

Scientific Program of AOCMP 2015

Friday 6, November, 2015

Therapy Session 1

08:30~10:00AM

Room:Grand Ballroom 1

Chairperson: *Sen Bai, Yanling Bai*

1. Luminescencedosimetry - medical applications(**Invited Lecture,20 minutes**)

ArunChougule

2. Improvement and evaluation of deformation image registration on parotid glands during radiation therapy for nasopharyngeal cancer

ShoupingXu

3. Development of the real time patient alignment monitoring system using Room laser and Photo sensors

Yu Yun Noh

4. The dosimetric research of target regions and bone in three and two-dimensional brachytherapy techniques for soft tissue sarcomas

Wujun Sun

5. A Preliminary Study of Monte Carlo Simulation of the Treatment Nozzle of a Carbon-ion Facility in Lanzhou Using TOPAS

Hongdong Liu

6. Impact of SUVmax on 18F-FDG PET Target Volume Delineation in Radiotherapy Treatment Planning of NSCLC Patients

ShanpatSangudsup

7. The scatter factor of the afterloading Iridium192 source calibration in air

Xiaoyun Di

8. An effective calculation method for OVH descriptor and its application in IMRT plan retrieval

Zhengdong Zhou

Imaging Session 1

08:30~10:00AM

Room:Grand Ballroom 2

Chairperson: *Yu Wen, YaoqinXie*

1. Exploration of the precise diagnosis and treatment for Neusoft medical (**Invited Lecture, 20 minutes**)

Yu Wen

2. Application of a simplified ultra-small x-ray scattering imaging using Bragg case analyzer to a breast cancer specimen

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- Daisuke Shimao*
3. Changes of spleens's morphology and density depicted by phase-contrast x-ray ct
- Tohoru Takeda*
4. Interpolation method in sparse-angular spectral CT with an energy-resolved photon-counting detector
- Dohyeon Kim*
5. A feasibility study for three material decomposition in dual energy digital mammography
- Donghoon Lee*
6. Characterization of different types of x-ray detector for prototype DBT (digital breast tomosynthesis) system
- Ye-seul Kim*
7. Evaluation of Effective Dose from CT Scans for Overweight and Obese Patients Using the VirtualDose Software
- Baohui Liang*
8. Investigation of the temperature dependency with scanning MRI of the polymer gels
- Hirakukawamura*
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10:00 ~ 10:30AM Refreshment Break / Poster Session

Therapy Session 2

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|---------------|-----------------------|
| 10:30~12:00AM | Room:Grand Ballroom 1 |
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- Chairperson: *Xiaoyun Di, Weigang Hu*
1. Preparedness for Nuclear & Radiological Emergency – Challenging the Medical Physicist (**Invited Lecture, 20 minutes**)
- Fridtjof Nüsslin*
2. Accuracy verification of a collision-detection simulator between treatment unit and patient for dynamic wave arc irradiation
- Daigo Watanabe*
3. A preliminary study to improve 2D IMRT QA accuracy through the algebraic approach for geometric correlation of distribution
- Hyun-Jae Koo*
4. Reproducibility of breathing guidance method for respiratory motion management in synchrotron-based gated heavy-ion beam delivery
- Pengbo He*
5. *Accumulative imaging dose and lifetime attributable risk of cancer incidence in image-guided radiotherapy of cancers*
- Li Zhou*
6. A novel dMLC-based real-time tracking and Overlapped Projection Ratio based gating radiotherapy for mobile tumor
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Zhengdong Zhou

7. Characteristics of Fiber-Optic Radiation Sensor for Proton Therapeutic Beam
Dongho Shin
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Imaging Session 2

10:30~12:00AM

Room:Grand Ballroom 2

Chairperson:*Zhilin Ren, Zhiyu Qian*

1. Reduction in X-ray Scatter and Beam Hardening for Low-Dose Cone-Beam CT

Wenlei Liu

2. The potential of spectral computed tomography for quantitative decomposition of vulnerable plaque using a dual-energy technique: Monte Carlo Simulation study

Byungdu Jo

3. Quantitative Study on Accurate Reconstruction Sampling Condition by Verifying Solution Uniqueness in Limited-view CT

Wenkun Zhang

4. Ordered-subset simultaneous algebraic reconstruction technique(OS-SART) in a prototype digital breast tomosynthesis (DBT) system

Sunghoon Choi

5. Multiscale Penalized Weighted Least-Squares Image-domain Decomposition for Dual-energy CT

Shaojie Tang

6. Joint Robust PCA and Total Variation Constraint Method based Multi-energy CT Reconstruction with Segmental Scanning Protocol

Bin Li

12:00AM~13:30PM Lunch

Therapy Session 3

13:30~15:00PM

Room:Grand Ballroom 1

Chairperson:*Raymond Wu, Xiao Xu*

1. Particle Radiotherapy, an Emerging Technology for Treatment of Cancer(**Invited Lecture, 20 minutes**)

Arabinda Kumar Rath

2. Quality assurance of simultaneous treatment of multiple targets planned with mono isocenter using three dimensional conformal radiotherapy (3DCRT) technique
Srinivas Challapalli
 3. Monitor unit optimization in stereotactic body radiotherapy for small peripheral non-small cell lung cancer patients
Baotian Huang
 4. Intelligence Guided Beam Angle Optimization in Treatment Planning of Intensity-Modulated Radiation Therapy
Hui Yan
 5. Radiobiological modeling analysis of the optimal fraction scheme in small peripheral non-small cell lung cancer patients undergoing stereotactic body radiotherapy
Baotian Huang
 6. Tumor location prediction using natural respiratory volume for respiratory gated radiation therapy (RGRT): System verification
Moo-Sub Kim
 7. Intensity-modulated radiotherapy for gliomas: dosimetric effects of changes in gross tumor volume on organs at risk and healthy brain tissue
Jidong Hong
 8. Integration of Magnetic Resonance Imaging and Radiation Therapy Accelerator
Yafen Li
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TG100 Workshop

13:30~15:00PM

Room:Rotunda Room

Chairperson:*M.SaifulHuq, Yong Yang*

Risk based quality management: Recommendations of the AAPM

Task Group 100 protocol

Professional societies, such as the American Association of Physicists in Medicine (AAPM), the International Atomic Energy Agency (IAEA), the European Society for Therapeutic Radiology and Oncology (ESTRO) have published many quality-assurance and quality control guidance documents that focus on performing device-specific quality assurance measurements. Analyses of many radiation therapy incidents show that they are frequently caused by flaws in the overall therapy process rather than by equipment failures detectable by traditional physics QA. Task Group 100 (TG 100) of the AAPM has developed a new quality management protocol, which recommends that institutions perform hazard analysis for broad classes of radiotherapy procedures and develop quality management programs based on this hazard analysis. TG100 recommended the use of four industrial engineering tools for risk analysis and then establishment of a quality management program that best avoids or intercepts the faults and risks that have been identified in the overall process using these tools. The recommended tools are process mapping, failure modes and effects analysis (FMEA) and fault tree

analysis (FTA). These tools can be easily adapted to radiation therapy practices because of their simplicity and effectiveness in providing efficient ways to enhance the safety and quality of treatment processes. This workshop will give an overview of these tools and how these tools can be used to develop a risk based quality management program in radiation therapy.

Learning objectives:

1. Learn how to design a process map for a radiotherapy process
 2. Learn how to perform a FMEA analysis for a given process
 3. Learn the use of Fault Tree Analysis
 4. Learn how to design a quality-management program based upon the information obtained from process mapping, FMEA and FTA.
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RTIS Workshop

13:30~15:00PM

Room:Yanta Room

Chairperson:*Xuejun Qiu, Peng Huang*

1. The clinical requirements based radiotherapy workflow development: preliminary experience
Weigang Hu
 2. The implementation of an in-house developed radiation therapy information management system (RTIMS) based on the workflow of radiation therapy
Qinhong Wu
 3. Patient safety and information management based on local radiation therapy information system
Shouping Xu
 4. Opportunities and challenges of informatization construction in raditherpay
Wei Wang
 5. Application and research of a new technology of information system in radiation therapy
Yu Zhang
 6. Construction and application of radiotherapy information system
Bin Tang
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15:00 ~ 15:30PM Refreshment Break / Poster Session

Therapy Session 4

15:30~17:00PM

Room:Grand Ballroom 1

Chairperson:*Lei Xing, Xiance Jin*

1. Determination of the reference air kerma rate for Ir-192 and Co-60 HDR sources using three different international protocols(**Invited Lecture, 20 minutes**)

Hasin Anupama Azhari

2. Development of an advanced deformable phantom to analyze the dose difference by respiratory motion: Design and evaluating the characteristics
Dong-Seok Shin
 3. Dosimetric Comparison study on different Intensity-Modulated Radiation therapy Planning for liver tumor
FushanZhai
 4. Developing a pencil beam dose calculation algorithm for a robotic radiosurgery system
Bin Liang
 5. A GPU-based collapsed-cone convolution/superposition dose engine for a robotic radiosurgery system
YongbaoLi
 6. Analysis of dosimetric factors for acute radiation-induced small bowel damage following intensity-modulated radiotherapy in patients with abdominal-and-pelvic tumor
FushanZhai
 7. Prompt gamma ray imaging for verification of proton boron fusion therapy: A Monte Carlo study
Han-Back Shin
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New Technology/ Radiobiology & others

15:30~17:00PM

Room:Rotunda Room

Chairperson:*Li Tan, Hui Yan*

1. An automated scoring of radiation induced micronuclei in binucleated human lymphocytes
Mohammad TaghiBahreyniToossi
 2. CHOP and JNK mediate radiation-induced Apoptosis and Autophagy via unfolded protein response in Breast Cancer Cells
Feifei Li
 3. Development of 3D Biological Effective Dose Distribution Software Program
PatchareewanKhadsiri
 4. A Novel design of ultrafast Micro-CT system based on Carbon NanoTube
Zhicheng Zhang
 5. Application of virtual reality technology in the controls of respiration motion in radiotherapy for lung cancer patients
Rongmao Li
 6. Dosimetric comparison of different treatment planning technique for SRS using VMAT
Senthilkumar Natarajan
 7. A Pencil Beam Dose Algorithm for Intensity Modulated Proton Therapy Using a Dynamic Scanning Beam Delivery System
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Hui Wang

8. The experiment and simulation study of target's biology poistion with applying high X-Ray energy irradiation

Quanshi Zhang

IMPCB Symposium

15:30~17:00PM

Room:Yanta Room

Chairperson:*Raymond Wu, Tae-Suk Suh*

1. Building a strong foundation for IMPCB

Raymond Wu

2. Professional Accreditation of Medical Physicists

Kin Yin Cheung

3. The International Medical Physics Certification Board

Colin G. Orton

4. Education & Training Medical Physicists – the European Approach

Fridtjof Nüsslin

5. The Experience of Korea for the Accreditation of Medical Physics from IMPCB

Tae-Suk Suh

6. Formalization of Medical Physics Credentialing: Lessons from U.S. Experiencethe Medical Physics Research Perspective

Jeffrey F. Williamson

7. Cultivating new horizon in medical physics

Kiyonarilnamura

18:30~20:30 Reception

Saturday 7, November, 2015

Open Ceremony

8:30~9:00AM

Room:Grand Ballroom

Plenary Session 1

9:00~10:00AM

Room:Grand Ballroom

Chairperson: *Jianrong Dai, Xiaowu Deng*

1. From Anatomy-Based Dose-Localization to Biology-Guided Radiation Therapy (**Invited Lecture, 20 minutes**)

Jeffrey Williamson

2. Recent Advances in Radiation Therapy: Treatment Planning, QA and Dose Delivery(**Invited Lecture, 20 minutes**)

Lei Xing

3. How reliable is volumetric breast density in predicting breast cancer risk?(**Invited Lecture, 20 minutes**)

Kwan-Hoong Ng

10:00~10:30AM Refreshment Break / Poster Session

Plenary Session 2

10:30~12:00AM

Room:Grand Ballroom

Chairperson: *K Y Cheung, Tae-Suk Suh*

1. Diffusion Magnetic Resonance Imaging (**Invited Lecture, 20 minutes**)

Jiahong Gao

2. MRI-guided RT (**Invited Lecture, 20 minutes**)

Allen Li

3. Gamma Knife's Products and Technologies (**Invited Lecture, 20 minutes**)

Tao Xu

4. LA technology improves patients care: on 6 high theory(**Invited Lecture, 20 minutes**)

Yimin Hu

12:00AM~13:30PM Lunch

Gamma Knife Session

13:30~15:00PM

Room:Grand Ballroom

Chairperson: *Tingyi Xia, Mei Shi, Fugen Zhou*

1. Introduce Accurate Radiotherapy Technology Subcommittee, The Gamma Knife Production, Research and Application in China

JingBo Kang

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2. The Clinical Application of Gamma Knife in Tumor of the Head
MianShun Pan
 3. The Clinical Application of Gamma Knife in Tumor of the Body
ZhiXiong Long
 4. Gamma Knife Physical Data Detection and Quality Control Guarantee
Kai Mao
 5. The Experience of Research and Development in Gamma Knife Treatment Planning System
Tao Xu
 6. China Gamma Knife Radiation Source Supply Situation and the Future Vision
JianChun Tian
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15:00 ~ 15:30PM Refreshment Break / Poster Session

Celebration of International Day of Medical Physics (IDMP)

15:30 ~ 17:00PM Room: Grand Ballroom

Chairperson: *Raymond Wu, IMPCB*

1. Congratulatory Remarks:

15:30pm – 15:35pm Yimin Hu, Congress Chairman

15:35pm – 15:40pm KY Cheung, IOMP

2. Forum on Way Forward in Development of Medical Physics

November 7, the birth date of Madam Marie Sklodowska-Curie, is designated by IOMP as the International Day of Medical Physics (IDMP). The event, which started in 2013, is one of the initiatives taken by IOMP aiming to raise the awareness of the global communities on the important role medical physicist play in healthcare and to promote their profile and visibility in the medical scene. As in previous years, a series of scientific, educational and social activities are being organized around the world to celebrate the occasion. Each IDMP has a different theme of celebration. The theme of IDMP2015 is 'Better Medical Physics = Better Cancer Care in Radiation Oncology'. This forum is organized in response to the call of IOMP to celebrate the event. It aims to provide a platform for leaders of our profession from different parts of the world to share their vision on the way forward in developing the medical physics profession in their countries/regions.

15:40pm - 15:50pm IOMP perspective- KY Cheung, Immediate Past-President, IOMP

15:50pm- 16:00pm AFOMP perspective- Tae-Suk Suh, Vice President, AFOMP

16:00pm - 16:10pm SEAFOMP perspective- KH Ng, Past-President, SEAFOMP

16:10pm - 16:20pm EFOMP perspective, Fridtjof Nuesslin, Past-President, EFOMP

16:20pm - 16:30pm AAPM perspective, Jeffrey Williamson, Editor, Medical Physics

16:30pm - 16:40pm CSMP perspective, Jianrong Dai, Secretary-General. CSMP

16:40pm - 17:00pm Roundtable discussion

18:30 ~ 20:30 Congress Banquet

Sunday8, November, 2015

Therapy Session 5

08:30~10:00AM

Room:Grand Ballroom 1

Chairperson:*ArunChougule, Shouping Xu*

1. High-risk clinical target volume dose accumulation in IMRT and image-guided brachytherapy for cervix cancer : A planning study
Hao Liu
2. Development of Intensity Modulated Accurate Radiotherapy System ARTS-IMRT
Ruifen Cao
3. Evaluation of spatially fractionated (GRID) radiotherapy using a multi-leaf collimator with the Vero4DRT
Hajime Monzen
4. Optimisation of treatment mode applied to post-operative cervical cancer for five-field intensity-modulated radiation therapy technique
Jun Li
5. Research on Efficacy Evaluation System of Microwave Ablation
Zhiyu Qian
6. An IMRT/VMAT technique for the treatment of non-small cell lung cancer
Ruijie Yang

Nuclear Medicine Session

08:30~10:00AM

Room:Grand Ballroom 2

Chairperson:*Jianhua Geng, Lvyi Zhou*

1. Nuclear Medicine physics in China (**Invited Lecture, 20 minutes**)
Shengzu Chen
2. New time resolution measurement method
Ze Chen
3. CT-guided MAP reconstruction for high-resolution, low noise PET images
Mu Chen
4. Design and Implement of SPECT performance testing program
Shulin Yao
5. A bias reduction reconstruction algorithm for low count PET study
Wentao Zhu
6. Study and design of cyclotron radiation protection
Heping Yan
7. Motion Detection and Correction in PET/CT Brain Imaging
Yang Lv
8. Study of effective dose and influence factors for PET/CT patients
Ziwen Liang

9. PET/CT Image Registration to Reduce Respiratory Mismatch

Shuguang Chen

10. Defining radiotherapy target and influence factors on PET images: A Simulation Study

JianghuaGeng

10:00 ~ 10:30AM Refreshment Break / Poster Session

Therapy Session 6

10:30~ 12:00AM

Room:Grand Ballroom 1

Chairperson: *Xiaodong He, Ruijie Yang*

1. Dosimetry of small photon fields according to the German protocol DIN 6809-8 (2014) and comparison with others protocols (**Invited Lecture, 20 minutes**)

Golam Abu Zakaria

2. A Novel Algorithm for Estimating Organ Motion Induced Patient Dose Variance

SuminZhou

3. Measurement verification of treatment planning system dose distribution calculations for brachytherapy employing a shielded applicator

Hao Liu

4. Scatter correction for clinical cone-beam CT system using a stationary beam block with single scan: gantry wobble estimation

XiaokunLiang

5. The impact of plan complexity parameters on the plan quality and deliverability VMAT

XianceJin

6. Two types of flattening filter free (FFF) radiation therapy for postoperative treatment of cervical cancer: Tomotherapy vs C-arm based VMAT

Fuli Zhang

Imaging Session 3

10:30~ 12:00AM

Room:Grand Ballroom 2

Chairperson: *Jiahong Gao, Yiping Du*

1. Recent Development in Short TE MRI (**Invited Lecture , 20 minutes**)

Yiping Du

2. The human brain activation differences evoked by different binocular disparities of stereograms

Jiajia Liu

3. Single NMR Image Super-resolution Based on Extreme Learning Machine

Zhiqiong Wang

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4. A method for optimizing the scaling factor of dual echoultrashort time echoimaging with rescaled digital subtraction (dUTE-RS)
Shuo Li
 5. Golden ratio based shaking projection k-space sampling trajectory
Shuo Li
 6. Computer-aided diagnosis of liver space-occupying lesions based on ultrasonic medical image analysis
YangYang
 7. Simulation of optical properties of brain tissues by Monte-Carlo method
Yubing Liu
 8. XinJiang liver hydatid CT image segmentation based on region growing method
ElzatAlip
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12:00AM ~ 13:30PM Lunch

Dosimetry & Radiation Protection

13:30~15:00PM Room:Grand Ballroom 1

Chairperson:*HasinAnupamaAzhari, Yong Yang*

1. Dosimetry of small photon fields according to DIN 6809-8 [2014] and comparison with other existing protocols **(Invited Lecture, 20 minutes)**
Prof. G.A. Zakaria
 2. Study of Dosimetric Characteristics of a commercial OSL system
ArunChougule
 3. Characterization of Stochastic Noise and Post-Exposure Density Growth for Reflective-Type Radiochromic Film in Therapeutic Photon Beam Dosimetry
Takeshi Kamomae
 4. Circular cones output factor measurement using micro chamber, diodes, plastic scintillator and OSLD
Dayananda Shamurailatpam
 5. Dosimetric performance of newly developed Farmer type ionization chamber in radiotherapy practice
Sathiyar
 6. Improving linear accelerator treatment room shielding with 3D computer aided design
George Warr
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Imaging Session 4

13:30~15:00PM Room:Grand Ballroom 2

Chairperson:*Fugen Zhou, Enmin Song*

1. Research on Automatic Atlas Based Segmentation of Encephalic Tissues
Meicheng Chu
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2. 3D-Grabcut for medical image segmentation

Shaode Yu

3. Automatic Lung Tumor Localization Based on Gaussian Mixture Model

Qingyang Wang

4. Comparison of phase retrieval methods in phase contrast imaging

Sajid Bashir

5. Feature extraction and pattern classification for hepatic cystic echinococcosis in Xinjiang

Murat HAMIT

6. Classification on CT Image of Xinjiang Local Liver Hydatid Based Feature Extraction and C4.5 Decision Tree

Ximei Kong

Closing Ceremony

15:00~ 15:30PM

Room:Grand Ballroom
