in Nagoya Proton Therapy Center  
Nagoya Proton Therapy Center Chihiro Omachi
- 0-137 Development of Monte-Carlo dose calculation system based on the XiO<sup>®</sup>-N treatment planning system at Fukui prefectural hospital proton therapy center  
Fukui Prefectural Hospital Proton Therapy Center Yoshikazu Maeda
- 0-138 Monte Carlo study on reduction in the secondary neutron exposure in passive carbon-ion radiotherapy  
Nagoya University Akihiko Takeuchi

24. Particle Therapy 6 (Equipment, Treatment Planing) 15:50–17:00 Moderator: Toshiyuki Terunuma

- 0-139 Treatment planning for scanned charged particle beams - Finding an optimal 4DCT resolution  
National Institute of Radiological Sciences Silvan Zenklusen
- 0-140 Development of IMPT optimization algorithm for reducing sensitivity to range uncertainties in heterogeneous media  
Hitachi Research Laboratory Shusuke Hirayama

- 0-141 Development of an in-house program to calculate the monitor unit for proton therapy beam.  
Fujita Health University Naoki Hayashi
- 0-142 Experimental verification of effectiveness of bolus designed using the dose-optimization method  
University of Tsukuba Yoshihisa Takada
- 0-143 A study on simultaneous optimization of boluses for broad beam patch irradiation in proton therapy  
University of Tsukuba Ryo Yachidate
- 0-144 Evaluation of range compensation materials for carbon ion therapy  
National Institute of Radiological Sciences Yusuke Koba
- 0-145 Secondary particle components in carbon-ion beam related to range shifter position  
Osaka University Keita Kurosu

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25. Photon/Electron Therapy 11 (Positioning) 9:00–10:10 Moderator: Mitsuhiro Nakamura

- 0-146 The evaluation of intra-fractional organ motion error and intra-fractional setup error in radiation therapy for lung cancer with breath-holding  
Aizawa Hospital Proton Therapy Center Yuya Sugama
- 0-147 Registration accuracy for lung tumor verified by using in-treatment 4D cone-beam CT  
The University of Tokyo Hospital Akihiro Haga
- 0-148 Study of radiation treatment planning considering the lung function using 4D-CT ventilation imaging  
Tohoku University Sang Yong Cho
- 0-149 [Invited Speaker] Improvement in accuracy of respiratory gated radiation therapy using respiratory guiding system  
The Catholic University of Korea, Korea Seong-Hee Kang
- 0-150 Development of a deformable lung phantom for quantitatively verifying deformation algorithms  
Tohoku University Yusuke Onozato
- 0-151 Study of CT value on CBCT for Adaptive Radiation Therapy  
University of Tsukuba Hospital Tatsuya Segawa
- 0-152 Development of support software for verifying accuracy of the lung tumor tracking system  
Yokohama CyberKnife Center Mitsuhiro Inoue

26. Photon/Electron Therapy 12 (Brachytherapy) 10:10–11:00 Moderator: Toshiyuki Ogata

- 0-153 Micro-focus X-ray imaging of I-125 brachytherapy sources for QC  
Kitasato University Tomoyuki Hasegawa
- 0-154 Development of strength evaluation method of moving sources for brachytherapy (3) Influence by source position and shield by needles  
Sapporo Medical University Kenichi Tanaka
- 0-155 Three-dimensional dose distribution of Ruthenium 106 brachytherapy for retinoblastoma  
The University of Tokyo Hospital Masahiko Futaguchi
- 0-156 Reconstruction accuracy of CT/MR applicator for cervix cancer brachytherapy: comparing manual and library modelling in CT imaging  
University of the Ryukyus Hussein ALMasri
- 0-157 Evaluation of the possibilities of predicting urinary and rectal damage after permanent seed implant  
Fujita Health University Hospital Yasunori Saito

27. Particle Therapy 7 (Others) 11:00–11:50 Moderator: Nobuyuki Kanematsu

- 0-158 The evaluation of 4D dose distribution used 4DCT for respiratory gated layer-stacking liver treatment.  
National Institute of Radiological Sciences Minoru Nakao
- 0-159 Design of beam specific target volume for particle therapy using fiducial marker  
Nagoya Proton Therapy Center Toshiyuki Toshito
- 0-160 Investigation of the range uncertainty in treatment planning caused by imaging with CT simulator  
Nagoya City West Medical Center Hiroki Shibata
- 0-161 Development of dynamic tumor locating system for accurate proton irradiation  
Rikkyo University Ryouta Noguchi
- 0-162 Development and verification of Bragg Peak locating system in patient body by proton irradiation  
Rikkyo University Tatsuhiko Suzuki

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- 0-163 LET Dependency of Glow Curve of Tissue Equivalent Phantom Thermoluminescence Dosimeter (TEP-TLD)  
Chiba University Satoshi Tamatsu
- 0-164 Usefulness of TL Slab detector of central position detection for CyberKnife Beam  
Tokyo Metropolitan University Daiki Maruyama
- 0-165 Characteristics of tissue-equivalent Thermoluminescence and Photoluminescence films  
Juntendo University Chie Kurokawa
- 0-166 Investigation of VIPAR polymer gel dosimeter for dosimetric verification in the carbon ion beam therapy (2)  
Nishina Center for Accelerator-Based Science, RIKEN Takuya Maeyama
- 0-167 Application of a polyacrylamide gel detector for dose measurements in a proton beam  
Hiroshima International University Takahiro Tominaga
- 0-168 The Study of direct calibration on the polymer gel detector's dose response by Gafchromic films  
Hiroshima International University Mitsutoshi Tada
- 0-169 Report on the short-term study abroad to RMIT University  
Hiroshima International University Satomi Nakahara

**29. Radiation Measurement 3 (Babble, Scintillator, GM) 10:10–11:10 Moderator: Akihiro Nohtomi**

- 0-170 Development of a real-time dose measurement tool with a plastic scintillator for radiation therapy  
Kitasato University Katsunori Yogo
- 0-171 Development of 4-D dosimetry tool using plastic scintillator  
Rikkyo University Seiichi Tamaki
- 0-172 Development of a leak survey meter  
Iwate Medical University Michiaki Sagae
- 0-173 Application of a superheated drop detector for the estimation of biological effectiveness for C-ion RT  
Yokohama City University Osamu Yamamoto
- 0-174 High sensitive neutron-detection by an NaI scintillator (1) — Measurement at a research reactor  
Kyushu University Akihiro Nohtomi
- 0-175 High sensitive neutron-detection by an NaI scintillator (2) — Measurement at a clinical linac  
Kyushu University Eriko Yahiro

**30. Radiation Measurement 4 (QA, Standard) 11:10–11:50 Moderator: Tadahiro Kurosawa**

- 0-176 A feasibility study for efficient daily routine using an EPID  
University of the Ryukyus Akira Funyu
- 0-177 Development of XiO beam database  
Elekta Japan K.K. Kazuyuki Wada
- 0-178 Absorbed dose standard for high-energy photons from a clinical linac  
National Metrology Institute of Japan Morihito Shimizu
- 0-179 Dosimeter Calibration with Water Absorbed Dose by ANTM  
Dose Calibration Center, Association for Nuclear Technology in Medicine Suoh Sakata