

## December 7, Saturday

### 8:00-8:05 Welcome opening

Tadashi Kamada

ion-beam Radiation Oncology Center in Kanagawa, Kanagawa Cancer Center

### 8:05-9:55 Scientific Session 1: Start up facility ; Invited talk

**Chairs:** Hsiao-Ming Lu, Ph.D.

Director of Physics at Hefei Ion Medical Center, Anhui Provincial Hospital,  
Director and Professor of Ion Medical Research Institute,  
University of Science and Technology of China, Hefei City, Anhui Province, China

Kazuhiko Ogawa

Professor of Department of Radiation Oncology, Osaka University Graduate School of Medicine,  
Japan

#### **1-1 The Report on the Initial Stage of Proton Beam Therapy in University Hospital, Kyoto Prefectural University of Medicine.**

Norihiro Aibe

Department of Radiology, University Hospital, Kyoto Prefectural University of Medicine

#### **1-2 Current Status of East Japan Heavy Ion Center, Faculty of Medicine, Yamagata University**

Takeo Iwai

Graduate School of Medical Science, Yamagata University  
East Japan Heavy Ion Center, Yamagata University Faculty of Medicine

#### **1-3 Current Status of 1st Carbon Ion Therapy in Korea – Yonsei Cancer Center**

Yong Bae Kim M.D.

Department of Radiation Oncology, Yonsei Cancer Center, Yonsei University College of Medicine,  
Seoul, Korea

#### **1-4 The development of Particle Therapy in Taipei Veterans General Hospital.**

Yu-Ming Liu, MD, PhD.

Division of Radiation Oncology, Department of Oncology, Taipei Veterans General Hospital,  
Taiwan

#### **1-5 The Quest for PT in Hong Kong**

Ben Yu, Ph.D. CertMed Phy

Head, Medical Physics & Research Department, Hong Kong Sanatorium & Hospital

#### **1-6 The HRH Princess Maha Chakri Sirindhorn Proton Center**

Chonlakiet Khorprasert MD.

The HRH Princess Maha Chakri Sirindhorn Proton Center

**1-7 Startup facility: National Cancer Centre Singapore**

Dr Michael Wang

MBBS Singapore, FRCR (Clinical Oncology), FAMS, GDip (Healthcare Management and Leadership)

**1-8 Australian Particle Therapy Update: Building of the Australian Bragg Centre Commences**

A/Prof Michael Penniment

Alan Walker Cancer Care Centre, Australian Bragg Centre (ABC)

**1-9**

John Chandy

Chief Operating Officer, Proton Therapy and Oncology at Apollo Hospitals

**1-10 Overview of heavy-ion treatment facility: Osaka-HIMAK**

Toshiro Tsubouchi

Osaka Heavy Ion Therapy Center

**1-11 Facility set-up and clinical experiences in Kouseikai Proton Therapy Center**

Kazuya Inoue

Kouseikai Takai Hospital

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**9:55-10:05 Coffee Break**

**10:05 - 11:05 Scientific Session 2:**  
Clinical implementation of new technology :  
IGPT, IMPT, Motion management, Spacer, BRM, etc.

**Chairs:** A/Prof Michael Penniment

Alan Walker Cancer Care Centre, Australian Bragg Centre (ABC)

Tomoaki Okimoto

Director of Hyogo Ion Beam Medical Center Hyogo Ion Beam Medical Center, Japan

**2-1 The Current Status of Proton and Heavy Ion Therapy in Shanghai Proton and Heavy Ion Center**

Guo-Liang Jiang

Shanghai Proton and Heavy Ion Center

**2-2 Long term ocular effects of proton beam therapy for choroidal melanoma at a single institute in Korea**

Sung Ho Moon

Research Institute and Hospital, National Cancer Center (KOREA)

**2-3 EARLY EXPERIENCE WITH HYDROGEL RECTAL SPACER WITH PROTON THERAPY FOR PROSTATE CANCER: STABILITY ASSESSMENT WITH WEEKLY MRI**

Huan Giap

Texas A&M Health Science Center

**2-4 Combination of PSMA-SPECT/CT and fMRI in the prediction of early response after carbon ion therapy in prostate cancer**

Zhengshan Hong

Department of Radiation Oncology, Shanghai Proton and Heavy Ion Center

**2-5 Prognosis Biomarker and Potential Therapeutic Target CRIP2 Associated with Radiosensitivity in NSCLC Cells.**

Weiqiang Chen

Institute of Modern Physics

**2-6 Intensity Modulated Proton Therapy (IMPT) For Re-treatment of Thoracic Malignancy**

Huan Giap

University of Miami Sylvester Comprehensive Cancer Center

11:05-12:05

**Scientific Session 3:**

Clinical implementation of new technology:

IGPT, IMPT, Motion management, Spacer, BRM, etc.

**Chairs:** Yong Bae Kim M.D.

Department of Radiation Oncology, Yonsei Cancer Center, Yonsei University College of Medicine, Seoul, Korea

Hideya Yamazaki

Professor, Department of Radiology, Kyoto Prefectural University of Medicine, Japan

**3-1 Proton and Carbon Ion Radiotherapy for Limited Stage Small Cell Lung Cancer: a mono-institutional retrospective analysis**

Ningyi Ma

Shanghai Engineering Research Center of Proton and Heavy Ion Radiation Therapy, Shanghai Proton and Heavy Ion Center

**3-2 Proton therapy for HCC Patients with Small Liver Volume: Treatment Outcome and Treatment Plan Comparisons with X-ray**

Ji-Hong Hong

Chang Gung Memorial Hospital at Linkou

**3-3 Carbon ion radiotherapy for locally recurrent rectal cancer in patients with prior pelvic irradiation**

Shigeru Yamada

National Institutes for Quantum and Radiological Science and Technology

**3-4 Preliminary Observation of Carbon ion Radiotherapy using Pencil Beam Scanning Technique for Thoracic Bone and Soft Tissue Tumors**

Ningyi Ma

Shanghai Proton and Heavy Ion Center, Shanghai Engineering Research Center of Proton and Heavy Ion Radiation Therapy

**3-5 Carbon ion radiotherapy for axial bone sarcoma.**

Reiko Imai

QST hospital

**3-6 Carbon Ion Radiotherapy for Unresectable Bone and Soft Tissue Sarcomas**

Itsuko Serizawa

Kanagawa Cancer Center

**12:15-13:15 Luncheon Seminar 2**

Co-sponsored by Toshiba Energy Systems & Solutions Corporation

**Topic:** Latest Information of Heavy Ion Therapy System

**■ Program 1**

Our Choice for Heavy Ion Therapy System in Yonsei Cancer Center Korea

**Performer:** Jin Sung Kim, Ph.D

Associate Professor Chief Medical Physicist,  
Research Director of Yonsei University College Medicine, Yonsei Cancer Center

**■ Program 2**

Efforts and perspective of heavy-ion radiotherapy for pancreatic cancer

**Performer:** Shigeru Yamada, Director, M.D., Ph.D.

Department of Charged Particle Therapy Research National Institute of Radiological Sciences  
National Institute for Quantum and Radiological Science and Technology

**13:15-13:45 Presidential lecture**

**chair:** Masatoshi Hasegawa

Professor of Department of Radiation Oncology, Nara Medical University, Japan

**Evolution of Particle therapy in Asia-Oceania**

Tadashi Kamada

ion-beam Radiation Oncology Center in Kanagawa, Kanagawa Cancer Center

**Chairs:** Sung Yong Park, Ph.D.

Chief Proton Physicist, National Cancer Centre Singapore, Singapore

Adjunct Professor Department of Radiation Oncology, Yonsei University, Seoul, Korea

Toshinori Soejima

Director of Hyogo Ion Beam Medical Center Kobe Proton Center

**4-1 Facility performance for initial three years in i-ROCK**

Shinichi Minohara

Section of Medical Physics and Engineering, Kanagawa Cancer Center

**4-2 Developmet of a two-room carbon-ion radiotherapy device at QST/NIRS**

Toshiyuki Shirai

National Institutes for Quantum and Radiological Science and Technology

**4-3 Preliminary study of dosimetry and efficiency of 2D-6mm ripple filter in carbon ion radiotherapy**

Jingfang Zhao

Shanghai proton and heavy ion center

**4-4 Commissioning and first clinical use of a 3D-printed ripple filter to increase carbon patient throughput**

Nicki Schlegel

Shanghai Proton and Heavy Ion Center, Fudan University Shanghai Cancer Hospital, Shanghai, China

**4-5 Commissioning of a real-time image gated system on a carbon raster scanning beam therapy**

Nao Okada

Division of Health Sciences, Osaka University

**4-6 Commissioning of a new treatment planning system for carbon-ion scanning beam in Osaka Heavy Ion Therapy Center**

Masashi Yagi

Osaka University

14:55-15:55

**Scientific Session 5: General topics**

**Chairs:** Ben Yu, Ph.D. CertMed Phy

Head, Medical Physics & Research Department, Hong Kong Sanatorium & Hospital

Kazuya Inoue

Director, Department of Radiology, Kouseikai Takai Hospital, Japan

**5-1 Application of monte-carlo simulation using machine log-files for pretreatment QA in line scanning proton therapy**

Jinhyeop Lee

Department of Health Sciences and Technology, SAIHST, Sungkyunkwan University

**5-2 Log-file based analysis for actual results of beam irradiation in line scanning proton therapy**

Yuya Azuma

Kouseikai Proton Therapy Center

**5-3 Real-Time Dose-Verification in Particle Therapy Using an Electron-Tracking Compton Camera and their simulation study**

Shunsuke Kurosawa

Tohoku Univ.

**5-4 Verification of dose distribution in carbon-ion radiotherapy for prostate cancer using daily in-room computed tomography.**

Keisuke Tsuchida

Department of Radiation Oncology, Kanagawa Cancer Center

**5-5 Effectiveness of re-planning protocols for sparing rectal doses based on the daily CT-images during the proton treatment for prostate cancer**

Yoshikazu Maeda

Proton Therapy Center, Fukui Prefectural Hospital

**5-6 The Accuracy of Proton Convolution Superposition and Acuros PT in Dose Calculation for Single Pencil Beam with Range Shifter**

Yen Hwa Lin

National Cancer Centre Singapore

15:55-16:55

**Scientific Session 6: General topics**

**Chairs:** Dongho Shin, Ph.D

Professor, Chief Medical Physicist, Proton Therapy Center, Department of Radiation Oncology, National Cancer Center, Korea

Tatsuaki Kanai, Ph.D

Deputy Director, Osaka Heavy Ion Therapy Center, Japan

**6-1 Hyperfractionated intensity-modulated proton therapy planning for the small tumor (diameter < 3cm) of lung cancer: a comparative dosimetric analysis**

Bo Zhao

Department of Radiation Therapy, Peking University First Hospital

**6-2 Establishment of LEM based RBE-weighted rectum DVHs referring to NIRS approaches for Prostate Carcinomas with different geometries for carbon-ion radiotherapy**

Jingfang Zhao

Shanghai Proton and Heavy Ion Center

**6-3 A modified microdosimetric kinetic model for relative biological effectiveness calculation**

Chunyan Li

Tsinghua University & Nuctech Company Limited

**6-4 Microdosimetric study at the NIRS scanning beam for the multi-ion therapy**

Sung Hyun Lee

Department of Accelerator and Medical Physics, National Institute of Radiological Sciences

**6-5 The Role of Natural Boron Content in Tumor under Proton Therapy: A Monte Carlo Simulation Study**

Martin Law

Proton Therapy Pte Ltd

**6-6 An experimental verification to detect the alpha particles for application of proton boron fusion reaction in proton therapy**

Do-Kun Yoon

Department of Biomedical Engineering and Research Institute of Biomedical Engineering, College of Medicine, Catholic University of Korea

**16:55-17:00 Closing remarks**

Professor Joseph Tung-Chieh Chang

Chang Gung Memorial Hospital

**17:00-17:30 Poster Session**

**P001 Re-irradiation of Recurrent Cancer in the Breast and Chest Wall Using Intensity Modulated Proton Therapy**

Huan Giap

University of Miami Sylvester Comprehensive Cancer Center

**P002 Safety and Feasibility of Intensity Modulated Proton Therapy (IMPT) for Early Stage Breast Cancer Patients with Breast Augmentation.**

Huan Giap

University of Miami Sylvester Comprehensive Cancer Center

**P003 Clinical efficacy and safety of proton and heavy ion radiotherapy for chordoma: a systematic review and meta-analysis**

Zheng Li

Institute of Modern Physics, Chinese Academy of Sciences

- P004 Clinical outcomes and toxicity comparison of treatment with Gamma Knife, Proton therapy or Episcleral plaque for uveal melanoma**  
Hsiao-Wei Yu  
Taipei Cancer Center, Taipei Medical University
- P005 A preliminary study on adaptive carbon-ion radiotherapy with passive irradiation for pancreatic cancer**  
Yang Li  
Graduate School of Medicine, Gunma University
- P006 Re-Irradiation of Rectal and Anal Cancer with Intensity Modulated Proton Therapy (IMPT) and Endo-rectal Balloon**  
Huan Giap  
University of Miami Sylvester Comprehensive Cancer Center
- P007 Preliminary result of carbon ion radiation therapy using spot scanning method for prostate cancer**  
Yosuke Takakusagi  
Department of Radiation Oncology, Kanagawa Cancer Center
- P008 Comparison of 4-port and 2-port methods for Carbon-ion Radiotherapy Treatment for Prostate Cancer**  
Kio Kano  
Department of Radiation oncology & Ion-beam Radiation Oncology Center, Kanagawa Cancer Center
- P009 Intensity-Modulated Proton Therapy reduce acute toxicity for non-NPC head and neck cancer, a propensity score matching study.**  
Sheng-Ping Hung  
Chang Gung Memorial Hospital- Linkou, Department of Radiation Oncology
- P010 Outcomes and prognostic factors in adenoid cystic carcinoma of the head and neck**  
Nobutaka Mizoguchi  
Department of Radiation Oncology, Kanagawa Cancer Center
- P011 Preliminary result of proton therapy for lung cancer with poor lung function or underlying lung disease**  
Jae Myoung Noh  
Department of Radiation Oncology, Samsung Medical Center, Sungkyunkwan University School of Medicine
- P012 High speed scanning beam delivery technology for moving targets**  
Junichi Inoue  
Sumitomo Heavy Industries, Ltd.
- P013 A feasibility study for IDD profile dosimetry with radiation sensor based on multilayer acrylic disks**  
Dongho Shin  
Korea University, National Cancer Center



- P014 Verification of dose calculations with the double Gaussian-logistic model for carbon-ion spot scanning beam delivery**  
Hui Zhang  
Institute of Modern Physics, Chinese Academy of Sciences, Key Laboratory of Heavy Ion Radiation Biology and Medicine of Chinese Academy of Sciences, Key Laboratory of Basic Research on Heavy Ion Radiation Application in Medicine, School of Nuclear Sci
- P015 Simulation of practical dose distribution with respiratory-gated carbon-ion radiotherapy by PCR method**  
Yuka Matsuzaki  
Kanagawa Cancer Center, Section of Medical Physics and Engineering, Yokohama, Japan
- P016 Potential Pitfalls of Diaphragm Structural Matching in Carbon-ion Radiotherapy for Pancreatic Cancer**  
Yusuke Itabashi  
Department of Radiology, Gunma University Hospital, Gunma, Japan
- P017 Monte Carlo Studies for Evaluating the Dosimetric Characteristics of Polymer and Radiochromic Gel Dosimeter in Proton Beam Delivery**  
Haijo Jung  
Korea Institute of Radiological and Medical Sciences, Seoul, Korea
- P018 Super-resolution model for high-precision in vivo proton range verification using a stereo gamma camera: a Feasibility study**  
Jinhyeop Lee  
Department of Health Sciences and Technology, SAIHST, Sungkyunkwan University
- P019 Proton range verification using iono-acoustic signal in hospital-based proton source: a feasibility study**  
Jeong Sangwoon  
Department of Health Sciences and Technology, SAIHST, Sungkyunkwan University
- P020 Evaluation of intensity-, contour-based, and hybrid deformable image registration accuracy for pancreatic cancer patient images**  
Yoshiki Kubota  
Gunma University Heavy Ion Medical Center
- P021 Dosimetric case study: Utility of combining Yttrium-90 PET Dosimetry with VMAT/IMPT using biological effective dose modelling in hepatocellular carcinoma**  
Ashley.L.K. Ong  
Division of Radiation Oncology, National Cancer Centre Singapore
- P022 High Linear Energy Transfer Radiation and Metformin in Hepatocellular Carcinoma Xenograft Model**  
Wonil Jang  
Department of Radiation Oncology, Korea Institute of Radiological & Medical Sciences

- P023 Study on the RBE prediction for carbon beam scanning irradiation using an SOI detector**  
Kum Bae Kim  
Korea Institute of Radiological and Medical Sciences, Seoul, Korea
- P024 The First Proton Therapy Cancer Center in Thailand - Phase I: Planning Project to Cyclotron Installation**  
Puntiwa Oonsiri  
Radiation Oncology Division, King Chulalongkorn Memorial Hospital, The Thai Red Cross Society, Bangkok, Thailand
- P025 Heavy Ion Therapy for a Case of Vaginal Malignant Melanoma and Review of the Literature**  
Ying Qi  
Gansu Wuwei Tumor Hospital, China
- P026 Discussion on uniform scanning plan in one patient with heavy ion therapy**  
Wanbin Meng  
Gansu wuwei Tumor hospital.China
- P027 Carbon-ion radiotherapy for hepatocellular carcinoma, delivered with pencil-beam scanning and respiratory-gating irradiation method.**  
Wataru Anno  
Department of Radiation Oncology, Kanagawa Cancer Center

**18:00-19:00 Evening Seminar**

Co-sponsored by Hitachi, Ltd.

Venue: Large banquet hall "CHO" (4F)

■ **Program 1**

Hitachi Particle Therapy Solution

**Speaker:** Masumi Umezawa

Hitachi, Ltd., Smart Life Business Management Division

■ **Program 2**

Current status and future of Osaka Heavy Ion Therapy Center (Osaka-HIMAK)

**Speaker:** Toshiro Tsubouchi

Osaka Heavy Ion Therapy Center