
Program of the Meeting

CALENDAR OF EVENTS

*** Presenting Author****Sunday, July 25, 2021****Council Symposium**

10:30 am - 11:30 am

-TRACK 1

SU-A-TRACK 1 International Council Symposium: AAPM Global Engagement; Planning for the Future

Moderator: Ana Maria Marques da Silva, Pontifica Universidade Catolica do RS, Porto Alegre, RS

10:30 am S. Avery, University of Pennsylvania: Global Medical Physics Education and Training

10:38 am S. Parker, Wake Forest Baptist Health High Point Medical Center: Global Need Assessment

10:46 am J. Palta, Virginia Commonwealth University: Global Collaborations

10:54 am R. Jeraj, University of Wisconsin: Global Research and Scientific Innovation

11:02 am G. Kim, University of California, San Diego: Global Data and Information Exchange

11:10 am S. Wadi-Ramahi, University of Pittsburgh Medical Center: Global Clinical Education and Training

11:18 am Q&A

Students and Trainees

10:30 am - 12:30 pm

-TRACK 2

SU-AB-TRACK 2 2021 Annual Student Meeting: Beyond the Clinic - Medical Physics in Industry

Moderators: Ahtesham Ullah Khan, University of Wisconsin - ADCL, Madison, WI, and Reed Kolany, University of Wisconsin - ADCL, Madison, WI

10:30 am Introduction

10:40 am P. Naine, Elekta, Inc.: Medical Physicists in Industry: Present and Future

11:00 am M. Bellon, ViewRay Incorporated: Transitioning from a Clinical to an Industry Career

11:20 am C. Lin, OnLume Inc: Beginning a Novel Career as a Medical Physicist

11:40 am AAPM Initiatives to Promote Industry Careers

12:00 pm Questions/Discussions/Interactive Exercise

SAM Imaging Scientific Symposium

10:30 am - 12:30 pm

-TRACK 3

SU-AB-TRACK 3 SIIM-AAPM Joint Symposium on Machine Intelligence in Medical Imaging

Moderators: Paul Nagy, Johns Hopkins University, Baltimore, MD and Jeffrey Siewerdsen, Johns Hopkins University, Baltimore, MD

10:30 am Introduction

10:40 am B. Landman, Vanderbilt University Medical Center: Challenges and Opportunities in Validation of AI for Medical Imaging

11:05 am K. Brock, UT MD Anderson Cancer Center: Harnessing AI to Enable Advanced Image-Guidance in Interventional Procedures

11:30 am J. Fessler, University of Michigan: Joint Optimization of Learning-Based Image Reconstruction and K-Space Trajectories for MRI

11:55 am K. Andriole, Brigham & Women's Hospital, Harvard Medical School: Standards-Based Integration of AI Tools into Clinical Practice

12:20 pm Q&A

Sunday, July 25, 2021**SAM Multi-Disciplinary Scientific Symposium**

10:30 am - 11:30 am

-TRACK 4

SU-A-TRACK 4 Solid State PET in Radiology and Radiation Oncology: from SiPM to AI in the Clinic

Moderator: Jun Zhang, The Ohio State University, Columbus, OH

10:30 am J. Zhang, The Ohio State University: Technologies and AI Features of SiPM PET Instrumentation

10:55 am S. Bowen, University of Washington, School of Medicine: Clinical Considerations of SiPM PET in Radiology and Radiation Oncology

11:20 am Q&A & Panel Discussion

SAM Therapy Scientific Symposium

10:30 am - 12:30 pm

-TRACK 5

SU-AB-TRACK 5 Affordable Cancer Care for All

Moderator: Laurence Edward Court, University of Texas MD Anderson Cancer Center, Houston, TX

10:30 am Introduction

10:33 am C. Fumiko, Memorial Sloan Kettering Cancer Center: The Real Impact of Cost on Patients

10:50 am M. Weil, Sirius Medicine: Low-Cost X-Ray Treatment System

11:07 am M. Salehpour, M.D. Anderson Cancer Center: Focused X-Ray Beams for Low-Cost Radiotherapy

11:24 am T. Ige, National Hospital: A Rethink of the Linear Accelerator for Resource-Limited Environments

M. Dosahjh, Cern: A Rethink of the Linear Accelerator for Resource-Limited Environments

11:41 am P. Halvorsen, Beth Israel - Lahey Health: Factors Affecting Resource Utilization in Radiation Oncology

11:58 am T. Netherton, MD Anderson Cancer Center: Fully Automated Treatment Planning

12:15 pm Q&A

Therapy Scientific Session

10:30 am - 11:30 am

-TRACK 6

SU-A-TRACK 6 Artificial Intelligence in Treatment Planning and Delivery

Moderators: Steve Jiang, UT Southwestern Medical Center, Dallas, TX and Kevin Moore, UC San Diego, La Jolla, CA

10:30 am SU-A-TRACK 6-01 Curbing the Errors from Automated Tools Based on An FMEA of an AI-Based Treatment Planning System - K. Nealon*, P. Balter, R. Douglas,

D. Fullen, S. Hernandez, P. Nitsch, A. Olanrewaju, M. Soliman, L. Court

10:37 am SU-A-TRACK 6-02 Generalizability Study of a Fluence Map Prediction Network - L. Ma*, M. Chen, X. Gu, W. Lu

10:44 am SU-A-TRACK 6-03 Inverse Treatment Planning Using a Virtual Treatment Planner (VTP) for Prostate Cancer Treated with Intensity Modulated Radiation Therapy - D. Sprouts*, C. Shen, Y. Chi

10:51 am SU-A-TRACK 6-04 Predicting Daily Record of Machine Performance Check Using Multi-Long Short-Term Memory Neural Networks - M. Ma*, J. Dai

10:58 am SU-A-TRACK 6-05 Towards Automatic Metastasis-Directed Therapy Planning in a Three-Dimensional Beam Model Using Reinforcement Learning - W. Hrinivich*, M. Deck, R. Phillips, H. Li, P. Tran, J. Lee

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- 11:05 am **SU-A-TRACK 6-06 Towards Interpretable Intelligent Automatic Treatment Planning in Radiotherapy: Understanding the Decision-Making Behaviors of a Hierarchical Deep Reinforcement Learning Based Virtual Treatment Planner Network** - C. Shen*, L. Chen, X. Jia
- 11:12 am **SU-A-TRACK 6-07 Treatment Parameters That Impact IROC SRS Phantom Performance Evaluated Using AI** - H. Mehrens*, T. Nguyen, S. Edward, S. Hartzell, M. Glenn, D. Branco, N. Hernandez, P. Alvarez, A. Molineu, P. Taylor, S. Kry

SAM Therapy Educational Course

10:30 am - 12:30 pm

-TRACK 7

SU-AB-TRACK 7 Clinical Implementation of MR-IGRT

Moderator: Anil Sethi, Loyola University Medical Center, Maywood, IL

- 10:30 am **B. Raaymakers, University Medical Center Utrecht: Tools of the Trade: MR Linacs & Image Optimization for MRgART**
- 11:00 am **P. Yadav, School of Medicine and Public Health UW-Madison: State of the ART 1: Low Field MRgART**
- 11:30 am **D. Hyer, University of Iowa: State of the ART 2: High Field MRgART**
- 12:00 pm **A. Sethi, Loyola University Medical Center: Proof Is in the Plan: Pros and Cons of MRgART**

SAM Educational Topic-Specific Guided Tours-Therapy

10:30 am - 12:30 pm

-TRACK 8

SU-AB-TRACK 8 Patient-Specific QA Devices/Software

Moderators: Sharareh Koufigar, Piedmont Hospital, Atlanta, GA and Kevinraj Sukumar, Piedmont Hospital, Atlanta, GA

- 10:30 am **S. Koufigar, Piedmont Hospital: Patient-Specific QA Devices/Software**
- K. Sukumar, Piedmont Hospital: Patient-Specific QA Devices/Software**
- 11:00 am **J. Hamilton, Sun Nuclear Corporation: Improving Patient Outcomes through Automation of Error Detection During Treatment**
- 11:20 am **M. Napolitano, Standard Imaging, Inc.: Patient Specific QA Throughout Treatment**
- 11:40 am **A. Nagle, Iba Dosimetry GmbH: Monte Carlo Based Patient QA Efficiency and Accuracy Through Automation and Prediction**
- 12:00 pm **N. Brand, PTW North America Corporation: Fast, Independent, True 3D: SRS Patient QA for SIMT Plans with OCTAVIUS 4D 1600 SRS**
- 12:20 pm **Q&A**

Council Symposium

11:30 am - 12:30 pm

-TRACK 1

SU-B-TRACK 1 Joint Council Symposium: Creativity in Medical Physics

Moderator: Brent Parker, The University of Texas M.D. Anderson Cancer Center, Galveston, TX

- 1:00 pm **Introduction**
- 1:03 pm **P. Basran, Cornell University: Virtual Fellowships: A Novel Approach to Undergraduate Research Training and Mentorship**
- 1:18 pm **M. Giger, University of Chicago: Extending AAPM Leadership to Advance Data Science in the Age of COVID-19**
- 1:33 pm **B. Parker, The University of Texas M.D. Anderson Cancer Center: Sailing the High C's**
- 1:48 pm **Q&A**

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Multi-Disciplinary Scientific Symposium

11:30 am - 12:30 pm

-TRACK 4

SU-B-TRACK 4 WMIS/AAPM Joint Symposium: Novel and Theranostic PET Agents

Moderators: John Hazle, UT MD Anderson Cancer Center, Houston, TX and Yuan-Chuan Tai, Washington University, Saint Louis, MO

- 11:30 am **T. Hope, UCSF: Theranostics and PET/MR**
- 11:50 am **S. Lapi, University of Alabama at Birmingham: Novel Theranostics**
- 12:10 pm **N. Vasdev, University of Toronto: Developing Novel PET Tracers for Brain Imaging**

Multi-Disciplinary Scientific Session

11:30 am - 12:30 pm

-TRACK 6

SU-B-TRACK 6 Imaging in Treatment Planning

Moderators: Daniel Low, University of California, Los Angeles, Los Angeles, CA and Eenas Omari, Medical College of Wisconsin, Milwaukee, WI

- 11:30 am **SU-B-TRACK 6-01 A Fully Automated Approach for Labeling, Contouring, and Treatment Planning of Vertebral Bodies, Including Automatic Verification to Prevent Errors** - T. Netherton*, C. Nguyen, C. Cardenas, C. Chung, A. Klopp, L. Colbert, D. Rhee, C. Peterson, R. Howell, P. Balter, L. Court
- 11:37 am **SU-B-TRACK 6-02 AI Agent Competing with Human in Planning Challenge: A Human-Expert Level Virtual Treatment Planner Network for Prostate Cancer Stereotactic Body Radiation Therapy (SBRT)** - C. Shen*, C. Men, Y. Gao, L. Chen, X. Jia
- 11:44 am **SU-B-TRACK 6-03 Evaluating the Clinical Acceptability of Deep Learning Contours in Prostate Radiotherapy** - J. Duan*, M. Bernard, B. Willows, L. Downes, W. Mourad, W. St Clair, X. Feng, Q. Chen
- 11:51 am **SU-B-TRACK 6-04 Managing Tumor Changes During Fractionated Radiotherapy: Evaluation on a Deep-Learning-Based Predictive Model and a Re-Planning Strategy** - R. Li*, A. Roy, N. Kirby, N. Bice, S. Sivabaskar, M. Fakhreddine, N. Papanikolaou
- 11:58 am **SU-B-TRACK 6-05 Mapping Motion-Induced Dose Variations on Bladder Surfaces: A Novel Surface-Based Dose Modeling for Accurate Dose Assessment in Fractionated Prostate Cancer Radiotherapy** - Y. Lao*, M. Cao, Y. Yang, A. Kishan, W. Yang, Y. Wang, K. Sheng
- 12:05 pm **SU-B-TRACK 6-06 Towards Daily Online Adaptive SBRT for Pancreatic Cancer: Dosimetric Analysis of Daily Adaptive Re-Planning Using Re-Optimization and Dose Escalation Techniques** - J. Niedzielski*, S. Beddar, R. Martin, L. Perles, N. Rebuena, E. Holliday, G. Smith, B. Minsky, E. Ludmir, P. Das, E. Koay, C. Taniguchi, A. Koong, G. Sawakuchi
- 12:12 pm **SU-B-TRACK 6-07 Online Adaptive Radiotherapy: Assessment of Planning Technique and On-Table Adaptive Plan Quality** - K. Mittauer*, J. Bryant, A. Gomez, T. Romaguera, D. Alvarez, J. McCulloch, R. Herrera, D. Doty, M. Mehta, A. Gutierrez, M. Chuong

Imaging Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 1

SU-IePD-TRACK 1 Imaging: New and Emerging Technologies

SU-IePD-TRACK 1-01 Electroacoustic Tomography for Monitoring Electroporation in Real Time - S. Wang*, A. Zarafshani, L. Xiang

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SU-IePD-TRACK 1-02 Liver Delineation Using the Weighted A-Star Pathfinding Algorithm and Deep Learning on Ultrasound B-Mode Images for Cirrhosis Assessment Using Liver Biopsy as the ‘Gold Standard’ - I. Gatos, P. Drazinos, S. Tsantis, P. Zoumpoulis, I. Theotokas, D. Mihailidis, G. Kagadis*

SU-IePD-TRACK 1-03 Quantitative Image Guidance In Vivo: Dual-Energy CT for Thermochemical Ablation - E. Thompson*, M. Jacobsen, R. Layman, E. Cressman

SU-IePD-TRACK 1-04 Recurrence Prediction for Head and Neck Squamous Cell Cancer Patients Using Local Binary Pattern-Based Dosimetrics - H. Kamezawa*, H. Arimura

SU-IePD-TRACK 1-05 Functional MRI-Based Radiomics for the Diagnosis of Major Depressive Disorder - K. Sun*, S. Zhao, G. Liu, W. Lu, J. Qiu, L. Shi

SU-IePD-TRACK 1-06 Uniqueness of Radiomic Features in NSCLC: Beyond Reproducibility/Repeatability - G. Ge*, J. Zhang

SU-IePD-TRACK 1-07 Investigation of Bias-Voltage Dependent Operational Characteristics of An Energy-Resolving Pixelated Cadmium Telluride Detector System Within an Experimental Benchtop X-Ray Fluorescence Imaging System - H. Moktan Tamang*, R. Panta, S. Cho

-TRACK 2

SU-IePD-TRACK 2 Imaging: CT Radiomics and Clinical Applications

SU-IePD-TRACK 2-01 Coronary Computed Tomography Angiography Combined with Coronary Heart Disease Risk Stratification Prediction for Asymptomatic Type 2 Diabetes Mellitus Patients Screening - Q. Liu*, J. Qiu, H. Zhao

SU-IePD-TRACK 2-02 Prediction of EGFR Mutations, Subtypes, and Uncommon Mutations in Lung Adenocarcinoma Based on Machine Learning - Y. Kawazoe*, T. Shiinoki, K. Fujimoto, Y. Yuasa, T. Hirano, K. Matsunaga, H. Tanaka

SU-IePD-TRACK 2-03 A Deep Learning-Based Radiomics Approach to Identify Patient with Early Tumor Regression Utilizing Planning CT Images for Adaptive Radiotherapy - S. Tanaka*, N. Kadoya, Y. Sugai, M. Umeda, Y. Katsuta, K. Ito, T. Yamamoto, N. Takahashi, K. Takeda, S. Dobashi, K. Takeda, K. Jingu

SU-IePD-TRACK 2-04 Classification of Head and Neck Contours Using Extremely Randomized Trees - V. Leandro Alves*, M. Soomro, J. Siebers

SU-IePD-TRACK 2-05 Evaluation of Computer-Aided Nodule Assessment and Risk Yield (CANARY) in Korean Patients for Prediction of Invasiveness of Early Lung Adenocarcinoma - J. Lee*, S. Park, J. Kim

SU-IePD-TRACK 2-06 Development of Machine Learning Based Algorithm for Prediction of Invasiveness of Early-Lung Adenocarcinoma by Using Chest Computed Tomography - J. Lee*, S. Park, J. Kim

SU-IePD-TRACK 2-07 Multi-Scale Regional Fusion Based Interactive 3D Tumor Segmentation in Lung Cancer - R. Wang*, J. Yang, Z. Mu, Z. Wang, R. Xu, Z. Zhou

Multi-Disciplinary Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 3

SU-IePD-TRACK 3 Multi-Disciplinary: Segmentation I

SU-IePD-TRACK 3-01 Quantitative and Qualitative Evaluation of Translating an Adult Auto-Contouring Algorithm to Pediatric Patients - S. Hernandez*, L. Court, D. Rhee, M. Soliman, C. Cardenas

SU-IePD-TRACK 3-02 Multi-Organ Segmentation on An Inference-Combined Dataset - T. Marshall*, X. Li, K. Yang, B. Liu

SU-IePD-TRACK 3-03 Segmentation of a Highly Deformable Organ Using a Machine-Assisted Interpolation Algorithm - D. Luximon*, Y. Abdulkadir, E. Morris, P. Chow, J. Lamb

SU-IePD-TRACK 3-04 A Deep Learning Approach for Contour Interpolation - C. Zhao*, Y. Duan, H. Li, H. Kim, L. Henke, D. Yang

SU-IePD-TRACK 3-05 Automated CTV Contouring for Prostate and Nodes Utilizing Deep Learning Contouring - V. Malesevic*, L. Potters, A. Riegel, Y. Cao, J. Baker

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SU-IePD-TRACK 3-06 Patient-Specific Anatomic Context and Shape Prior (PACS)-Aware Recurrent Network for Cone-Beam CT Lung Cancer Segmentation - J. Jiang*, S. Alam, I. Chen, P. Zhang, A. Rimner, J. Deasy, H. Veeraraghavan

SU-IePD-TRACK 3-07 Deep Learning-Based Intracranial Vessel Wall Segmentation: Good DSC with Biased NWI? - H. Zhou*, J. Xiao, Z. Fan, D. Ruan

Therapy Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 5

SU-IePD-TRACK 5 Therapy: AI in Radiation Therapy

SU-IePD-TRACK 5-01 Knowledge-Based HDR Catheter Position for Prostate Brachytherapy - T. Wang*, Y. Lei, Y. Fu, J. Roper, A. Jani, J. Bradley, T. Liu, P. Patel, X. Yang

SU-IePD-TRACK 5-02 Accurate Automatic Rectum Segmentation for High-Dose Rate Brachytherapy of Cervical Cancer Treatment Planning - Y. Gonzalez*, C. Shen, K. Albuquerque, X. Jia

SU-IePD-TRACK 5-03 Influence of Loss Functions on Accuracy of Deep Learning Based Dose Distribution Prediction for Intensity Modulated Proton Radiation Therapy - S. Momin*, J. Harms, Y. Lei, S. Charyyev, J. Zhou, J. Roper, J. Bradley, T. Liu, X. Yang

SU-IePD-TRACK 5-04 Application of An Artificial Neural Network to Predict Equivalent Uniform Dose and Tumor Control Probability in Radiation Therapy of Lung Cancer Using Treatment Plan Data - M. Pudasaini*, S. Pella, T. Leventouri, W. Muhammad

SU-IePD-TRACK 5-05 Improved Dosimetric Performance of VMAT Total Marrow Irradiation Using Knowledge-Based Planning Approach - K. Ahn*, M. Koshy, J. Partouche, D. Rondelli, P. Patel, Y. Hasan, H. Liu, B. Aydogan

SU-IePD-TRACK 5-06 Implementation of a Conditional Generative Adversarial Network for Automatic Prediction of 3D Dose Distributions in Prostate Cancer - J. Cunningham*, S. Zhu, B. Luo, Z. Dai, N. Wen

SU-IePD-TRACK 5-07 Improving Target Detection for Real-Time Markless Lung Tumor Tracking Using Deep Learning - G. Chen*, Y. Liang, Y. Zhang, X. Li

-TRACK 6

SU-IePD-TRACK 6 Therapy: Brachytherapy Dosimetry

SU-IePD-TRACK 6-01 Monte Carlo Characterization of High Atomic Number Inorganic Scintillators for in Vivo Dosimetry in Ir-192 Brachytherapy - V. Kaveckyte*, E. Buch Jørgensen, J. Johansen, Å. Carlsson Tedgren

SU-IePD-TRACK 6-02 Evaluating Dosimetric Accuracy of EBT3 Radiochromic Film Calibration Using 6 MV Photon Beam in HDR Ir-192 Dose Measurement - L. Huang*, J. Chang, H. Gaballa

SU-IePD-TRACK 6-03 Evaluating the Fidelity of Post-Plan Vs. Pre-Plan Dosimetry for 3D-Printed Brachytherapy Surface Molds - J. Steers*, M. Kamrava, T. Phillips

SU-IePD-TRACK 6-04 A Comprehensive Study to Design A Novel Direction Modulated Brachytherapy (DMBT) Vaginal Cylinder (VC) Using GEANT4 Monte Carlo Simulation Code - M. Meftahi*, W. Song

SU-IePD-TRACK 6-05 Predictive Modeling for Rapid Online Evaluation of Plan Quality During Intraoperative Gynecological Brachytherapy - P. Dreyer*, M. Paudel, E. Leung, A. Taggar, M. Wronski

SU-IePD-TRACK 6-06 Monte Carlo Simulation of the Permanent Implant - GammaTile - B. Rogers*, C. Ferreira

SU-IePD-TRACK 6-07 Correction Factors for a Planar Windowless Extrapolation Chamber Measuring Surface Absorbed Dose to Water from An Unsealed Thin-Film Alpha-Emitting Radionuclide - A. Khan*, W. Culbertson, L. DeWerd

Break

12:30 pm - 1:00 pm

Council Symposium

1:00 pm - 2:00 pm

Sunday, July 25, 2021

-TRACK 1

SU-C-TRACK 1 Education Council Symposium: Lessons Learned During the COVID-19 Pandemic, Innovative Approaches to Didactic and Clinical Training

Moderator: Jay Burmeister, Wayne State University, Karmanos Cancer Center, Detroit, MI

11:30 am Introduction

11:32 am I. Barreto, University of Florida College of Medicine: It Only Took a Pandemic: Engaging Online Students with Active Learning Strategies

11:44 am C. Watchman, Memorial Sloan Kettering Cancer Center: Using Digital Training Tools to Address Resident Training During a Pandemic

11:56 am V. Montemayor, Germantown Academy: Silver Linings: Tools I Will Take with Me When I Leave Virtual Teaching Behind

12:08 pm J. Burmeister, Wayne State University, Karmanos Cancer Center: Post-Pandemic Education and Training: Will We Do More Than Just Endure?

12:20 pm Q&A

SAM Imaging Educational Course

1:00 pm - 3:00 pm

-TRACK 2

SU-CD-TRACK 2 Fluoroscopy Dose Management

Moderator: Ryan Fisher, MetroHealth, Cleveland, OH

1:00 pm R. Fisher, MetroHealth: MPPG #12: Fluoroscopy Dose Management

1:25 pm M. Mahesh, Johns Hopkins University: First CPT Code for Diagnostic Medical Physics: What to Know and How to Use This Code

2:05 pm A. Jones, UT MD Anderson Cancer Center: ACR Dose Index Registry for Fluoroscopy (DIR-Fluoro)

2:45 pm Audience Q & A

SAM Imaging Scientific Symposium

1:00 pm - 3:00 pm

-TRACK 3

SU-CD-TRACK 3 Medical Imaging and Data Resource Center: Imaging in Covid

Moderator: Maryellen Giger, University of Chicago, Chicago, IL

1:00 pm M. Giger, University of Chicago: Overview of MIDRC and COVID-19 AI Research Projects

1:25 pm P. Kinahan, University of Washington: Image Quality and Harmonization in MIDRC

1:50 pm M. McNitt-Gray, David Geffen School of Medicine at UCLA: Rigorous Validation, Appropriate Metrics, and Task-Based Distribution of Data for Evaluating COVID-19 AI

K. Myers, Office of Science and Engineering Laboratories, FDA: Rigorous Validation, Appropriate Metrics, and Task-Based Distribution of Data for Evaluating COVID-19 AI

2:15 pm S. Armato, The University of Chicago: Grand Challenges Through MIDRC

2:40 pm Q&A & Panel Discussion

SAM Multi-Disciplinary Scientific Symposium

1:00 pm - 2:00 pm

-TRACK 4

SU-C-TRACK 4 Novel Imaging Technologies for Motion Management in Radiotherapy

Moderator: Tinsu Pan, UT MD Anderson Cancer Center, Houston, TX

1:00 pm W. Yang, Keck School of Medicine of USC: 4D-MRI, Motion and Beyond

1:20 pm L. Ren, University of Maryland: 4D-CBCT: Where Are We and What's Next?

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1:40 pm T. Pan, UT MD Anderson Cancer Center: Data Driven Gated PET/CT

SAM Therapy Scientific Symposium

1:00 pm - 3:00 pm

-TRACK 5

SU-CD-TRACK 5 Advances in Automatic Segmentation, Treatment Planning and QA

Moderator: Qing-Rong Jackie Wu, Duke University Medical Center, Durham, NC

1:00 pm H. Veeraraghavan, Memorial Sloan Kettering Cancer Center: Deep Learning Automated Segmentation for Radiation Therapy Planning

1:30 pm Q. Wu, Duke University Medical Center: Automation in Treatment Planning Process

2:00 pm E. Ford, University of Washington: Advances in Quality Assurance Through Automation

2:30 pm S. Jiang, UT Southwestern Medical Center: Thoughts on The Clinical Implementation of AI Tools in Treatment Planning Process

Imaging Scientific Session

1:00 pm - 2:00 pm

-TRACK 6

SU-C-TRACK 6 Nuclear Medicine and PET

Moderators: Ramsey Badawi, University of California-Davis, Sacramento, CA and Bryan Bednarz, University of Wisconsin, Madison, WI

1:00 pm SU-C-TRACK 6-01 A Robust Method to Quantitate Tracer Activity in Organs and Lesions with Clinical SPECT/CT Systems - J. James*, J. Bian, J. Halama

1:07 pm SU-C-TRACK 6-02 Harmonization of Four PET Scanners Through the Use of a Uniformity Phantom and a Sphere Simulation Tool - D. Gomez Cardona*, J. Browne, L. Stecker, R. Pooley

1:14 pm SU-C-TRACK 6-03 BEST IN PHYSICS (IMAGING): Image Quality and Lesion Detectability in New DDG-PET/CT Utilizing 50% of PET Data - A. Thomas*, T. Pan

1:21 pm SU-C-TRACK 6-04 Longitudinal PET/CT Imaging of ⁶⁴Cu for Radiopharmaceutical Therapy Dosimetry - M. Merrick*, L. Dunnwald, A. Tiwari, J. Sunderland, S. Graves

1:28 pm SU-C-TRACK 6-05 NCINM2.0: Organ Dose Calculator for Patients Undergoing Nuclear Medicine Procedures - Implementation of the ICRP Reference Phantoms and Biokinetic Models - D. Villoing, C. Lee*

1:35 pm SU-C-TRACK 6-06 Organ Doses Following Intra-Hepatic-Arterial Administration of ^{99m}Tc-MAA in Planning Dosimetry for ⁹⁰Y-SIRT - S. Kappadath*, B. Lopez, A. Mahvash

1:42 pm SU-C-TRACK 6-07 Uncertainty Propagation Methods for Personalized, Image-Based ¹³¹Iodine SPECT/CT Radiopharmaceutical Therapy Dosimetry - D. Adam*, L. Marsh, J. Grudzinski, T. Bradshaw, P. Hill, B. Bednarz

SAM Therapy Educational Course

1:00 pm - 2:00 pm

-TRACK 7

SU-C-TRACK 7 Bottleneck Issues in the Clinic Implementation of Monte Carlo Method in Proton Therapy

Moderators: Liyong Lin, Emory Proton Therapy Center, Atlanta, GA and Ying Xiao, University of Pennsylvania, Philadelphia, PA

1:00 pm L. Lin, Emory Proton Therapy Center: Bottleneck Issues in Proton Monte Carlo Clinical Implementation and Companion Imaging Techniques - Report of NRG Survey Results

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- 1:20 pm J. Schuemann, Physics Division, Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, USA: Proton Monte Carlo Platforms – Treatment Planning and Latest Developments
- 1:40 pm S. Leng, Mayo Clinic: Dual Energy Computed Tomography, Metal Artifact Reduction and Photon Counting Detectors – Latest Development and Potential for Monte Carlo Dose Calculation

Vendor Showcase

1:00 pm - 1:30 pm

-TRACK 8

SU-SHOWCASE-TRACK 8 LAP Laser, LLC

- 1:00 pm SU-SHOWCASE-TRACK 8-1-01 RadCalc with 3D Monte Carlo- C. Bohorquez*

Council Symposium

2:00 pm - 3:00 pm

-TRACK 1

SU-D-TRACK 1 Professional Council Symposium: Professional Skills for Future Medical Physicists: A Case Study Example

Moderator: Brent Parker, The University of Texas M.D. Anderson Cancer Center, Galveston, TX

- 2:00 pm Introduction
- 2:03 pm R. Fahrig, Siemens Healthcare GmbH: A View of Clinical Trials from Industry
- 2:18 pm W. Newhauser, Louisiana State University: A View of Clinical Trials from Education
- 2:33 pm R. Nishikawa, University of Pittsburgh: A View of Clinical Trials from Academia
- 2:48 pm Q&A

Multi-Disciplinary Scientific Session

2:00 pm - 3:00 pm

-TRACK 4

SU-D-TRACK 4 Motion Assessment and Management

Moderators: Doan Trang Nguyen, University of Technology Sydney, Ultimo, NSW and You Zhang, UT Southwestern Medical Ctr at Dallas, Dallas, TX

- 2:00 pm SU-D-TRACK 4-01 A Subject-Specific 5D Cardiac and Respiratory Motion Model Reconstructed from Free-Breathing 2D Cine MRIs - X. Wu*, y. zhang, H. An, H. Gach, S. Goddu, H. Li, D. Yang
- 2:07 pm SU-D-TRACK 4-02 Automated Predictive Models for Lung ART - J. Kavanaugh*, G. Hugo, Z. Ji, J. Fontenot
- 2:14 pm SU-D-TRACK 4-03 Biomechanical Simulation of Lung Motion for Tumor Position Estimation During Radiation Therapy - M. Ranjbar*, P. Sabouri, S. Mossahebi, A. Sawant, P. Mohindra, G. Lasio, L. Topoleski
- 2:21 pm SU-D-TRACK 4-04 Motion Management During Breath-Hold SBRT Liver Treatments: External Optical Monitoring Is Not Adequate – First Results of the TROG 17.03 Liver Ablative Radiotherapy with KIM (LARK) - D. Nguyen*, T. Moodie, C. Sengupta, E. Sullivan, T. Blacketer, R. O'Brien, J. Booth, Y. Lee, T. Wang, P. Keall
- 2:28 pm SU-D-TRACK 4-05 Reconstruction of DRR-Like KV-DR Using CycleGAN-Based Image Synthesis for Intra- and Extracranial SRT/SRS - D. Lee*, S. Lee, H. Cho
- 2:35 pm SU-D-TRACK 4-06 Respiratory Adaptive Computed Tomography (REACT) to Reduce Artifacts in Helical 4DCT Scans - E. Mathias*, N. Morton, R. O'Brien
- 2:42 pm SU-D-TRACK 4-07 Towards Closed-Loop Control Head Motion Correction with Soft Actuators in MRI-LINAC Systems - O. Ogunmolu*, R. Wiersma

Sunday, July 25, 2021

Therapy Scientific Session

2:00 pm - 3:00 pm

-TRACK 6

SU-D-TRACK 6 Patient Safety and Quality Improvement

Moderators: Jean Moran, University of Michigan Medical Center, Department of Radiation Oncology, Ann Arbor, MI and Dustin Jacqmin, University of Wisconsin, Madison, WI

- 2:00 pm SU-D-TRACK 6-01 A Systematic Approach to Balancing Radiotherapy Risk Management and Infection Control During a Pandemic - N. Islam*, S. Wadi-Ramahi, R. Lalonde, M. Huq
- 2:07 pm SU-D-TRACK 6-02 Application of Machinery FMEA (MFMEA) for the Risk Assessment of Machine Issues Using an In-House Electronic Reporting System - T. Teo*, S. Kucuker Dogan, B. Zawislak, M. Gopalakrishnan, I. Das
- 2:14 pm SU-D-TRACK 6-03 Automatic Detection of Vertebral Body Misalignment Errors in Cone-Beam CT Guided Radiotherapy Using a Convolutional Neural Network - D. Luximon*, J. Neylon, J. Lamb
- 2:21 pm SU-D-TRACK 6-04 Multi-Institutional Validation of a Convolutional Neural Network-Based Approach to the Detection of Vertebral Body Misalignments in Planar X-Ray Setup Images - J. Charters, J. Kunz, J. Lamb, D. Low, O. Morin, R. Petragallo*, D. Saenz, B. Salter, G. Valdes, B. Ziemer
- 2:28 pm SU-D-TRACK 6-05 Radiotherapy Application of Causal Analysis Based on Systems Theory (CAST) - L. Wong*, N. Leveson, T. Pawlicki
- 2:35 pm SU-D-TRACK 6-06 The Utility of Medical Physics Proton Peer Review for Clinical Trials - P. Taylor*, J. Lowenstein, D. Followill, S. Kry
- 2:42 pm SU-D-TRACK 6-07 Development of a Text-Mining Based Methodology for the Identification of Trending Topics in a Radiation Oncology Incident Learning Database - R. Price*, Y. Huang, B. Salter

SAM Therapy Educational Course

2:00 pm - 3:00 pm

-TRACK 7

SU-D-TRACK 7 Current Status of Proton Thoracic Radiotherapy

Moderator: Stella Flampouri, Emory University, Atlanta, GA

- 2:00 pm H. Li, Johns Hopkins Medicine: Treatment Planning and Delivery for Proton Thoracic Therapy – An US Center's Experience
- 2:25 pm S. Both, University Medical Center Groningen: Treatment Planning and Delivery for Proton Thoracic Therapy – A European Center's Experience
- 2:50 pm S. Flampouri, Emory University: Parallels and Intersections in Thoracic Proton Therapy
- 2:55 pm Q&A

Vendor Showcase

2:00 pm - 2:30 pm

-TRACK 8

SU-SHOWCASE-TRACK 8 LAP Laser, LLC

- 2:00 pm SU-SHOWCASE-TRACK 8-2-01 THALES – Motorized Water Phantom for MRIdian & Haleyon-New Developments & User Experiences- T. Mertens*

Imaging Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 1

SU-IePD-TRACK 1 Imaging: CBCT Image Processing, Image Analysis, and Applications

SU-IePD-TRACK 1-01 CBCT Manual Vs. Semi-Automatic Single and Multi-Slice Low Contrast Resolution Analysis - N. Becerra Espinosa*, L. Claps, P. Alaei

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SU-IePD-TRACK 1-02 Evaluation of Megavoltage Cone-Beam Computed Tomography Doses in Thoracic Radiation Therapy - S. Yan, J. Zhu, S. Yan*

SU-IePD-TRACK 1-03 Efficient Visualisation of Changes in CBCT During Radiotherapy to Detect Lung Infections - M. van Herk*, G. Price, A. Clough, J. Sanders, C. Faivre-finn, C. Eccles, M. Aznar

SU-IePD-TRACK 1-04 Cone-Beam Computed Tomography (CBCT) to Computed Tomography (CT) Image Translation with Perceptual Loss to Eliminate Cone-Beam Artifacts - S. Yoo*, B. Choi, I. Park, J. Kim, H. Kim

SU-IePD-TRACK 1-05 Identification of Modes of Tumour Regression During Radiotherapy - L. Amugongo*, G. Andrew, D. Cobben, M. van Herk, E. Vasquez Osorio, A. Mcwilliam

SU-IePD-TRACK 1-06 ROI Based Deep Learning Enhancement for CBCT Based Radiomics Analysis - M. Huang*, Z. Zhang, Y. Lai, Y. Chang, Z. Jiang, J. Lee, F. Yin, L. Ren

SU-IePD-TRACK 1-07 Patient-Specific Deep Learning Model for Enhancing 4D-CBCT Image for Radiomic Analysis - Z. Zhang*, M. Huang, Z. Jiang, Y. Chang, K. Lu, F. Yin, L. Ren

-TRACK 2

SU-IePD-TRACK 2 Imaging: Mammography and Tomosynthesis

SU-IePD-TRACK 2-01 Theoretical Investigation of the Signal and Spatial Resolution Performance of HgI2 Converters Incorporating Pillar-Supported Frisch Grid Structures for Digital Breast Tomosynthesis - L. Shen*, Y. El-Mohri, Q. Zhao, L. Antonuk

SU-IePD-TRACK 2-02 Spectral Simulation for a Dual-Layer Detector for Dual-Energy Contrast-Enhanced Breast Imaging - H. Huang*, X. Duan, A. Howansky, J. Stavro, A. Goldan, A. Lubinsky, W. Zhao

SU-IePD-TRACK 2-03 Breast Thickness Map Estimation and Its Associated Correction in DBT Imaging - S. Lee*, H. Kim, H. Lee, S. Cho

SU-IePD-TRACK 2-04 Monte-Carlo Simulation of the Detective Quantum Efficiency of Cadmium Telluride X-Ray Detectors for Photon-Counting Mammography - J. Day*, J. Tanguay

SU-IePD-TRACK 2-05 Assessment of Case-Based Repeatability of AI Using Mammographic Radiomics of Breast Lesions - H. Whitney*, P. Amstutz, K. Drukker, H. Li, H. Abe, M. Giger

SU-IePD-TRACK 2-06 Deep Learning Method for Volumetric Segmentation of Dense Tissue in Tomosynthesis Using Computer Simulations - J. Gomes, Y. Barbosa, T. Do Rego, T. Silva, T. Vent, A. Maidment, B. Barufaldi*

SU-IePD-TRACK 2-07 A Reader Model to Compute Detectability of Lesions with Varying Size in X-Ray Images of the Breast - M. Lago*, A. Badano

Multi-Disciplinary Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 3

SU-IePD-TRACK 3 Multi-Disciplinary: Image Guidance: Cone-Beam CT

SU-IePD-TRACK 3-01 Cone Beam CT (CBCT) Based Synthetic CT Generation Using Deep Learning Methods for Dose Calculation of Nasopharyngeal Carcinoma Radiotherapy - X. Xudong*, D. Yi, S. Jun, H. Xiaoyu, L. Xiangbin, L. Dan, W. Yuan, A. Hong, W. Wei, J. Man, X. Wang

SU-IePD-TRACK 3-02 Deep Learning Based Synthetic CT Generation with Multi-Sequence MRI for MRI-Only Radiotherapy - S. Wu*, Y. Peng, d. qian, R. Wang, X. Deng

SU-IePD-TRACK 3-03 Image Synthesis for Planning and Target Tracking of MR-Based Stereotactic Radiation Therapy - G. Szalkowski*, D. Nie, T. Zhu, P. Yap, J. Lian

SU-IePD-TRACK 3-04 Implementation and Validation of Non-Uniform Body Region Specific 3D Age Scaling Factors (ASF) to Scale Whole-Body Computed Tomography (CT) Anatomy to Any Arbitrary Age - A. Gupta*, C. Owens, T. Netherton, C. Lee, S. Shrestha, S. Smith, R. Weathers, S. Kry, P. Balter, D. Followill, J. Long, R. Howell

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SU-IePD-TRACK 3-05 Self-Attention Generative Adversarial Network for Synthetic CT Generation from CBCT in Head and Neck Radiotherapy - S. Wu*, S. Liu, d. qian, R. Wang, H. Chen, Y. Lu, Y. Sun

SU-IePD-TRACK 3-06 Synthetic Contrast MR Image Generation Using Deep Learning - Y. Liu*, Y. Lei, T. Wang, J. Roper, H. Mao, J. Bradley, T. Liu, X. Yang

SU-IePD-TRACK 3-07 Artificial Intelligence (AI) Based Missing Tissue Generated Synthetic CT Preparation for Planning in Limited Field of View (LFOV) MR-Only Simulation - S. Kim*, S. Kim

Expanding Horizons

3:00 pm - 3:30 pm

-TRACK 4

SU-IePD-TRACK 4 Expanding Horizons

Moderators: William Donahue, Yale-New Haven Hospital, New Haven, CT and Suman Shrestha, University of Texas MD Anderson Cancer Center, Houston, TX

SU-IePD-TRACK 4-01 P. Jermain, Massachusetts General Hospital: AACR 2021 Annual Meeting

SU-IePD-TRACK 4-02 J. Zhang, Emory University: 2020 Conference on Computer Vision and Pattern Recognition (CVPR)

SU-IePD-TRACK 4-03 A. Imran, Stanford University: International Conference on Pattern Recognition (ICPR) 2020

Therapy Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 5

SU-IePD-TRACK 5 Therapy: Brachytherapy treatment and QA

SU-IePD-TRACK 5-01 A 3D-Printed Prostate Phantom for Quality Assurance in HDR Brachytherapy - D. Murrell*, J. Pautler, D. Hoover

SU-IePD-TRACK 5-02 Development of Reference Plan-Based Verification System for Intracavitary Brachytherapy for Uterine Cervical Cancer - Y. Akino*, F. Isohashi, T. Arimura, Y. Seo, T. Hirata, K. Tamari, K. Hayashi, K. Ogawa

SU-IePD-TRACK 5-03 Development of a Dynamic-Shield Applicator Enabling Intensity-Modulated Brachytherapy for the Treatment of Rectal Cancer - A. Thibodeau-Antonacci*, T. Vuong, H. Bekerat, L. Liang, S. Abbasinejad Enger

SU-IePD-TRACK 5-04 Commissioning and QA of 3D-Printed Molds for Surface Brachytherapy - T. Phillips*, J. Steers

SU-IePD-TRACK 5-05 Integrating Rotatable Tandem Applicator to Conventional Ovoid Applicator for Complete Framework of Intensity Modulated Brachytherapy (IMBT) for Cervical Cancer - H. Kim*, Y. Goh, D. Kim, J. Kim, Y. Lim

SU-IePD-TRACK 5-06 Dual-Source Optimization for HDR Prostate Brachytherapy - H. Frank*, S. Park, K. Sheng

SU-IePD-TRACK 5-07 Proton Arc Therapy as An Alternative to Syed Interstitial High Dose Rate (HDR) Brachytherapy for Treating a Gynecological Cancer Patient with Lateral Disease Extension - B. Yi*, S. Mossahebi, E. Nichols, M. Guerrero, N. Lamichhane, P. Mohindra

-TRACK 6

SU-IePD-TRACK 6 Therapy: Electron Treatment

SU-IePD-TRACK 6-01 Monte Carlo (MC) Simulation of Total Skin Electron Therapy (TSET) with TOPAS and EGSnrc - W. Zhong*, T. Zhu, Y. Ong, G. Ding

SU-IePD-TRACK 6-02 Initial Assessment of the Suitability of 3D PRESAGE Phantom for Relative Dose Measurements in a FLASH Electron Beam - C. Elliston*, Y. Wang, G. Garty, J. Adamovics, C. Wu

SU-IePD-TRACK 6-03 The LIAC 12 MeV Intraoperative Electron Radiotherapy Unit: Bi-Directional Assessment of Field Symmetry and Independent Evaluation of the SWL-LIAC Simulation Software - M. Mosleh-Shirazi*, R. Rashidfar, S. Karbasi, M. Pashnehsaz, M. Mahdavi

SU-IePD-TRACK 6-04 Customize Electron Energy Beams on TrueBeam Linear Accelerators - S. Gao*, M. Muruganandham, W. Du, J. Ohrt, R. Kudchadker, P. Balter

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SU-IePD-TRACK 6-05 A TPS Independent Automated Software to Detect Electron Applicator-Body Collisions - D. McClatchy*, J. Pursley, C. Holdsworth

SU-IePD-TRACK 6-06 Verification of a Cost-Effective and Cerrobend-Free Workflow for Customized 3D-Printing Based Skin Collimation - M. Polizzi*, J. Sohn, S. Kim

SU-IePD-TRACK 6-07 Feasibility Study of Using Custom 3D-Printed Bismuth Shields in Electron Beam Treatment - A. Sheikh*, B. Overshiner, Y. Yue, C. Desrosiers, K. Huang

Break

3:00 pm - 3:30 pm

SAM Professional Symposium

3:30 pm - 4:30 pm

-TRACK 1

SU-E-TRACK 1 Establishing Efficient and Effective Systems for Policy and Procedures

Moderator: Mohammad Bakhtiari, William E. Kahlert Regional Cancer Center, Westminster, MD

3:30 pm **P. Halvorsen, Beth Israel - Lahey Health: Policies and Procedures: Why Bother, and Why Should the Physicist Play a Key Role?**

3:45 pm **M. Bakhtiari, William E. Kahlert Regional Cancer Center: Policies and Procedures: Developing Policies and Procedures That Work for Your Clinic**

4:00 pm **K. Moore, UC San Diego: Policies and Procedures: Practical Strategies for Effective Implementation and Maintenance**

4:15 pm **Audience Q&A**

SAM Imaging Educational Course

3:30 pm - 5:30 pm

-TRACK 2

SU-EF-TRACK 2 Non-anger Gamma Cameras: Physics, Quality Control and Evaluation

Moderator: William Erwin, UT MD Anderson Cancer Center, Houston, TX

3:30 pm **P. Slomka, Cedars-Sinai Medical Center: Dedicated Myocardial Perfusion Imagers**

4:10 pm **L. Zimmermann, University Hospitals Cleveland Medical Center: Large Field-Of-View Pixelated Gamma Cameras**

4:50 pm **M. O'Connor, Mayo Clinic: New and Innovative CZT-Based Gamma Cameras**

5:10 pm **Audience Q & A**

SAM Imaging Scientific Symposium

3:30 pm - 4:30 pm

-TRACK 3

SU-E-TRACK 3 Imaging Markers of Breast Cancer Risk

Moderator: Carrie Hruska, Mayo Clinic, Rochester, MN

3:30 pm **C. Vachon, Mayo Clinic: Breast Cancer Risk Markers from Mammography**

3:55 pm **E. Morris, University of California, Davis: Emerging AI Breast Imaging Applications**

4:20 pm **Q&A & Panel Discussion**

SAM Multi-Disciplinary Scientific Symposium

3:30 pm - 5:30 pm

-TRACK 4

SU-EF-TRACK 4 State-of-the-art in MRI-guided Radiotherapy

Moderator: Carri Glide-Hurst, University of Wisconsin, Madison, WI

3:30 pm **C. Glide-Hurst, University of Wisconsin: Introduction to the State-Of-The-Art in MRI-Guided Radiotherapy**

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3:40 pm **P. Liu, The University of Sydney: Next-Generation Target Tracking Using MRI Guidance**

3:58 pm **D. Ma, Case Western Reserve: MRI Fingerprinting**

4:16 pm **N. Mickevicius, University of Wisconsin: Challenges and Solutions for Quantitative Imaging on Low-Field MR-Guided RT Systems**

4:34 pm **M. Kim, University of Michigan: Toward Patient-Specific Radiotherapy: Biologically Informed Tumor Targeting in Glioblastoma**

4:52 pm **M. Boss, American College of Radiology: Standards to Reduce Variability in Quantitative MRI**

5:10 pm **Panel Discussion**

Therapy Scientific Session

3:30 pm - 4:30 pm

-TRACK 5

SU-E-TRACK 5 Treatment Planning: Dose Calculation and Prediction

Moderators: X. Sharon Qi, UCLA School of Medicine, Los Angeles, CA and Lakshmi Santanam, Memorial Sloan Kettering Cancer Center, New York, NY

3:30 pm **SU-E-TRACK 5-01 A Consensus Report from the Global Harmonisation Group on Clinical Trials: Report Dose-To-Medium** - S. Kry*, J. Lye, C. Clark, N. Andratschke, A. Dimitriadis, D. Followill, R. Howell, M. Hussein, M. Ishikawa, S. Kito, T. Kron, J. Lee, J. Michalski, A. Monti, N. Reynaert, P. Taylor, K. Venables, Y. Xiao, J. Lehmann

3:37 pm **SU-E-TRACK 5-02 A GPU-Accelerated Monte Carlo Engine for Calculation of MLC-Collimated Electron Fields** - E. Brost*, H. Wan Chan Tseung, J. Antolak

3:44 pm **SU-E-TRACK 5-03 Correlation of Treatment Time to Target Volume for GammaPod Treatments: A Simple Second Calculation** - L. Chen*, S. Becker, S. Meavoy, E. Nichols, M. Guerrero

3:51 pm **SU-E-TRACK 5-04 Introducing Kernel Truncation and Sparsity into Dose Calculations for IMRT Optimization** - H. Stephens*, Q. Wu, Q. Wu

3:58 pm **SU-E-TRACK 5-05 Polar Coordinate Based Pencil Beam Dose Calculation Algorithm for VMAT** - W. Tseng*, B. Lu

4:05 pm **SU-E-TRACK 5-06 BEST IN PHYSICS (THERAPY): Clinical Implementation of AI-Based 3D Dose Prediction Model as Physician Directive Support Tool to Streamline Head and Neck Planning Process** - M. Mashayekhi*, R. McBeth, Z. Trivedi, D. Nguyen, S. Jiang, M. Lin

4:12 pm **SU-E-TRACK 5-07 Prediction of Organ-At-Risk Doses Using an Artificial Intelligence Algorithm: Clinical Validation and Estimated Benefit to Treatment Planning for Lung SBRT** - P. Brodin*, L. Schulte, D. Pappas, W. Martin, X. Shen, A. Basavatia, N. Ohri, M. Garg, S. Kalnicki, C. Carpenter, W. Tomé

Multi-Disciplinary Scientific Session

3:30 pm - 4:30 pm

-TRACK 6

SU-E-TRACK 6 Data Science, Radiomics, and Computing

Moderators: Ying Xiao, University of Pennsylvania, Philadelphia, PA and Carlos Cardenas, UT MD Anderson Cancer Center, Houston, TX

3:30 pm **SU-E-TRACK 6-01 A Multi-Modality Radiomics-Based Model for Recurrence Risk Stratification in Non-Small Cell Lung Cancer** - J. Christie*, O. Daher, M. Abdelrazek, P. Lang, V. Nair, S. Mattonen

3:37 pm **SU-E-TRACK 6-02 Computer-Assisted Diagnosis of Hepatic Portal Hypertension: A Novel, Attention-Guided Deep Learning Framework Based on CT Imaging and Laboratory Data Integration** - Y. Wang*, X. Li, M. Konanur, B. Konkel, E. Seyferth, N. Brajer, M. Bashir, K. Lafata

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- 3:44 pm **SU-E-TRACK 6-03 JACK KROHMER EARLY-CAREER INVESTIGATOR COMPETITION WINNER: Multi-Group Multi-Block Data Integration for Harmonizing 18F-FDG-PET/CT Radiomics Associated with Circulating Tumor Cells and Predicting Recurrence-Free Survival Across Independent Lung Cancer Radiotherapy Studies** - S. Lee*, G. Kao, S. Feigenberg, Y. Fan, Y. Xiao
- 3:51 pm **SU-E-TRACK 6-04 Multi-Institutional Data Analysis of Radiomic Signature Set to Predict Overall Survival in Glioblastoma Patients** - E. Carver*, Z. Dai, J. Snyder, B. Griffith, L. Poisson, L. Rogers, N. Wen
- 3:58 pm **SU-E-TRACK 6-05 Multi-Class Classification Based on Multi-Loss Strategy and Auxiliary Deep Learning Network with Applications in Medical Imaging** - Z. Fan*, S. He, E. Chen, S. Ruan, X. Wang, H. Li
- 4:05 pm **SU-E-TRACK 6-06 A Radiomics-Boosted Deep Learning Model for COVID-19 and Non-COVID-19 Pneumonia Detection Using Chest X-Ray Image** - Z. Hu*, Z. Yang, F. Yin, K. Lafata, C. Wang
- 4:12 pm **SU-E-TRACK 6-07 Spatial Reconstruction of Statistically Significant Radiomics Signatures Using 3D Wavelet Decomposition in Tumors of Oropharyngeal Cancer** - H. Bagher-Ebadian*, F. Siddiqui, A. Ghanem, S. Zhu, M. Lu, B. Movsas, I. Chetty

SAM Therapy Educational Course

3:30 pm - 5:30 pm

-TRACK 7

SU-EF-TRACK 7 Radiation Biology for Radiation Therapy Physicists

Moderators: Caridad Borrás, Washington, DC and Colin Orton, Wayne State University, The Villages, FL

- 3:30 pm **C. Borrás: Introduction to Radiation Biology**
- 3:50 pm **C. Orton, Wayne State University: Radiobiological Basis of Conventional and Hypofractionated Radiotherapy**
- 4:10 pm **K. Parodi, Ludwig-Maximilians-Universität München: Radiobiological Aspects of Proton and Heavy Ion Radiotherapy**
- 4:30 pm **J. Jin, University Hospitals, Case Medical Center: Potential Radiobiological Mechanisms for FLASH Radiotherapy**
- 4:50 pm **J. Deasy, Memorial Sloan Kettering Cancer Center: Minimizing Secondary Adverse Effects of Radiation Therapy: QUANTEC and Newer Results**
- 5:10 pm **Q&A**

SAM Educational Topic-Specific Guided Tours-Therapy

3:30 pm - 5:30 pm

-TRACK 8

SU-EF-TRACK 8 Patient-Specific QA Devices/Software

Moderators: Vimal Desai, UW Health, Madison, WI and Sara Thrower, UT MD Anderson Cancer Center, Houston, TX

- 3:30 pm **V. Desai, UW Health: Patient-Specific QA Devices/Software**
- S. Thrower, UT MD Anderson Cancer Center: Patient-Specific QA Devices/Software**
- 4:00 pm **Y. Lee-Bartlett, Elekta: Patient QA – A Solution for Every Clinic**
- 4:25 pm **P. Tobe, Varian Medical Systems: Varian QA Vision and SRS End-to-end Phantom**
- 4:50 pm **J. Kunz, University of Utah, Huntsman Cancer Hospital: ScandiDos Delta4 Discover Transmission Detector: A New Paradigm for Patient Safety and Quality Assurance**
- 5:15 pm **Q&A**

Professional Symposium

4:30 pm - 5:30 pm

-TRACK 1

SU-F-TRACK 1 Professional Economics Updates

Moderators: Jonas Fontenot, Mary Bird Perkins Cancer Center, Baton Rouge, LA and Michele Ferenci, Penn State Cancer Institute, Hershey, PA

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- 4:30 pm **J. Fontenot, Mary Bird Perkins Cancer Center: Professional Economics Updates**
- 4:55 pm **W. Fuss, Health Policy Solutions: Professional Economics Updates**
- 5:20 pm **Audience Q&A**

Imaging Scientific Session

4:30 pm - 5:30 pm

-TRACK 3

SU-F-TRACK 3 Breast Imaging

Moderators: Andrew Karellas, University of Arizona, Tucson, AZ and Ashley Rubinstein, Henry Ford Health System, Detroit, MI

- 4:30 pm **SU-F-TRACK 3-01 Anisotropies in Super-Resolution in 3D Magnification Mammography Using a Next-Generation Tomosynthesis System** - R. Acciavatti*, T. Vent, C. Choi, P. Noël, A. Maidment
- 4:37 pm **SU-F-TRACK 3-02 Histological Validation of Anatomical Imaging for Breast Modeling** - A. Sen*, C. Kingsley, A. Kulp, M. McCulloch, B. Willis, K. Brewer Savannah, A. Contreras, M. Bordes, T. Huynh, N. Fowlkes, G. Reece, K. Brock
- 4:44 pm **SU-F-TRACK 3-03 Direct-Indirect Dual-Layer Detector for Contrast Enhanced Digital Breast Tomosynthesis: Feasibility Using Image Simulation** - X. Duan*, H. Huang, A. Howansky, J. Stavro, A. Lubinsky, A. Goldan, W. Zhao
- 4:51 pm **SU-F-TRACK 3-04 Image Quality Evaluation of a Compressed-Sensing Algorithm for Image Reconstruction in Dedicated Cone-Beam Breast CT Using Offset-Detector** - S. Vedantham*, H. Tseng, A. Karellas
- 4:58 pm **SU-F-TRACK 3-05 Two-Dimensional Breast Tomosynthesis with a Stationary Array of Thermionic Cathodes for Higher Resolution Images and Fast Acquisition** - J. Boone*, A. Sisniega, J. Siewerdsen, P. Schwoebel
- 5:05 pm **SU-F-TRACK 3-06 Validation of Automated MTF Measurement for Digital X-Ray Imaging Quality Control** - A. Bey*, C. MacLellan, D. Zhang, M. Palmer
- 5:12 pm **SU-F-TRACK 3-07 Automating Tumor Functional Diameter Measurement with Molecular Breast Imaging for Treatment Response Assessment** - B. Lopez*, G. Rauch, S. Kappadath

Therapy Scientific Session

4:30 pm - 5:30 pm

-TRACK 5

SU-F-TRACK 5 Treatment Planning: Planning Automation and Assessment

Moderators: Martha Matuszak, University of Michigan, Ann Arbor, MI and Leigh Conroy, Princess Margaret Cancer Centre, Toronto, ON

- 4:30 pm **SU-F-TRACK 5-01 A Hierarchical Optimization Framework for Gamma Knife Treatment Planning** - M. Chen*, Z. Yang, Z. Wardak, X. Gu, W. Lu
- 4:37 pm **SU-F-TRACK 5-02 Assessing the Practicality of Using a Single KBP Model for Multiple Linac Vendors** - R. Douglas*, A. Olanrewaju, L. Zhang, L. Court
- 4:44 pm **SU-F-TRACK 5-03 Landmark-Based Field Aperture Generation for Automatic Whole-Brain Radiation Planning** - Y. Xiao*, D. Rhee, T. Netherton, L. Zhang, A. Aggarwal, C. Trauernicht, H. Simonds, L. Court, C. Cardenas
- 4:51 pm **SU-F-TRACK 5-04 Toward Semi-Automatic Biologically Effective Dose Treatment Planning for Gamma Knife Radiosurgery** - T. Klinge*, H. Talbot, I. Paddick, S. Ourselin, J. McClelland, M. Modat
- 4:58 pm **SU-F-TRACK 5-05 Knowledge-Based Cardiac Sparing Treatment Planning for Lung Radiotherapy** - J. Harms*, J. Zhang, O. Kayode, J. Wolf, S. Tian, N. Mccall, K. Higgins, R. Castillo, X. Yang

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- 5:05 pm **SU-F-TRACK 5-06 Deep Learning-Based Dosimetric Plan Quality Assessment for Prostate Radiotherapy** - Y. Nomura*, C. Huang, Y. Yang, N. Kovalchuk, M. Surucu, M. Buyyounouski, L. Xing
- 5:12 pm **SU-F-TRACK 5-07 Development of a Framework to Assess Robustness of Dynamic Trajectory Treatment Plans** - H. Loebner*, W. Volken, S. Mueller, J. Bertholet, P. Mackeprang, G. Guyer, D. Aebersold, M. Stampanoni, P. Manser, M. Fix

Multi-Disciplinary Scientific Session

4:30 pm - 5:30 pm

-TRACK 6

SU-F-TRACK 6 Real-time Tracking and Adaptive Radiation Therapy

Moderators: Amit Sawant, University of Maryland School of Medicine, Baltimore, MD and Wendy Harris, Memorial Sloan Kettering Cancer Center, New York, NY

- 4:30 pm **SU-F-TRACK 6-01 Automatic Stent Recognition Using Deep Neural Network for Quantitative Intra-Fractional Motion Monitoring in Pancreatic Cancer Radiotherapy** - X. He*, W. Cai, F. Li, P. Zhang, L. Cervino, T. Li, X. Li
- 4:37 pm **SU-F-TRACK 6-02 Dual-Energy Real-Time Stereoscopic X-Ray Image Guidance for Markerless Lung Tumor Tracking** - C. Peacock, M. Sattarivand*
- 4:44 pm **SU-F-TRACK 6-03 Implementation of High-Quality Motion-Compensated Simultaneous Algebraic Reconstruction Technique (mc-SART) Cone-Beam CT (CBCT) Imaging Using the 5D Model in a Prospective Patient Study** - K. Singhrao*, D. O'Connell, J. Fu, M. Lauria, B. Stiehl, A. Raldow, J. Hegde, A. Lee, A. Santhanam, D. Low, J. Lewis
- 4:51 pm **SU-F-TRACK 6-04 One-Second into the Future: A Deep Learning Method to Predict 3D Lung Cancer Target Motion to Account for Adaptation Latency** - Q. Hoang, J. Booth, V. Cailliet, P. Keall, D. Nguyen*
- 4:58 pm **SU-F-TRACK 6-05 BEST IN PHYSICS (MULTI-DISCIPLINARY): Real-Time Dose-Optimized Multi-Target MLC Tracking for Locally Advanced Prostate Cancer** - E. Hewson*, D. Nguyen, J. Booth, P. Keall, L. Mejnertsen
- 5:05 pm **SU-F-TRACK 6-06 Synthesizing Real-Time In-Treatment 4D Images Based on Optical Surface Signals and Pre-Treatment Images: A Proof-Of-Concept Study** - Y. Huang*, Y. Zhang
- 5:12 pm **SU-F-TRACK 6-07 Evaluating the Clinical Impact and Accuracy of Real-Time KV Imaging in Liver SBRT** - A. Santoso*, Y. Vinogradskiy, T. Robin, K. Goodman, T. Scheffer, M. Miften, B. Jones

Imaging Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 1

SU-IePD-TRACK 1 Imaging: AI in Imaging

- SU-IePD-TRACK 1-01 Convolutional Neural Network Based Fully Automatic Lesion Localization in Rectal Cancer** - Y. Zhang*, L. Shi, X. Sun, S. Jabbour, N. Yue, K. Nie
- SU-IePD-TRACK 1-02 Optimized Interactive Image Segmentation with An Interpretation Method** - Z. Chen, X. Qi, S. Tan*
- SU-IePD-TRACK 1-03 Self-Supervised Deep Learning in the Assessment of Enteral Feeding Tube Positioning Based on A Small Dataset** - G. Liang, D. Steffey, H. Ganesh, J. Zhang*
- SU-IePD-TRACK 1-04 Wavelet U-Net: Incorporating Wavelet Transform into U-Net for Liver Segmentation** - J. Chang*, C. Chang
- SU-IePD-TRACK 1-05 Multi-Frequency-Based CXR Data Normalization for Deep-Neural-Network Classifier** - H. Kim*, W. Sim, D. Cho, S. Cho

Sunday, July 25, 2021

- SU-IePD-TRACK 1-06 Autosegmentation of Videofluoroscopic Swallow Studies Using U-Net for Improved Analysis of Radiation Induced Dysphagia in Head and Neck Cancer Patients** - N. Shaheen*, R. Peña-chávez, C. Ulmschneider, R. Burdick, J. Yee, A. Kurosu, N. Rogus-pulia, B. Bednarz
- SU-IePD-TRACK 1-07 Super-Resolution CT Image Via Convolution Neural Network with An Observer Loss Function** - M. Yu*, M. Han, J. Baek

Multi-Disciplinary Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 3

SU-IePD-TRACK 3 Multi-Disciplinary: Imaging for Treatment Planning

- SU-IePD-TRACK 3-01 A Realistic DRR Rendering Method Based on Cycle-GAN** - R. Wei*, B. Liu, B. Liang, J. Dai
- SU-IePD-TRACK 3-02 Angiogram-Free Intracranial Vessel Localization for Plaque Assessment** - W. Fan*, Y. Sang, H. Zhou, Z. Hu, J. Xiao, Z. Fan, D. Ruan
- SU-IePD-TRACK 3-03 Intelligent CT Reconstruction with Simultaneous Learning of Reconstruction Policy and Image Quality Assessment Using Quality-Guided Deep Reinforcement Learning** - Y. Gao*, C. Shen, M. Tsai, Y. Gonzalez, L. Chen, X. Jia
- SU-IePD-TRACK 3-04 Ortho2D: An Accurate, Memory-Efficient Framework for 3D Vertebrae Labeling** - Y. Huang*, A. Uneri, C. Jones, X. Zhang, M. Ketcha, N. Aygun, P. Helm, J. Siewerdsen
- SU-IePD-TRACK 3-05 Self-Supervised Learning Based CT Imaging with High Through-Plane Resolution** - H. Xie*, Y. Lei, T. Wang, Z. Tian, J. Roper, J. Bradley, X. Tang, T. Liu, X. Yang
- SU-IePD-TRACK 3-06 Squamous Cell Tumor Characterization in Head and Neck Cancer Patients Using Dual-Energy Computed Tomography** - É. Delisle*, H. Bahig, H. Bouchard, M. Simard, C. Larose, E. Filion, P. Nguyen-tân, S. Bedwani
- SU-IePD-TRACK 3-07 Using the Planning CT Scan for Pixel-To-Pixel Corrections of Cherenkov Intensity for Dose Imaging** - R. Hachadorian*, D. Gladstone, M. Jermyn, P. Bruza, R. Zhang, L. Jarvis, B. Pogue

Therapy Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 5

SU-IePD-TRACK 5 Therapy: FLASH Techniques

- SU-IePD-TRACK 5-01 Simultaneous Dose and Dose Rate Optimization with Transmission Beams and Bragg Peaks for Proton FLASH Therapy** - Y. Lin*, B. Lin, S. Fu, M. Folkerts, E. Abel, J. Bradley, H. Gao
- SU-IePD-TRACK 5-02 Differential Dose-Rate Effects on Pancreatic Cell Survival from Proton Therapy: FLASH Versus Conventional Dose Rate** - Y. Lee, D. Jiang, M. Yang, X. Wang, K. Iga, X. Zhu, A. Koong, R. Mohan, F. Guan*
- SU-IePD-TRACK 5-03 Feasibility of SOBP Proton FLASH Beam Delivery Using a Gantry-Mounted Clinical Synchrocyclotron** - A. Darafsheh*, Y. Hao, X. Zhao, T. Zwart, M. Wagner, T. Evans, F. Reynoso, T. Zhao
- SU-IePD-TRACK 5-04 Commissioning a Fixed Field FLASH Pencil Beam Scanning Proton Therapy System in Support of the First In-Human Clinical Trial** - A. Mascia*, Y. Zhang, E. Lee, Z. Xiao, J. Speth, M. Sertorio, E. Abel, M. Folkerts, A. Lourenco, N. Lee, A. Subiel, F. Romano, R. Thomas, R. Amos, J. Breneman
- SU-IePD-TRACK 5-05 Development and Validation of a FLASH Pencil Beam Scanning Beam Model for Treatment Planning and Verification in First In-Human Trial** - Y. Zhang*, E. Lee, Z. Xiao, J. Speth, M. Folkerts, E. Abel, J. Breneman, A. Mascia
- SU-IePD-TRACK 5-06 Online Control of Micro-Beam Synchrotron Radiation Therapy Using Micro-Stripped Diamond Detectors** - N. Rosuel*, M. Gallin-martel, L. Gallin-martel, S. KESHMIRI, M. Krisch, J. Motte, J. Muraz, M. Ruat, L. Tribouilloy, D. Dauvergne, J. Adam
- SU-IePD-TRACK 5-07 Novel Plastic Scintillator for Online Dosimetry in Electron FLASH-RT** - Y. Poirier*, J. Xu, A. Ahmady, S. Mossahebi, H. Zhang, F. Theriault-Proulx, A. Sawant

Sunday, July 25, 2021

-TRACK 6

SU-IePD-TRACK 6 Therapy: MR-guided RT Dosimetry and QA

SU-IePD-TRACK 6-01 Real-Time Reduction in Isocenter Shifts During MR-IGRT Gantry Rotation - A. Curcuru*, D. Yang, H. Gach
SU-IePD-TRACK 6-02 Experimental Verification of Scanning Magnet with Distributed Winding Coils for Particle Beam Therapy - K. Nagashima*, T. Yamada, T. Nomura, S. Soeda
SU-IePD-TRACK 6-03 Response of Parallel-Plate Ionization Chambers and a Diode Detector on the Buildup Dose Measurement in Inline Magnetic Fields - N. Anami*
SU-IePD-TRACK 6-04 A Monte Carlo Characterization of Positional Accuracy of a Double-Focused and Double-Stack Multileaf Collimator On a 0.35 T MR-Linac - A. Khan*, E. Simiele, L. DeWerd, P. Yadav
SU-IePD-TRACK 6-05 Mechanical Wind-Up Motion Phantom for MR-Linac Daily Quality Assurance - M. Snyder*, R. Halford, D. Yan
SU-IePD-TRACK 6-06 Evaluation of the Dosimetric Accuracy and Angular Dependency of the Novel SRSMapCheck Design in the Magnetic Field - O. Pen*, O. Green, A. Price
SU-IePD-TRACK 6-07 Evaluation of MRI-Guided Linear Accelerator Based Stereotactic Radiosurgery for Brain Metastasis - M. De Ornelas*, N. Dogan, W. Amestoy, H. Guerrero, T. Diwanji, E. Mellon

Monday, July 26, 2021

SAM Professional Symposium

10:30 am - 11:30 am

-TRACK 1

MO-A-TRACK 1 An Introduction to LGBTQIA+ Issues in Radiation Oncology from the Medical Physicist's Perspective

Moderators: Victoria Ainsworth, E. Harwich, MA and K. Sunshine Osterman, NYU Langone Health, New York, NY
10:30 am J. Vadas, Beaumont Health: Current State of LGBTQIA+ Healthcare (Jessica, She/Her)
10:42 am T. Roth, Washington University School of Medicine: Intersection of Race and LGBTQIA+ (Toni, She/Her)
10:54 am V. Ainsworth: Two Sides of the Same Coin: Looking at Inclusion from Patient Facing and Trainee Directions (Victoria, She/They and Sunshine, She/Her)
11:06 am K. Osterman, NYU Langone Health: Two Sides of the Same Coin: Looking at Inclusion from Patient Facing and Trainee Directions (Victoria, She/They and Sunshine, She/Her)
11:18 am Audience Q&A

SAM Imaging Educational Course

10:30 am - 11:30 am

-TRACK 2

MO-A-TRACK 2 MR Protocol Basics: Brain, Spine and Prostate

Moderators: Ho-Ling Anthony Liu, UT MD Anderson Cancer Center, Houston, TX and Trevor Andrews, Washington University at St Louis, Saint Louis, MO
10:30 am P. Hou, UT MD Anderson Cancer Center: Brain MRI Protocols
10:45 am T. Andrews, Washington University at St Louis: Spine MRI Protocols
11:00 am Q. Yuan, UT Southwestern Medical Center: Prostate MRI Protocols
11:15 am Audience Q & A

-TRACK 3

MO-A-TRACK 3 Biophotonics

Moderator: Brian Pogue, Thayer Engineering, Hanover, NH
10:30 am X. Li, Johns Hopkins: Microscopic Biophotonics In-Vivo
10:55 am B. Pogue, Thayer Engineering: Macroscopic Biophotonics In-Vivo
11:20 am Audience Q & A

Monday, July 26, 2021

SAM Multi-Disciplinary Scientific Symposium

10:30 am - 12:30 pm

-TRACK 4

MO-AB-TRACK 4 Frontiers in AI and Its Applications in Medical Physics

Moderator: Lei Xing, Stanford University, Stanford, CA
10:30 am R. Zeng, Food & Drug Administration: Growing Significance of Deep Learning in Modern Medical Imaging
11:00 am T. Purdie, The Princess Margaret Cancer Centre - UHN: Emerging Data-Driven Approaches for Treatment Planning
11:30 am N. Wen, Henry Ford Health System: Unconventional Neural Networks and Their Applications in Cancer Detection and Decision-Making
12:00 pm L. Xing, Stanford University: Pitfalls of Current Data-Driven Solutions and Pathways Toward XAI for Medical Physics

SAM Therapy Scientific Symposium

10:30 am - 12:30 pm

-TRACK 5

MO-AB-TRACK 5 New Developments in Flash RT

Moderator: Magdalena Bazalova-Carter, University of Victoria, Victoria, BC
10:30 am S. Krishnan, MD Anderson Cancer Center: FLASH RT – Tempering Optimism with Caution
10:50 am P. Montay-gruel, UC Irvine Health: Pre-Clinical Investigations on Neurocognitive Sparing with FLASH
11:10 am M. Kim, University of Pennsylvania: First Canine Clinical Trial with FLASH RT
11:30 am C. Desrosiers, University Hospital: FLASH Using VHEE
11:50 am A. Mascia, University of Cincinnati Medical Center: First Human Clinical Trial on Treating Bone Metastases with FLASH
12:10 pm Q&A & Panel Discussion

Multi-Disciplinary Scientific Session

10:30 am - 11:30 am

-TRACK 6

MO-A-TRACK 6 Image-Guided Surgery and Interventions

Moderators: Rodney Wiersma, University of Pennsylvania, Philadelphia, PA and Cedric Yu, University of Maryland School of Medicine, Baltimore, MD
10:30 am MO-A-TRACK 6-01 Cardiac Radioablation: MRI-Guided Tracking of Cardiac-Induced Target Motion - S. Lydiard*, B. Pontre, N. Hindley, B. Lowe, G. Sasso, P. Keall
10:37 am MO-A-TRACK 6-02 Deep Learning for Near Real-Time Image-Guided Focal Ablation - B. Anderson*, B. Rigaud, Y. Lin, E. Lin, G. Cazoulat, E. Koay, A. Jones, B. Odisio, K. Brock
10:44 am MO-A-TRACK 6-03 Head, Shoulders, Knees, and Toes: Towards Full Body Upright Cone-Beam CT Imaging - T. Reynolds*, O. Dillon, R. O'Brien
10:51 am MO-A-TRACK 6-04 Mechatronics-Assisted MRI-Guided Focal Laser Ablation of the Prostate: A Phantom Study - E. Knoll, C. Park*, J. Bax, D. Tessier, A. Fenster
10:58 am MO-A-TRACK 6-05 An Investigation of Microwave Ablation Equipment Interference with Wireless Patient Monitoring - C. Favazza*, A. Ferrero, J. Felmlee
11:05 am MO-A-TRACK 6-06 Micro-CT Enables Margin Assessment of Full Tissue Surface in Breast Conserving Surgery Without Impeding Clinical Workflow - B. Maloney*, R. Zuurbier, R. Diflorio-Alexander, S. Streeter, W. Wells, R. Barth, K. Paulsen, B. Pogue
11:12 am MO-A-TRACK 6-07 Evaluation of Geometric Distortion in 7T MRI for Frameless Surgical Procedures - K. Kirby*, K. Welker, E. Koons, A. Fagan

Monday, July 26, 2021

Education Session

10:30 am - 12:30 pm

-TRACK 7

MO-AB-TRACK 7 Innovation in Medical Physics Education

Moderator: Lisa Genovese, Krueger-Gilbert Health Physics, Easton, MD

- 10:30 am **MO-AB-TRACK 7-01 A Novel Formalism for Incorporating Professionalism, Interpersonal and Communication Skills into Medical Physics Residency Training** - I. Vergalasova*, N. Yue, K. Nie
- 10:45 am **MO-AB-TRACK 7-02 Career Preparation for Graduate Students: Preliminary Evaluation of An Introductory Course on the Profession of Medical Physics** - S. Leon*, B. Schwarz, L. Rill, M. Arreola
- 11:00 am **MO-AB-TRACK 7-03 Feasibility of Virtual Reality (VR) with Open-Source Software for Interactive Medical Physics Education** - S. Yoon*, T. Li
- 11:15 am **MO-AB-TRACK 7-04 Valued Discourse in Oral Examinations for Medical Physicists** - A. Cetnar*
- 11:30 am **MO-AB-TRACK 7-05 Cooperative Education in a Medical Physics Masters Graduate Degree Program** - A. Riegel*, P. Taylor
- 11:45 am **MO-AB-TRACK 7-06 Enhancing Brachytherapy Education with Immersive Virtual Reality (VR) Video Technology: Best Practice and Preliminary Outcome** - T. Li*, N. Shah, E. Hubley, S. Anamalayil, N. Taunk

Vendor Showcase

10:30 am - 11:00 am

-TRACK 8

MO-SHOWCASE-TRACK 8 Sun Nuclear

- 10:30 am **MO-SHOWCASE-TRACK 8-3-01 What's New from Sun Nuclear** - J. Hamilton*

SAM Professional Symposium

11:30 am - 12:30 pm

-TRACK 1

MO-B-TRACK 1 Who's Culpable? Moving Beyond Blame to Create a Just Culture and Avoid Burnout

Moderators: Jacqueline Faight, St. Jude Children's Research Hospital, Memphis, TN, and Erica Kinsey, SCL Health St. Mary's Medical Center, Grand Junction, CO

- 11:30 am **J. Johnson, Kelsey-Seybold Clinic: Areas of Worklife: Fairness and the Role of a Just Culture in a Healthy Work Environment**
- 11:55 am **D. Schofield, AdventHealth Orlando: The Toll of the Job: Burnout and the Medical Physicist**
- 12:20 pm **Audience Q&A**

SAM Imaging Educational Course

11:30 am - 12:30 pm

-TRACK 2

MO-B-TRACK 2 Session in Memory of Edward "Ed" F. Jackson

Moderator: Kristy Brock, UT MD Anderson Cancer Center, Houston, TX

- 11:30 am **J. Hazle, UT MD Anderson Cancer Center: Introduction**
- 11:39 am **R. Golden, UW School of Medicine and Public Health: Introduction**
- 11:45 am **R. Stafford, UT MD Anderson Cancer Center: The Expanding Role of the Physicist in MRI**
- 11:57 am **P. Kinahan, University of Washington: Quantitative imaging: The Translation from Research Tool to Clinical Practice**
- 12:09 pm **J. Prisciandaro, University of Michigan: Innovations in Medical Physics Education**
- 12:21 pm **Q&A**

Monday, July 26, 2021

SAM Imaging Scientific Symposium

11:30 am - 12:30 pm

-TRACK 3

MO-B-TRACK 3 Biophotonics

Moderator: Brian Pogue, Thayer Engineering, Hanover, NH

- 11:30 am **T. Zhu, University of Pennsylvania: Biophotonics in Radiation and Photodynamic Therapy**
- 11:45 am **P. La Riviere: Computational Imaging: from X-ray Tomography to Biophotonics**
- 12:00 pm **B. Shabestari, NIH NIBIB: Biophotonics at the NIBIB**
- 12:15 pm **Q&A**

Multi-Disciplinary Scientific Session

11:30 am - 12:30 pm

-TRACK 6

MO-B-TRACK 6 Quantitative Imaging

Moderators: Yevgeniy Vinogradskiy, Thomas Jefferson University, Philadelphia, PA and Edward Graves, Stanford University, Stanford, CA

- 11:30 am **MO-B-TRACK 6-01 A Quantitative Analysis of Lung Elastography Performance Using Large-Deformation CT Scans Acquired at Residual Volume (RV) and Total Lung Capacity (TLC)** - B. Stiehl*, M. Lauria, L. Naumann, K. Singhrao, I. Barjaktarevic, J. Goldin, M. McNitt-Gray, D. Low, A. Santhanam
- 11:37 am **MO-B-TRACK 6-02 Localized GBM Recurrence Prediction on Post-Operative Multi-Modal MRIs Through Stem Cell Niches Proximity Estimation Coupled SVM** - Y. Lao*, V. Yu, A. Pham, T. Wang, D. Ruan, E. Chang, K. Sheng, W. Yang
- 11:44 am **MO-B-TRACK 6-03 Predicting PD-L1 Expression Level in Non-Small Cell Lung Cancer on Computed tomography Using Machine Learning** - T. Shiinoki*, K. Fujimoto, Y. Kawazoe, Y. Yuasa, M. Kajima, Y. Manabe, T. Hirano, K. Matsunaga, H. Tanaka
- 11:51 am **MO-B-TRACK 6-04 Principal Component Analysis of Quantitative Computed Tomography Features and Visual Emphysema Scores: Association with Lung Function Decline** - M. Koo*, W. Tan, J. Hogg, J. Bourbeau, C. Hague, J. Leipsic, M. Kirby
- 11:58 am **MO-B-TRACK 6-05 Quantitative Relaxometry for Ultra-Hypofractionated MR-Guided Radiotherapy to the Prostate and DIL: A Feasibility Study** - E. Subashi*, E. LoCastro, V. Brennan, A. Apte, M. Zelefsky, N. Tyagi
- 12:05 pm **MO-B-TRACK 6-06 BEST IN PHYSICS (MULTI-DISCIPLINARY): Treatment Response Prediction Using Extracellular Volume Fraction Derived from Dual-Source DECT for Chemoradiation Therapy of Pancreatic Cancer** - G. Noid*, G. Godfrey, E. Paulson, W. Hall, B. Erickson, J. Shah, X. Li
- 12:12 pm **MO-B-TRACK 6-07 Use of Short Duration Dynamic [18F]DCFPyL PET and CT Perfusion Imaging to Localize Dominant Intraprostatic Lesions in Prostate Cancer: Validation Against Digital Histopathology** - D. Yang*, R. Alfano, G. Bauman, J. Chin, S. Pautler, K. Chung, A. Ward, T. Lee

Vendor Showcase

11:30 am - 12:00 pm

-TRACK 8

MO-SHOWCASE-TRACK 8 RaySearch Laboratories AB

- 11:30 am **MO-SHOWCASE-TRACK 8-4-01 Data Driven Oncology in RayStation** - F. Lofman*

Imaging Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 1

Monday, July 26, 2021

MO-IePD-TRACK 1 Imaging: Rad/Fluoro Detectors, Acquisition, and Novel Systems

MO-IePD-TRACK 1-01 Evaluation of a Prototype Ratio 29:1 Grid for Large Patient Cardiovascular Angiography Imaging - K. Fetterly*, B. Schueler, D. Miller, M. Hindal

MO-IePD-TRACK 1-02 Clinical Performance of An AI Assisted Dose Reduction System for Fluoroscopic Guided Interventional Procedures - D. Hintenlang*, N. Quails, K. Little

MO-IePD-TRACK 1-03 A Novel Integrating Proton Radiography System with a Monolithic Scintillator Detector - C. Darne*, D. Robertson, F. Alsanca, I. Tendler, L. Perles, C. Collins-Fekete, S. Beddar

MO-IePD-TRACK 1-04 A Simulation Study of Quasi-Monochromatic X-Ray Source Based on Reflection Thin-Film Target - Y. Tan*, T. Zhang

MO-IePD-TRACK 1-05 Estimating Bone Densities Using a Cadmium Zinc Telluride Photon Counting Detector - J. Nguyen*, D. Richtsmeier, K. Iniewski, M. Bazalova-Carter

MO-IePD-TRACK 1-06 Implementation of Detailed Monte Carlo Simulation for Semiconductor Detectors Using the PENELOPE Code - H. Mendes*, A. Tomal

MO-IePD-TRACK 1-07 Comparison of Ethiodol Contrast Media with Iodinated Microspheres for Use in 1000 Fps High-Speed Angiography (HSA) to Determine Blood Flow Details and Blood Velocity - X. Wu*, A. Shields, S. Setlur Nagesh, D. Bednarek, S. Rudin

-TRACK 2

MO-IePD-TRACK 2 Imaging: Dosimetry in CT/CBCT

MO-IePD-TRACK 2-01 Dedicated Cone-Beam Breast CT with Offset-Detector: Estimates of Mean Glandular Dose (MGD) with Heterogeneous Tissue Distribution and Real Breast Shapes from Clinical Datasets - H. Tseng*, A. Karellas, S. Vedantham

MO-IePD-TRACK 2-02 Feasibility of Using Size-Specific Dose Estimate (SSDE) to Estimate Effective Dose of Individual Patients - A. Abuhaimeed*, C. Martin, C. Lee

MO-IePD-TRACK 2-03 Fetal Dose in Body CT: Z-Axis Dose Profile Based Calculation Compared to Monte Carlo Simulation - X. Li*, K. Yang, B. Liu

MO-IePD-TRACK 2-04 Implementation of Tube Current Modulation for Pediatric and Adult CT Patients with Various Body Sizes into NCICT2.0 - C. Lee*, Y. Yeom

MO-IePD-TRACK 2-05 Direct Measurement of CTDIw On Helical CT Scans - K. DePew*, R. Boggs, M. Yester, G. Barnes

MO-IePD-TRACK 2-06 Scanner-Independent Coefficients to Estimate Organ Doses of CT Pediatric Patients Based on Water-Equivalent Diameter - A. Abuhaimeed*, C. Martin

MO-IePD-TRACK 2-07 Variability of Water-Equivalent Diameter (Dw) with Tube Potential of CT Scans - A. Abuhaimeed*, C. Martin

Multi-Disciplinary Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 3

MO-IePD-TRACK 3 Multi-Disciplinary: MRI in Radiotherapy

MO-IePD-TRACK 3-01 Comparison of CT-Guided and MR-Guided Adaptive Radiotherapy for Intramuscular Metastasis - S. Prajapati*, Y. Zhao, C. Tang, Z. Yu, B. Lee, P. Castillo, A. Sobremonte, R. Kudchadker, J. Yang

MO-IePD-TRACK 3-02 Correction of Gantry Induced Geometric Image Distortion on MRgRT at Various Gantry Angles with Deformation Vector Field - B. Lewis, J. Shin*, B. Quinn, E. Barberi, D. Sievert, J. Kim, T. Kim

MO-IePD-TRACK 3-03 Generative Adversarial Networks for Synthetic CT Generation from MR Scans with Truncated Anatomy - Y. Zhao*, L. Court, C. Yu, C. Cardenas, H. Wang, X. Wang, J. Phan, J. Yang

MO-IePD-TRACK 3-04 3D Deep Convolutional Neural Network for Mapping MRI to Synthetic MVCT for Radiotherapy Planning - J. Scholey*, A. Rajagopal, E. Vasquez, A. Sudhyadhom, P. Larson

Monday, July 26, 2021

MO-IePD-TRACK 3-05 Diffusion Profiling Via a Histogram Approach in Locally Advanced Cervical Cancer Treated with Chemoradiotherapy: Challenges and Opportunities for Dynamic Targeting with MRI - M. Jacobsen*, S. Simiele, T. Bruno, A. Klopp, K. Brock, R. Stafford, L. Lin, A. Venkatesan

MO-IePD-TRACK 3-06 Evaluation of Registration Accuracy for Online MR-Guided Adaptive Planning - R. Wu*, Y. Ding, P. Castillo, M. Pham, T. Williamson, L. Bronk, A. Liu, C. Fuller, J. Yang

MO-IePD-TRACK 3-07 Real-Time Motion Tracking Based on Orthogonal Cine MRI for Abdominal Tumors On 1.5T MR-Linac - H. Jassar*, A. Tai, X. Chen, T. Keiper, E. Paulson, F. Lathuiliere, S. Beriault, F. Hebert, L. Savard, D. Cooper, S. Cloake, X. Li

Therapy Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 5

MO-IePD-TRACK 5 Therapy: External Beam: Automatic Treatment Planning

MO-IePD-TRACK 5-01 Deep Learning Based Multiple-Arc VMAT MLC Sequence Prediction in Prostate Cancer - Y. Lao*, N. Tong, W. Yang, K. Sheng

MO-IePD-TRACK 5-02 Capturing Head-And-Neck Planning Trends with a Knowledge-Based Tradeoff Model - J. Zhang*, Y. Sheng, Y. Ge, Z. Tian, X. Yang, T. Liu, Q. Wu

MO-IePD-TRACK 5-03 A Deep-Learning-Based Dual-Arc VMAT Plan Generation from Patient Anatomy for Prostate Simultaneous Integrated Boost (SIB) Cases - Q. Zhu*, X. Li, Y. Ni, C. Wang, Q. Wu, Y. Ge, F. Yin, Q. Wu

MO-IePD-TRACK 5-04 A Feasibility Study of Automated Inverse Planning Using Hyperparameter Tuning - M. Kim*, K. Maass, A. Aravkin

MO-IePD-TRACK 5-05 Plan N Check: An Open-Source Tool for Automatic Head-And-Neck VMAT Planning in Varian Eclipse™ - C. Sample*, H. Clark

MO-IePD-TRACK 5-06 A Fully-Automated Field-In-Field Algorithm Translatable to Multiple Disease Sites - K. Huang*, D. Rhee, A. Olanrewaju, D. Hancock, L. Zhang, C. Cardenas, P. Das, S. Beddar, D. Fuentes, T. Briere, L. Court

MO-IePD-TRACK 5-07 Robust Lung SBRT Knowledge-Based Planning with Missing Data Management - A. Kroshko*, L. Archambault, O. Morin

-TRACK 6

MO-IePD-TRACK 6 Therapy: Outcome Modeling and Assessment I

MO-IePD-TRACK 6-01 Patient-Reported Outcomes+ (PRO+) for Remote symptom Management, Featuring Automated Triage Pathways - X. Tang*, N. Hacker, A. Danish, S. Chen

MO-IePD-TRACK 6-02 Using in Vivo EPID Measurements to Model Acute Gastrointestinal Toxicity - C. Bojchko*, D. Simpson, T. Nelson, V. Moiseenko

MO-IePD-TRACK 6-03 Impact of Heart Irradiation on Survival (OS) in Two Patient Cohorts: Locally Advanced Non-Small Cell Lung Cancer (NSCLC) Patients (pts) Treated Conventionally and Early Lung Cancer Patients Treated with Lung SBRT - J. Hu, J. Li, S. Schild, J. Anderson, M. Fatyga*

MO-IePD-TRACK 6-04 Predictive Factors of Biochemical Failure Free Survival for Prostate Cancer Patients After External Beam Radiation Therapy - L. Sun*, H. Quon, V. Tran, C. Kirkby, W. Smith

MO-IePD-TRACK 6-05 Survival Prediction of Locally Advanced Non-Small Cell Lung Cancer Via Machine Learning Techniques Based on Multi-Region Radiomics Features and Clinical Risk Factors - R. Nishioka*, D. Kawahara, N. Imano, Y. Nagata

MO-IePD-TRACK 6-06 Prediction of Therapeutic Outcomes of Patients with Non-Small Cell Lung Cancer for Stereotactic Ablative Radiotherapy Based on a Differential Model - E. Mai*, H. Arimura, T. Huy, S. Yuko, K. Ninomiya, Y. Shioyama, T. Yoshitake

MO-IePD-TRACK 6-07 Dosimetric Predictors of Hematological Toxicity in Cervical Cancer Patients Using the Lyman Normal Tissue Complication Probability Model - D. Wang*, J. Zhu, Y. Yin, D. Li, B. Li, T. Bai, Y. Yin

Monday, July 26, 2021

Vendor Showcase

12:30 pm - 1:00 pm

-TRACK 8

MO-SHOWCASE-TRACK 8 Siemens Healthineers

12:30 pm MO-SHOWCASE-TRACK 8-5-01 First Impressions with Direct Organs - A. Whitley*, M. Skowronski

Break

12:30 pm - 1:00 pm

President's Symposium

1:00 pm - 3:00 pm

-TRACK 1

MO-CD-TRACK 1 President's Symposium: The Importance of Creativity in Science

Moderator: James Dobbins, Duke University Medical Center, Durham, NC

1:00 pm Welcome and Introduction

1:02 pm RSNA President, Remarks

1:07 pm ASTRO President, Remarks

1:12 pm J. Dobbins, Duke University Medical Center: AAPM President, Introduction The Importance of Creativity in Science: A Brief History....

1:27 pm B. Tromberg, NIBIB: Physics and Bioengineering: Converging Disciplines with Creativity and Impact

2:12 pm Panel Discussion and Q&A, J Dobbins, Presenting Author

T. Mackie, University of Wisconsin: Panel Member

M. Giger, University of Chicago: Panel Member

D. Jaffray, The University of Texas MD Anderson Cancer Center: Panel Member

N. Ramanujam, Duke University: Panel Member

R. Jeraj, University of Wisconsin: Panel Member

C. Mistretta, University of Wisconsin: Panel Member

2:57 pm Closing Comment, J Dobbins, Presenting Author

Imaging Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 1

MO-IePD-TRACK 1 Imaging: Rad/Fluoro Image Quality and Imaging Protocols

MO-IePD-TRACK 1-01 Using Exposure Index to Develop Thickness-Based Techniques for the Skull Views of a Pediatric Skeletal Survey - X. Li*, K. Hulme, E. Park

MO-IePD-TRACK 1-02 Development of a Size-Based Technique Chart for Portable Chest Images to Reduce Variability in Image Quality - J. Moroz*, M. Hoerner, K. Grizzard

MO-IePD-TRACK 1-03 Evaluation of Exposure for High-Speed Angiography (HSA) with the 1000 Fps Aries Image Detector - J. Collins*, A. Shields, S. Rudin, D. Bednarek

MO-IePD-TRACK 1-04 Adaptive Dual-Energy X-Ray Imaging with Pre-Calibrated Patient-Specific Weighting Factors - I. Romadanov, M. Sattarivand*

MO-IePD-TRACK 1-05 Theoretical Investigation of X-Ray Spectral Shape Impact on Dual-Energy Image Quality: Effects of Dose Allocation, Total Dose, and Energy Ratio - I. Romadanov, M. Sattarivand*

MO-IePD-TRACK 1-06 A Fully Automated Algorithm for Accurately Analyzing Star Shot Images from Linear Accelerators - N. Battaglia*, G. Shastri

MO-IePD-TRACK 1-07 Impact of Flexible Noise Control (FNC) Processing Parameters on Image Quality: A Chest Phantom Study - L. Ren*, T. Daly, K. Loewen, B. Schueler, Z. Long

-TRACK 2

MO-IePD-TRACK 2 Imaging: MRI Motion, Safety, Phantoms and more

MO-IePD-TRACK 2-01 Development of 3D Rosette K-Space Trajectory in Ultra-Short Echo Time MRI Applications - X. Shen*, M. Chiew, U. Emir

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MO-IePD-TRACK 2-02 Characterization of Diffusion Tensor Parameters in Normal-Appearing White Matter - M. Barrera Esparza, M. Barrera Esparza*

MO-IePD-TRACK 2-03 Effects of MLC Motion on B0 in 0.35 T MRI-Linac - H. Gach*, D. Yang, O. Green, T. Kim

MO-IePD-TRACK 2-04 Exploration of the Predictive Value of Delta Radiomics Texture Features Extracted from Low-Field Magnetic Resonance Images in Pancreas Stereotactic Body Radiotherapy Patients - G. Simpson*, W. Jin, B. Spieler, J. Ford, L. Portelance, E. Mellon, D. Kwon, F. Yang, N. Dogan

MO-IePD-TRACK 2-05 Improved Myelin Water Imaging Using 3D GRASE and Orthogonal Matching Pursuit Reconstruction - R. Gabr*, J. Lincoln, K. Hasan, J. Wolinsky, P. Narayana

MO-IePD-TRACK 2-06 Development of a Clinical Protocol to Rapidly Determine the Potential Impact of Radiofrequency Induced Heating in Patients with Abandoned Epicardial Leads During MRI - O. Aboyewa*, J. Vonk, L. Kammann, J. Haggstrom, M. Nichols

MO-IePD-TRACK 2-07 Characterization of a Tissue-Equivalent Phantom for Thermometric Studies in MRI - O. Aboyewa*, H. Akinleye, J. Wrubel, M. Nichols

Multi-Disciplinary Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 3

MO-IePD-TRACK 3 Multi-Disciplinary: Image Guidance: Cone-beam CT

MO-IePD-TRACK 3-01 A Hybrid Approach for Correcting CBCT by Exploiting Individual Strength of Deep Learning and Deformable Registration - J. Uh*, C. Wang, S. Acharya, C. Hua

MO-IePD-TRACK 3-02 CBCT Air Artifact Reduction Using a Simulation-Based Image Translation Model - S. Olberg*, J. Chun, K. Wang, J. Wang, Y. Zhang, J. Kim, S. Jiang, J. Park

MO-IePD-TRACK 3-03 Deformable Image Registration Using Spatial Transformation-Based Network for CBCT-Guided Radiotherapy - H. Xie*, Y. Lei, Y. Fu, T. Wang, J. Roper, X. Tang, J. Bradley, P. Patel, T. Liu, X. Yang

MO-IePD-TRACK 3-04 High-Quality CBCT Reconstruction from Sparse and Limited-Size Projections Using a Joint Deformable Registration and Reconstruction Network (Reg-ReconNet) - Y. Zhang*
MO-IePD-TRACK 3-05 Physics-Based Motion Artifact Simulation in CT/CBCT Images Using 4DCT Phases - S. Alam*, T. Li, S. Zhang, P. Zhang, S. Nadeem

MO-IePD-TRACK 3-06 Synthetic CT Generation from Contrast Enhanced Planning CT and Low-Quality Treatment CBCT Using a Novel Dual Convolutional Neural Network - Y. Cao*, A. Vasantachart, S. Bian, D. Ling, Z. Fan, E. Chang, W. Yang

MO-IePD-TRACK 3-07 Thoracic CBCT-Based Synthetic CT for Lung Stereotactic Body Radiation Therapy - Y. Lei*, L. Qiu, A. Kesarwala, J. Roper, K. Higgins, J. Bradley, T. Liu, X. Yang

-TRACK 4

MO-IePD-TRACK 4 Multi-Disciplinary: Data Science/Radiomics

MO-IePD-TRACK 4-01 Evaluation of Cone-Beam Computed Tomography-Based Radiomic Features Reproducibility: A Phantom Study - T. Adachi*, M. Nakamura, H. Iramina, T. Mizowaki

MO-IePD-TRACK 4-02 Graph Theory-Based Radiomics Features: Application of Tumor Network Structures On CT-Based Radiomics for Prognostic Prediction - M. Umeda*, N. Kadoya, S. Tanaka, S. Tanabe, Y. Sugai, T. Ishida, H. Ohashi, S. Dobashi, K. Takeda, K. Jingu

MO-IePD-TRACK 4-03 Explainable AI Model for COVID-19 Diagnosis Through Joint Deep Learning and Radiomics - D. Yang*, G. Ren, M. Ying, J. Cai

MO-IePD-TRACK 4-04 Treatment Response Prediction for MRI-Guided Adaptive Radiation Therapy of Pancreatic Cancer Using Multiscale Wavelet-Based Delta-Radiomics - H. Nasief*, W. Hall, X. Chen, E. Paulson, B. Erickson, X. Li

MO-IePD-TRACK 4-05 Exploratory Unsupervised Structure-Learning Based Radiomics Approach for Brain Metastases Treatment Response Modeling of Stereotactic Radiosurgery - Z. Yang*, L. Wang, M. Chen, R. Timmerman, T. Dan, Z. Wardak, W. Lu, X. Gu

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MO-IePD-TRACK 4-06 CT-Based Deep Learning Radiomics for Predicting Chemoradiation Treatment Response in Locally Advanced Rectal Cancer - J. Fu*, Z. Wang, K. Singhrao, J. Lewis, X. Qi
MO-IePD-TRACK 4-07 Can Unified Data Improve the Performance of Radiomics-Based Prognostic Prediction in Lung Cancer Patients? - Y. Sugai*, N. Kadoya, S. Tanaka, S. Tanabe, M. Umeda, T. Yamamoto, K. Takeda, S. Dobashi, H. Ohashi, K. Takeda, K. Jingu

Therapy Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 5

MO-IePD-TRACK 5 Therapy: Outcome Modeling and Assessment II

MO-IePD-TRACK 5-01 A Functional Dosimetrics-Based Prediction Model for Radiation Pneumonitis - B. Liang*, Y. Tian, R. Wei, J. Miao, P. Huang, Z. Liu, W. Xia, J. Dai
MO-IePD-TRACK 5-02 Prediction of Glioblastoma Patient's Survival After Radiation Therapy with Random Survival Forest Model - Y. Kim*, K. Kim, H. Yoon, W. Sung
MO-IePD-TRACK 5-03 Moving Beyond Dose: The Role of HPV Status in Predicting Normal Tissue Toxicity for Head & Neck Cancer Patients - X. Ray*, W. Summer, L. Sutton, P. Sanghvi, I. Deichaite, V. Moiseenko
MO-IePD-TRACK 5-04 Analysis of Time Dependency of NTCP Modeling and Dose-Volume Correlations of Patient Reported Xerostomia After HPV Associated Oropharyngeal Cancer - P. Mavroidis*, A. Tzikas, E. Lavdas, R. Amdur, W. Mendenhall, N. Sheets, R. Green, L. Marks, S. Das, B. Chera
MO-IePD-TRACK 5-05 Identifying Correlations Between Radiation Dose and Blood Counts Drops After Radiotherapy of Prostate Cancer - P. Papanikolaou*, G. Swanson, S. Stathakis, P. Mavroidis
MO-IePD-TRACK 5-06 Association Between Dosimetrics-Based Index with Radiation Pneumonitis Induced by Radiation Therapy of Breast Cancers - Z. Yang*, X. Chen, M. Chen, C. Wang, F. Yin
MO-IePD-TRACK 5-07 Principal Component Analysis of Dose Clustering Patterns for Parotid Toxicity Modeling in Head and Neck Radiation Therapy - M. Chao*, I. El Naqa, Y. Lo, J. Penagaricano

-TRACK 6

MO-IePD-TRACK 6 Therapy: External Beam: Segmentation, Dose Calculation and Treatment Planning

MO-IePD-TRACK 6-01 Application of Random Forest Algorithm for Dose Reconstruction Based on Classification of Clean-Up Workers of the ChNPP Accident - K. Chizhov*, V. Kryuchkov, V. Chumak, C. Lee, V. Drozdovitch, E. Cahoon, V. Vij, R. Zhang, I. Golovanov, E. Bakhanova, N. Gudzenko, D. Bazyka, M. Little
MO-IePD-TRACK 6-02 An Experimental Study of Intrabeam IORT Dosimetry Accuracy - H. Zhang*, I. Das
MO-IePD-TRACK 6-03 Liver Segmentation Workflow Development for Pre-Treatment Hepatic Y90 Resin Microspheres Therapy Using a Commercially Available Software - D. Alvarez*, N. Ridha, A. Gutierrez, M. Chuong, R. Gandhi
MO-IePD-TRACK 6-04 Demonstration of An Automatic Segmentation Method for Evaluating Cardiac Structure Doses in Support of Research on Cardiovascular Morbidity Subsequent to Breast Radiotherapy - M. Mille, J. Jung*, B. Ky, W. Kenworthy, C. Lee, Y. Yeom, A. Kwag, W. Bosch, S. MacDonald, O. Cahlon, J. Bekelman, C. Lee
MO-IePD-TRACK 6-05 Improving Workflow Efficiency and Safety for Reflexion X1 Treatment Planning Process Via Eclipse API Scripting - E. Simiele*, N. Kovalchuk
MO-IePD-TRACK 6-06 Optimal Combination of Spatial and Temporal Fractionation for the Treatment of Multiple Brain Metastases - N. Torelli*, D. Papp, J. Unkelbach
MO-IePD-TRACK 6-07 Effective Organs-At-Risk Dose Sparing in Volumetric Modulated Arc Therapy Using a Half-Beam Technique in Whole Pelvic Irradiation - H. Park*, J. Park, M. Artz, Y. Zhang, J. Ricci, H. Jang, S. Huh

Monday, July 26, 2021

Vendor Showcase

3:00 pm - 3:30 pm

-TRACK 8

MO-SHOWCASE-TRACK 8 VisionRT

3:00 pm **MO-SHOWCASE-TRACK 8-6-01 The Value Proposition of SGRT for Patient Care** - T. Pawlicki*

Break

3:00 pm - 3:30 pm

SAM Professional Symposium

3:30 pm - 4:30 pm

-TRACK 1

MO-E-TRACK 1 Formalizing Professionalism Education: Shared Experiences with Medical Physics Trainees

Moderators: Irina Vergalasova, Rutgers, Cancer Institute of New Jersey, New Brunswick, NJ and Hania Al-Hallaq, The University of Chicago, Chicago, IL

3:30 pm **I. Vergalasova, Rutgers, Cancer Institute of New Jersey: What Is Formalized Professionalism Training?**

3:35 pm **J. Wilson, Duke University Health System: from Day 1 Through Graduation: Introducing and Instilling a Professional Mindset in Graduate Students for the Medical Physics Career Ahead**

3:52 pm **M. Price, Vanderbilt University Medical Center: Flattening the Learning Curve: Concise Coursework to Prepare Medical Physics Residents for Leadership**

4:09 pm **J. Hoisak, UC San Diego: Developing Professionalism Competencies in Therapy Physics Residents: An Experiential Learning and Systems-Based Approach**

4:26 pm **Audience Q&A**

SAM Imaging Educational Course

3:30 pm - 5:30 pm

-TRACK 2

MO-EF-TRACK 2 Testing the Misfits: Tips and Tricks for Testing Your Least Favorite Diagnostic Imaging Equipment

Moderators: Rebecca Marsh, University of Colorado School of Medicine, Aurora, CO, and Jeff Frimeth, JF Medical Physics Inc., Sudbury, ON

3:30 pm **N. Bevins, Henry Ford Health System: Considerations for Evaluating Color Displays**

3:50 pm **J. Gray, Diquad, LLC: Considerations for Evaluating Digital Image Receptors Based on NCRP 177**

4:10 pm **M. Supanich, Rush: What Physicists Need to Know About the Medtronic O-Arm**

4:30 pm **Z. Lu, University of Chicago: Considerations for Evaluating Ultrasound Units**

4:50 pm **R. Marsh, University of Colorado School of Medicine: Encounters with Non-Standard Fluoroscopy Systems**

5:00 pm **J. Frimeth, JF Medical Physics Inc.: Troubleshooting DXA QC Issues**

5:10 pm **Audience Q & A**

3:30 pm - 4:30 pm

-TRACK 3

MO-E-TRACK 3 Accelerated Imaging in MR

Moderator: Courtney Morrison, Henry Ford Health System, Detroit, MI

3:30 pm **S. Ragunathan, Barrow Neurological Institute: Accelerated Imaging Strategies for Combined Spin and Gradient Echo (SAGE) Acquisitions**

3:55 pm **S. Kurugol, Boston Children's Hospital: Compressed Sensing and Deep Learning in DCE-MRI**

4:20 pm **Audience Q & A**

Monday, July 26, 2021

Early-Career Investigator Symposium

3:30 pm - 5:30 pm

-TRACK 4

MO-EF-TRACK 4 John R. Cameron Early-Career Investigator Symposium

Moderators: E. Russell Ritenour, Medical University of South Carolina, Charleston, SC and Matthew Podgorsak, Roswell Park Cancer Institute, Buffalo, NY

- 3:30 pm **MO-EF-TRACK 4-01 Design and Performance of the ARIEL X-Ray FLASH Irradiation Platform at TRIUMF** - N. Esplen*, L. Egoriti, B. Paley, T. Planche, C. Hoeher, A. Gottberg, M. Bazalova-Carter
- 3:42 pm **MO-EF-TRACK 4-02 Electron FLASH in Clinical Setting: LINAC Conversion, Commissioning and Treatment Planning** - M. Rahman*, M. Ashraf, D. Gladstone, P. Bruza, L. Jarvis, P. Schaner, X. Cao, B. Pogue, J. Hoopes, R. Zhang
- 3:54 pm **MO-EF-TRACK 4-03 Fast 4D-CBCT Reconstruction Using a Novel Feature-Compensated Deformable Convolutional Network (FeaCo-DCN)** - Z. Jiang*, Y. Chang, Z. Zhang, F. Yin, L. Ren
- 4:06 pm **MO-EF-TRACK 4-04 Imaging Based Prediction of Proliferative Foci as a Target for Surgical Intervention Across Glioma Grades** - E. Gates*, A. Celaya, D. Suki, J. Weinberg, S. Prabhu, D. Fuentes, D. Schellingerhout
- 4:18 pm **MO-EF-TRACK 4-05 Intentional Deep Overfit Learning (IDOL): A Novel Deep Learning Strategy for Adaptive Radiation Therapy** - J. Chun*, J. Park, S. Olberg, Y. Zhang, D. Nguyen, J. Wang, J. Kim, S. Jiang
- 4:30 pm **MO-EF-TRACK 4-06 Joint Optimization of Subsampling Pattern and Reconstruction of DCE MRI for Pharmacokinetic Parameter Estimation** - J. Zou*, J. Balter, Y. Cao
- 4:42 pm **MO-EF-TRACK 4-07 Latent Space Arc Therapy Optimization** - N. Bice*, N. Kirby, D. Nguyen, C. Kabat, P. Myers, N. Papanikolaou, M. Fakhreddine
- 4:54 pm **MO-EF-TRACK 4-08 MR Multitasking-Based Dynamic Imaging for Cerebrovascular Evaluation (MT-DICE): Development and Feasibility Study on Brain Cancer** - Z. Hu*, A. Christodoulou, N. Wang, Y. Xie, M. Maya, M. Shiroishi, W. Yang, D. Li, Z. Fan
- 5:06 pm **MO-EF-TRACK 4-09 Non-Circular Orbits on a Clinical Robotic C-Arm for Reducing Metal Artifacts in Orthopedic Interventions** - Y. Ma*, T. Reynolds, G. Gang, O. Dillon, T. Russ, W. Wang, T. Ehtiat, C. Weiss, N. Theodore, J. Siewerdsen, R. O'Brien, J. Stayman
- 5:18 pm **MO-EF-TRACK 4-10 Tumor Dosimetry and Radiobiological Modeling of Combined Radiopharmaceutical Therapy and External Beam Radiotherapy for Recurrent Head and Neck Cancer** - D. Adam*, I. Marsh, J. Grudzinski, T. Bradshaw, P. Hill, S. Cho, C. Hullett, A. Burr, P. Harari, B. Bednarz

SAM Therapy Educational Course

3:30 pm - 4:30 pm

-TRACK 5

MO-E-TRACK 5 Overview of MRI Implementation in HDR Brachytherapy for Treatment of Gynecologic and Prostate Cancer

Moderator: Mahta McKee, Wake Forest University School of Medicine, Winston Salem, NC

- 3:30 pm **M. McKee, Wake Forest University School of Medicine: Use of MR in Gynecological Brachytherapy**
- 3:50 pm **F. Mourtada, Christiana Care Hospital: Nuts and Bolts to Establish Your MRI-HDR Program**
- 4:10 pm **G. Cohen, Memorial Sloan-Kettering Cancer Center: Prostate HDR and Utilization of MR**

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-TRACK 6

MO-E-TRACK 6 Perspectives on Imaging Dose in IGRT

Moderators: George Ding, Vanderbilt University, Nashville, TN and Grace Tang, Memorial Sloan-Kettering Cancer Center, New York, NY

- 3:30 pm **P. Alaei, University of Minnesota: Advances in Image Guidance with Emphasis on X Ray-Based Modalities**
- 3:55 pm **G. Ding, Vanderbilt University: Weighing the Risks and Benefits of Imaging Guidance with Ionizing Radiation**
- 4:20 pm **Q&A Panel**

SAM Professional Symposium

3:30 pm - 4:30 pm

-TRACK 7

MO-E-TRACK 7 Increasing the Contribution of Radiology and Imaging Physics to Global Health Initiatives

Moderators: Ashley Rubinstein, Henry Ford Health System, Detroit, MI and Joseph Weygand, Willow Grove, PA

- 3:30 pm **E. Medel Baez: A Therapy Physicist's Perspective: Developing a Radiology Quality Assurance Program in An Underserved Region**
- 3:42 pm **C. Morrison, Henry Ford Health System: An Imaging Physicist's Perspective: Volunteering in Underserved Regions**
- 3:54 pm **D. Mollura, Rad-aid International: RAD-AID International's Initiatives to Improve Access to Radiological Care**
- 4:06 pm **C. Borrás: The Role of Intergovernmental Organizations in Promoting Radiology to Improve Global Health**
- 4:18 pm **Audience Q&A**

Vendor Showcase

4:00 pm - 4:30 pm

-TRACK 8

MO-SHOWCASE-TRACK 8 MIM Software, Inc.

- 4:00 pm **MO-SHOWCASE-TRACK 8-7-01 Practical Applications of MIM SureCalc® MonteCarlo for Adaptive Assessment and Plan Second Check** - J. Kuhn*

History Symposium

4:30 pm - 5:30 pm

-TRACK 1

MO-F-TRACK 1 History Symposium: Exploring the Foundation of Our Medical Physics Profession

Moderators: Geoffrey Ibbott, The American Board of Radiology, Tucson, AZ

- 4:30 pm **Introduction and History Project Overview**
- 4:35 pm **P. Sprawls, Emory University and Sprawls Educational Foundation: The Physics Foundation and Evolutionary Technical Developments of Computed Tomography, the Quest for Enhanced Visibility**
- 4:55 pm **J. Van Dyk, Western University: The Atom Bomb That Saves Lives™: The Role of Cobalt-60 in Cancer Treatment Around the World**
- 5:15 pm **J. Battista: Harold Johns: Combining Innovation and Education in Establishing the Role of Medical Physicists in Radiation Oncology**
- 5:25 pm **Concluding Discussion**

SAM Imaging Educational Course

4:30 pm - 5:30 pm

-TRACK 3

MO-F-TRACK 3 MRI Homogeneity Testing

Moderator: Joseph Och, Geisinger Medical Center, Danville, PA

- 4:30 pm **J. Och, Geisinger Medical Center: Resources for Homogeneity Testing of MRI Systems**

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- 4:45 pm C. Brunnquell, University of Washington: Vendor-Specific Approaches to Main Magnetic Field Homogeneity Testing
5:15 pm Audience Q & A

SAM Therapy Educational Course

4:30 pm - 5:30 pm

-TRACK 5

MO-F-TRACK 5 Report of TG 182: Electronic Intracavitary Brachytherapy Quality Management Based on Risk Analysis

Moderator: Bruce Thomadsen, University of Wisconsin, Madison, WI

- 4:30 pm B. Thomadsen, University of Wisconsin: Electronic Brachytherapy and Quality Management Development
4:46 pm M. Rivard, Rhode Island Hospital / Brown University: The Xofig System and Sample Design of Quality Management
5:02 pm S. Pillai, Oregon Health & Science Univ: The Zeiss INTRABEAM System and Sample Design of Quality Management
5:18 pm Q&A

SAM Imaging Educational Course

4:30 pm - 5:30 pm

-TRACK 6

MO-F-TRACK 6 Providing Value Beyond Accreditation and Compliance Testing: Imaging Physics

Moderator: Timothy Szczykutowicz, University Wisconsin-Madison, Madison, WI

- 4:30 pm C. Brunnquell, University of Washington: Physics Pitch to Radiology Administrator: 1
4:42 pm C. Bush, Touchstone Medical Imaging: Radiology Administrator's Perspective: 1
4:54 pm S. Rose, University of Texas at Houston Medical School: Physics Pitch to Radiology Administrator: 2
5:06 pm A. Bush: Radiology Administrator's Perspective: 2
5:18 pm Audience Q & A

SAM Professional Symposium

4:30 pm - 5:30 pm

-TRACK 7

MO-F-TRACK 7 Virtual Global Mentoring: Now More Than Ever

Moderators: Jacob Van Dyk, Western University, London, ON and Robert Jeraj, University of Wisconsin, Madison, WI

- 4:30 pm J. Van Dyk, Western University: Introduction and Overview on Virtual Mentoring
4:34 pm L. Hirschhorn, Northwestern University: Mentoring Across Oceans: Experiences, Benefits and Pitfalls
4:52 pm B. Goldberg, Northwestern University: Mentoring with Social and Emotional Intelligence – The Role of Personal Narrative
5:10 pm R. Jeraj, University of Wisconsin: Mentoring Activities Within the AAPM
5:20 pm Discussion

Vendor Showcase

5:00 pm - 5:30 pm

-TRACK 8

MO-SHOWCASE-TRACK 8 IBA Dosimetry

- 5:00 pm MO-SHOWCASE-TRACK 8-8-01 Patient QA Efficiency and Accuracy Through High-Resolution Measurements, Automation and Prediction - I. Fotina*

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Imaging Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 1

MO-IePD-TRACK 1 Imaging: Multimodality Imaging Topics

- MO-IePD-TRACK 1-01 Multi-Scale Residual Network for Tumor Segmentation in Pancreatic Cancer - S. Gou*, S. Chen, B. Cui, Z. Zhou, J. Lu
MO-IePD-TRACK 1-02 Quantitative Evaluation of Intra- and Inter-Modal Deformable Image Registration of CT and MR Images for Heart, Left-Ventricle and Thoracic Aorta - A. Omid*, E. Weiss, J. Wilson, M. Rosu-Bubulac
MO-IePD-TRACK 1-03 Spatial Transformation Network-Based MRI-CBCT Deformable Registration for CBCT-Guided Prostate Radiotherapy - S. Momin*, Y. Lei, T. Wang, Y. Fu, J. Roper, P. Patel, A. Jani, J. Bradley, T. Liu, X. Yang
MO-IePD-TRACK 1-04 To Design and Construct Customized Multimodal Imaging Phantoms by 3D Printing - J. Qiu, H. Zhang*
MO-IePD-TRACK 1-05 Effects of Permanent Magnet Shapes Used in Halbach Cylinders On FFL-MPI - M. Ergor, N. Dogan, A. Bingolbali*

Multi-Disciplinary Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 3

MO-IePD-TRACK 3 Multi-Disciplinary: MRI in Radiation Therapy

- MO-IePD-TRACK 3-01 Autosegmentation On Low-Resolution T2-Weighted MRI of Head and Neck Cancers for Off-Line Dose Reconstruction in MR-Linac Adapt-To-Position Workflow - B. McDonald*, C. Cardenas, N. O'Connell, S. Ahmed, M. Naser, J. Xu, D. Thill, R. Zuhour, S. Mesko, A. Augustyn, S. Buszek, S. Grant, B. Chapman, A. Bagley, K. Wahid, R. He, A. Mohamed, A. Dresner, J. Christodouleas, K. Brock, C. Fuller
MO-IePD-TRACK 3-02 Dosimetric Benefits of MR Guided Adaptive Radiation Therapy - A. Sethi*, S. Hoffman, J. Ingram, B. Lee, J. Roeske, T. Refaat
MO-IePD-TRACK 3-03 Improving DWI Spatial Resolution with Respiratory Motion Modeling on An Interleaved BSSFP-DWI Sequence - J. Charters*, D. O'Connell, Y. Gao, Y. Yang, J. Ginn, J. Lamb
MO-IePD-TRACK 3-04 Optimizing Site-Specific Diffusion Weighted Imaging in an MR-Linac - H. Nusrat*, L. Lawrence, R. Chan, A. Lau, A. Elzibak, B. Chugh, A. Sahgal, B. Keller
MO-IePD-TRACK 3-05 Reduced Field-Of-View Diffusion Weighted MRI On An MR-Guided Radiotherapy System - J. Pham*, Y. Gao, D. Low, P. Hu, Y. Yang
MO-IePD-TRACK 3-06 Dosimetry Impact of Gating Threshold Selection in Cine-MR Image Guided Breath-Hold Pancreatic Cancer Radiotherapy - Y. Dong*, P. Hu, F. Yang, Y. Yang
MO-IePD-TRACK 3-07 Optimization of the imaging Plane for Real-Time Tumor Tracking in MR-Guided Radiotherapy of Moving Targets - K. Träuble, P. Palaniappan, C. Gianoli, C. Paganelli, G. Baroni, F. Kamp, C. Belka, C. Kurz, G. Landry, M. Riboldi, M. Riboldi*

-TRACK 4

MO-IePD-TRACK 4 Multi-Disciplinary: Deformable Image Registration

- MO-IePD-TRACK 4-01 Automatic Liver Tumor Localization Using a Combined Deep Learning and Biomechanical Model (DL-Bio) - H. Shao*, X. Huang, M. Folkert, J. Wang, Y. Zhang
MO-IePD-TRACK 4-02 Deformable MRI-CT Image Registration Using Self-Similarity Network for Head and Neck Cancer Radiotherapy - Y. Fu*, Y. Lei, T. Wang, J. Zhou, M. McDonald, J. Bradley, T. Liu, X. Yang
MO-IePD-TRACK 4-03 Investigation of the Sensitivity of Ventilation Accuracy to the Deformable Image Registration Regularization Parameter - H. Byrne*, J. Kipritidis, O. Dillon, J. Booth, P. Keall
MO-IePD-TRACK 4-04 Learning-Based Multiscale Self-Similarity Descriptors for Non-Rigid MRI-CT Liver Image Registration - Y. Fu*, Y. Lei, T. Wang, J. Zhou, M. McDonald, J. Bradley, P. Patel, T. Liu, X. Yang

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MO-IePD-TRACK 4-05 Training an Unsupervised Deformable Image Registration Model with Thoracic Fast, Low-Dose Helical CT

Acquisitions - R. Savjani*, P. Paysan, D. O'Connell, J. van Heteren, S. Scheib, D. Low

MO-IePD-TRACK 4-06 Using Automatic Segmentation to Improve Deformable Image Registration - K. Shah*, J. Shackelford, N. Kandasamy, G. Sharp

MO-IePD-TRACK 4-07 Using Neural Networks to Extend Cropped Medical Images for Deformable Registration Among Images with Differing Scan Extents - E. McKenzie*, N. Tong, D. Ruan, M. Cao, R. Chin, K. Sheng

Therapy Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 5

MO-IePD-TRACK 5 Therapy: External Beam: treatment planning Optimization

MO-IePD-TRACK 5-01 Neuro-Fuzzy Guided Objective Function Parameter Optimization of Inverse Treatment Planning - E. Cisternas Jimenez*, F. Yin

MO-IePD-TRACK 5-02 Solving the Non-Convex Volumetric Modulated Arc Therapy (VMAT) Problem Via a Sequence of Convex Optimization Problems - P. Dursun*, G. Jhanwar, J. Deasy, M. Zarepisheh

MO-IePD-TRACK 5-03 Characterization and Optimization of GRID Treatment Planning - Y. Cho*, S. Chao, B. Guo, J. Suh

MO-IePD-TRACK 5-04 Development of Plan Complexity Mitigation Algorithm for VMAT - T. Ono*, M. Nakamura, T. Mizowaki

MO-IePD-TRACK 5-05 IMRT Treatment Planning Study for the First Clinical Biology-Guided Radiotherapy System - D. Pham*, D. Breikreutz, E. Simiele, D. Capaldi, L. Vitzthum, M. Gensheimer, H. Bagshaw, B. Han, M. Surucu, L. Xing, D. Chang, N. Kovalchuk

MO-IePD-TRACK 5-06 NYU Clinical Experience with Total Body Irradiation: from 3D Laterals to Image-Guided VMAT - P. Galavis*, C. Hitchen, A. McCarthy, M. Malin, S. Taneja, S. Ayyalasomayajula, Y. Yuan, N. Gerber, D. Barbee, J. Teruel

MO-IePD-TRACK 5-07 Using the Pareto Optimal Projection Search (POPS) Algorithm for Fully Automated Treatment Planning - C. Huang*, Y. Yang, Y. Nomura, L. Xing

-TRACK 6

MO-IePD-TRACK 6 Therapy: Novel Dosimeters

MO-IePD-TRACK 6-01 Quantifying of the Afterglow Effect from a Chromium-Doped Alumina Scintillator Following Proton Irradiation - T. Geoghegan*, K. Patwardhan, B. Smith, R. Flynn, J. Yu, A. Gutierrez, D. Hyer

MO-IePD-TRACK 6-02 Investigations of a Novel HyperscintTM Plastic Scintillator Detector and Hyperspectral Analysis Approach in a 74 MeV Proton Beam - C. Duzenli*, C. Hoehr, C. Belanger-champagne, C. Penner, V. Strgar

MO-IePD-TRACK 6-03 Development of a Novel Hybrid Scintillation-Cerenkov Detector for Simultaneous Dose and Irradiation Angle Measurements - E. Jean*, S. Lambert-girard, F. Therriault-Proulx, L. Beaulieu

MO-IePD-TRACK 6-04 Output Constancy of the W2 Scintillator in Flattening Filter Free Fields in a Medical Linac - S. Thrower*, S. Holmes, S. Prajapati, E. Schueler, S. Beddar

MO-IePD-TRACK 6-05 Geometry Optimization and Optical Sectioning for In-Water Cherenkov Dosimetry of Large and Small Photon Beams - Y. Zlateva*, B. Muir, I. El Naqa, J. Seuntjens

MO-IePD-TRACK 6-06 Effects of Shipping and Handling On a DNA-Based Detector - T. Schulze*, H. Nusrat, G. Pang, M. Tambasco

MO-IePD-TRACK 6-07 Evaluation of a New High-Resolution Digital Detector Array for SRS and SBRT Quality Assurance - A. Rusnak*, C. Collins, Z. Saleh, G. Cardarelli, E. Klein, Y. Yang

Tuesday, July 27, 2021

SAM Professional Symposium

10:30 am - 11:30 am

-TRACK 1

TU-A-TRACK 1 AAPM/IAEA Joint Professional Symposium: Ethics in Practice

Moderators: Deborah van der Merwe, International Atomic Energy Agency, Florida Hills, GP and Per Halvorsen, Beth Israel - Lahey Health, Burlington, MA

10:30 am Introduction

10:40 am G. White, Medical Physics Services: Ethics in Medical Physics: The AAPM Perspective

10:52 am G. Loreti, International Atomic Energy Agency: Ethics in Medical Physics: The IAEA Perspective

11:04 am C. Skourou, Beaumont Hospital: Ethics in Translation

11:16 am Discussion and Audience Q&A

Imaging Scientific Session

10:30 am - 11:30 am

-TRACK 2

TU-A-TRACK 2 Radiography and Fluoroscopy

Moderators: Beth Schueler, Mayo Clinic, Rochester, MN and Brendan Loughran, Landauer Medical Physics, East Aurora, NY

10:30 am TU-A-TRACK 2-01 BEST IN PHYSICS (IMAGING): 3D Assessment of Complex Spine Deformity Using Linear Tomosynthesis and Statistical Shape Model Registration - C. Zhao*, M. Herbst, T. Weber, S. Vogt, L. Ritschl, S. Kappler, A. Margalit, A. Jain, J. Siewerdsen, W. Zbijewski

10:37 am TU-A-TRACK 2-02 A Framework for Calculating 2D Wall Shear Stress (WSS) In-Vitro Using 1000 Fps High-Speed Angiography (HSA) - A. Shields*, D. Bednarek, S. Rudin

10:44 am TU-A-TRACK 2-03 Development of a Hybrid Direct-Indirect Active Matrix Flat Panel Imager for Digital Radiography - A. Howansky*, A. Mishchenko, S. Léveillé, S. Dow, C. Orlik, J. Stavro, A. Goldan, J. Scheuermann, A. Lubinsky, W. Zhao

10:51 am TU-A-TRACK 2-04 Dual-Energy Reduces Severity of Motion Artifacts in Free-Breathing 2D Pulmonary Angiography - E. Nikolau*, M. Wagner, S. Schafer, T. Hacker, E. Temme, P. Laeseke, M. Speidel

10:58 am TU-A-TRACK 2-05 In-Vitro 1000 Fps High-Speed Angiographic (HSA) Evaluation of the Hemodynamics in the Ascending Aorta Resulting from the Graft of a Left Ventricular Assist Device (LVAD) - A. Shields*, S. Setlur Nagesh, V. Chivukula, D. Bednarek, S. Rudin

11:05 am TU-A-TRACK 2-06 Multiparameter Dense Neural Network (DNN) to Estimate Patient Eye-Lens Dose During Neuro-Interventional Procedures - J. Collins*, C. Guo, A. Podgorsak, S. Rudin, D. Bednarek

11:12 am TU-A-TRACK 2-07 Single-Shot Quantitative X-Ray Imaging Using Primary Modulation and Dual-Layer Detector: A Simulation Study - L. Shi*, N. Bennett, A. Wang

SAM Imaging Scientific Symposium

10:30 am - 12:30 pm

-TRACK 3

TU-AB-TRACK 3 Recent Advances in X-ray CT - from Ultra-high Resolution Imaging to AI Reconstruction

Moderator: Wojciech Zbijewski, Johns Hopkins University, Baltimore, MD

10:30 am J. Boone, UC Davis Medical Center: High-Resolution Whole-Body CT: The Next Generation of CT?

10:55 am T. Schmidt, Marquette University: Patient-Specific CT Dose Estimation

11:20 am E. Hoffman, University of Iowa: CT and Dual-Energy CT in Assessment of Pulmonary Function

11:45 am S. Ravishankar, Michigan State University: Machine Learning for Low-Dose CT Reconstruction

12:10 pm Q&A

Tuesday, July 27, 2021

SAM Multi-Disciplinary Scientific Symposium

10:30 am - 12:30 pm

-TRACK 4

TU-AB-TRACK 4 Functional Image-guided Targeting and Avoidance in Radiation Therapy

Moderators: Amit Sawant, University of Maryland School of Medicine, Baltimore, MD and Martha Matuszak, University of Michigan, Ann Arbor, MI

- 10:30 am **Y. Vinogradskiy, Thomas Jefferson University: Regional Functional Avoidance in Lung Radiotherapy Using Ventilation Mapping**
- 10:55 am **M. Matuszak, University of Michigan: Functional Avoidance in Liver RT Using DCE MRI**
- 11:20 am **B. Han, Stanford University School of Medicine: Initial Experience on a Real-Time Biologically-Guided Radiotherapy System**
- 11:45 am **A. Sawant, University of Maryland School of Medicine: Combining Virtual Bronchoscopy and Ventilation Mapping for Preserving Post-SabR Respiratory Function**
- 12:10 pm **Q&A & Panel Discussion**

SAM Therapy Scientific Symposium

10:30 am - 12:30 pm

-TRACK 5

TU-AB-TRACK 5 Radiation as a Biological Rather than a Physical Tool to Combat Cancer

Moderator: Gabriel Sawakuchi, UT MD Anderson Cancer Center, Houston, TX

- 10:30 am **Introduction**
- 10:35 am **A. McNamara, Physics Division, Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, USA: Cellular Targets of Proton Radiation-Induced Bone Fractures**
- 11:00 am **J. Eley, Vanderbilt University School of Medicine: Minibeam Therapy with Protons and Heavy Ions to Treat Brain Cancers**
- 11:25 am **S. Bright, UT MD Anderson Cancer Center: A Physics Approach to Combine Radiotherapy with Molecularly Targeted Therapies to Preferentially Radiosensitize Tumors But Not Normal Tissues**
- 11:50 am **W. Ngwa, Brigham and Women's Hospital: Radio-Immunotherapy Dose-Painting**
- 12:15 pm **Q&A & Panel Discussion**

Therapy Scientific Session

10:30 am - 11:30 am

-TRACK 6

TU-A-TRACK 6 Outcome Modeling and Assessment

Moderators: Yu Kuang, University of Nevada, Las Vegas, Las Vegas, NV and Mi Huang, Mayo Clinic, Jacksonville, FL

- 10:30 am **TU-A-TRACK 6-01 Compact Neural Network to Predict Radiation-Induced Lymphocyte Depletion - Y. Kim*, I. Chamseddine, A. Saraf, Y. Cho, F. Keane, W. Sung, H. Yoon, H. Paganetti, J. Kim, S. Cho, C. Grassberger**
- 10:37 am **TU-A-TRACK 6-02 from Person-Specific to Population-Based Colorectal Models: An Age-Scalable Computational Anatomical Colorectal Model for Radiation Dosimetry in Late Effects Studies of Childhood Cancer Survivors - C. Owens*, B. Rigaud, E. Ludmir, A. Gupta, S. Shrestha, A. Paulino, C. Peterson, S. Kry, S. Smith, K. Brock, R. Howell**
- 10:44 am **TU-A-TRACK 6-03 MRI-Based Multi-Region Delta-Radiomics for Prediction of Recurrence After Chemoradiotherapy in Locally Advanced Cervical Cancer - M. Kawamura*, D. Kawahara, I. Nishibuchi, A. Saito, T. Yoshida, Y. Nagata**

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10:51 am **TU-A-TRACK 6-04 Predicting Osteoradionecrosis from Head and Neck Radiotherapy Using a**

Residual convolutional Neural Network - B. Reber*, B. Anderson, A. Mohamed, L. Van Dijk, B. Rigaud, M. McCulloch, Y. He, M. Woodland, C. Fuller, S. Lai, K. Brock

10:58 am **TU-A-TRACK 6-05 Relationship Between Coronary Artery Radiation Doses and Risk of Late Coronary Artery Disease: A Report from the Childhood Cancer Survivor Study**

(CCSS) - S. Shrestha*, J. Bates, Q. Liu, S. Smith, D. Mulrooney, A. Gupta, C. Owens, W. Leisenring, T. Gibson, E. Chow, K. Oeffinger, L. Robison, G. Armstrong, L. Constine, B. Hoppe, C. Lee, L. Court, S. Kry, Y. Yasui, R. Howell

11:05 am **TU-A-TRACK 6-06 Seed Spots Analysis to Characterize Linear-Energy-Transfer (LET) Effect in the Adverse Event Regions of Head and Neck Cancer Patients Treated by Intensity-Modulated Proton Therapy (IMPT) - Y. Yang*, S. Patel, J. Bridhikitti, W. Wong, M. Halyard, L. McGee, J. Rwigema, S. Schild, S. Vora, T. Liu, M. Bues, M. Fatyga, R. Foote, W. Liu**

- 11:12 am **TU-A-TRACK 6-07 Survival Prediction Models for Patients with Malignant Pleural Mesothelioma After Adjuvant Radiotherapy - Z. Wang*, V. Li, X. Qi**

SAM Therapy Educational Course

10:30 am - 11:30 am

-TRACK 7

TU-A-TRACK 7 HyTEC SBRT Dose Constraints

Moderator: Jimm Grimm, Geisinger Health System, Wilkes Barre, PA

- 10:30 am **J. Grimm, Geisinger Health System: HyTEC - The Project and the Product**
- 10:41 am **E. Yorke, Memorial Sloan-Kettering Cancer Center: HyTEC - The Project and the Product**
- 10:52 am **A. Mahadevan, Geisinger Medical Center: Pancreas TCP as a Case Study of HyTEC Process**
- 11:03 am **A. Jackson, Memorial Sloan-Kettering Cancer Center: Physicist/Modeler's Perspective on HyTEC**
- 11:14 am **L. Marks, University of North Carolina at Chapel Hill: Physician Perspective on HyTEC - the Clinical Needs, Opportunities and Limits**

Vendor Showcase

10:30 am - 11:00 am

-TRACK 8

TU-SHOWCASE-TRACK 8 Radformation

- 10:30 am **TU-SHOWCASE-TRACK 8-9-01 Focus on Your Strengths, Not Your Weakliks: Automation for the Clinical Physicist - K. Syssock***

SAM Professional Symposium

11:30 am - 12:30 pm

-TRACK 1

TU-B-TRACK 1 Ethics Unwrapped: Ethics Case Studies

Moderator: Nina Bahar, St. Peter's Health Partners, Albany, NY

- 11:30 am **N. Bahar, St. Peter's Health Partners: General Introduction to AAPM Code of Ethics**
- 11:35 am **A. Riegel, Northwell Health: Case Study: Conflict of Interest**
- 11:50 am **Breakout Session**
- 12:10 pm **Discussion, Reflection, and Audience Q&A**
- 12:25 pm **Wrap Up**

Tuesday, July 27, 2021

Imaging Scientific Session

11:30 am - 12:30 pm

-TRACK 2

TU-B-TRACK 2 Multimodality, Optical, and Emerging Imaging Technologies

Moderators: Youngho Seo, University of California San Francisco, San Francisco, CA and Dustin Osborne, University of Tennessee Grad School of Medicine, Knoxville, TN

- 11:30 am TU-B-TRACK 2-01 Quantitative and Sensitive Diagnosis of Early Tumor Metastases Using X-Ray and Bioluminescence Tomography - J. Chen*, N. Zhao, Y. Yang
- 11:37 am TU-B-TRACK 2-02 Liquid Immunogenic Fiducial Eluter (LIFE) Gel for Image-Guided Radiotherapy - G. Richards*, M. Moreau, S. Yasmin-Karim, W. Ngwa
- 11:44 am TU-B-TRACK 2-03 Quantification of Tumor Location and Growth for Orthotopic Pancreatic Cancer Model Using Bioluminescence Tomography-Guided System - Z. Deng*, X. Xu, H. Dehghani, J. Reyes, J. Wong, P. Tran, K. Wang
- 11:51 am TU-B-TRACK 2-04 Preliminary Investigation of a Novel 3D Dosimetry System Consisting of ClearView 3D Radiochromic Dosimeters with Telecentric Optical Computed Tomography Scanning - S. Hoopingarner*, K. Penev, M. Oldham
- 11:58 am TU-B-TRACK 2-05 Evolution and Development of Micro-CT and Optical Imaging for Breast Conserving Surgery - B. Maloney*, S. Streeter, M. Gesner, J. Kempner, K. Paulsen, B. Pogue
- 12:05 pm TU-B-TRACK 2-06 Use of Computer-Controlled Automatic Injector to Perform 1000-Fps High Speed Angiography During Neurointervention Procedures - S. Setlur Nagesh*, A. Shields, X. Wu, D. Bednarek, S. Rudin
- 12:12 pm TU-B-TRACK 2-07 Development and Testing of a Quality Assurance Phantom for Microwave Imaging - N. Alsbou*, S. Ahmad, I. Ali

Multi-Disciplinary Scientific Session

11:30 am - 12:30 pm

-TRACK 6

TU-B-TRACK 6 Imaging for Particle Therapy

Moderators: Lei Dong, University of Pennsylvania, Philadelphia, PA and Xuanfeng Ding, William Beaumont Hospital, Royal Oak, MI

- 11:30 am TU-B-TRACK 6-01 Dose Tracking Using CBCT During Head and Neck Proton PBS Radiotherapy: A Feasibility Study - C. Liu*, G. Janssens, L. Hong, X. Liang, Y. Zhang
- 11:37 am TU-B-TRACK 6-02 Model-Based Reconstruction for Proton CT Detected with Multiple-Layer Ionization Chamber - X. Chen*, B. Sun, Y. Hao, F. Reynoso, A. Darafsheh, D. Yang, T. Zhang, T. Zhao
- 11:44 am TU-B-TRACK 6-03 Neural Network Based Event Classification to Improve Compton Imaging for Proton Beam Range Verification - C. Barajas, G. Kroiz, J. Polf*, S. Peterson, D. Mackin, S. Beddar, M. Gobbert
- 11:51 am TU-B-TRACK 6-04 Performance Evaluation of An Optimization Method for Fluence-Modulated Proton CT with Dose and Variance Objectives - J. Dickmann, F. Kamp, M. Hillbrand, S. Corradini, C. Belka, R. Schulte, K. Parodi, G. Dedes, G. Landry*
- 11:58 am TU-B-TRACK 6-05 Scatter Correction of 4D Cone Beam Computed Tomography for Time-Resolved Proton Dose Calculation: Porcine Lung Phantom Validation - H. Schmitz*, M. Rabe, G. Janssens, J. Dinkel, S. Rit, K. Parodi, C. Belka, C. Kurz, F. Kamp, G. Landry
- 12:05 pm TU-B-TRACK 6-06 Synthetic Dual-Energy CT for MRI-Based Proton Therapy Treatment Planning Using Label-GAN - R. Liu*, Y. Lei, T. Wang, J. Zhou, J. Roper, L. Lin, M. McDonald, J. Bradley, T. Liu, X. Yang

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- 12:12 pm TU-B-TRACK 6-07 Beam Path Length from Isocenter to Skin on Cone Beam CT Images as An Adaptive Planning Indicator of Head and Neck Patients Undergoing Proton Therapy - N. Biswal*, B. Zhang, J. Molitoris, M. Witek, B. Yi

SAM Therapy Educational Course

11:30 am - 12:30 pm

-TRACK 7

TU-B-TRACK 7 Adaptive SBRT for Liver and Pancreas Patients

Moderator: Rachael Martin, UT MD Anderson Cancer Center, Houston, TX

- 11:30 am R. Martin, UT MD Anderson Cancer Center: Intro: Challenges in Pancreas and Liver Patients Receiving SBRT
- 11:45 am J. Niedzielski, UT MD Anderson Cancer Center: Importance of Daily Adaption for the Management of Liver and Pancreas Patients Receiving SBRT
- 12:00 pm K. Mittauer, Miami Cancer Institute, Baptist Health South Florida: MR Guidance and Online Adaptation of Liver and Pancreas Patients
- 12:15 pm Q&A

Vendor Showcase

11:30 am - 12:00 pm

-TRACK 8

TU-SHOWCASE-TRACK 8 Sun Nuclear

- 11:30 am TU-SHOWCASE-TRACK 8-10-01 What's New from Sun Nuclear - J. Holzmann*

Imaging Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 1

TU-IePD-TRACK 1 Imaging: Phantoms and Simulations in Radiography and CT/CBCT

- TU-IePD-TRACK 1-01 A Quantitative Evaluation of Computational Paediatric Phantoms for Radiotherapy Applications - R. Ahmad*, C. Borrelli, J. Cantwell, P. Lim, D. D'Souza, S. Moinuddin, J. Gains, C. Veiga
- TU-IePD-TRACK 1-02 Anatomically Realistic Simulation of Random Human Airway Trees - J. Whitehead*, L. Torres, A. Hahn, S. Fain, M. Speidel, M. Wagner
- TU-IePD-TRACK 1-03 Development and Characterization of a Dynamic, Anatomically Realistic, Abdominal Phantom for Simulating Complex Deformable Motion in Cone-Beam CT - Y. Liu*, H. Huang, J. Siewersden, W. Zbijewski, C. Weiss, T. Ehtiati, A. Sisiniega
- TU-IePD-TRACK 1-04 Smoothed Delineation Uncertainties Contouring (SDUC) Model - V. Ly*, L. Liu, C. Cardenas, K. Hoffman, L. Court, X. Luo
- TU-IePD-TRACK 1-05 Some Observations on the Basis Material Paradigm - R. Jennings*
- TU-IePD-TRACK 1-06 Task-Based Assessment of Pediatric Fluoroscopy by Use of Vesico-Ureteral Reflux Grading - D. Olivera Velarde*, J. Cruz Bastida, N. Baughan, E. Marshall, K. Blunt, K. Feinstein, I. Reiser
- TU-IePD-TRACK 1-07 Understanding Variability in Quantitative Imaging and Radiomics: The Use of Different Phantoms in CT to Explore the Effects of Acquisition and Reconstruction Parameters - N. Emaminejad*, M. Wahi-Anwar, M. McNitt-Gray

-TRACK 2

TU-IePD-TRACK 2 Imaging: Rad/Fluoro Dosimetry and Safety

- TU-IePD-TRACK 2-01 Distribution of Peak Skin Doses from Fluoroscopic Procedures Exceeding 5 Gy Reference Air Kerma - G. Fong*, K. Wunderle
- TU-IePD-TRACK 2-02 Enhancements of the Scattered Radiation Display System Training Module - J. Troville*, S. Rudin, D. Bednarek

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TU-IePD-TRACK 2-03 Fluoroscopic Guided Interventional Procedures, Patient and Related Staff Radiation Doses Monitoring in Mississippi - H. Khosravi*, R. Morris, D. Garrido, J. Storrs, A. Fatemi
TU-IePD-TRACK 2-04 Fluoroscopic Imaging Data Analysis: A Practical Study to Guide Protocol Optimization and Operator Training - J. Paltani*, G. Fong, K. Wunderle
TU-IePD-TRACK 2-05 Convenient Calculation of Radiation Workloads for Cardiac Angiography Using Dose Area Product - E. Macdonald*, M. Vanderhoeck, C. Morrison, A. Jackson, N. Bevins
TU-IePD-TRACK 2-06 Evaluating the Kerma Correction Factor of Modern Fluoroscopy Systems - M. Fadhel*, R. Perez Franco, D. Vergara
TU-IePD-TRACK 2-07 A Low Hanging Fruit for Children: Anti-Scatter Grid Removal for Significant Radiation Dose Reduction in Pediatric Cerebral Angiography - D. Kim*, D. Orbach

Multi-Disciplinary Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 3

TU-IePD-TRACK 3 Multi-Disciplinary: Innovative Technologies

TU-IePD-TRACK 3-01 Deep Learning-Based Real-Time Volumetric Imaging Using Single CBCT Projections - Y. Lei*, Z. Tian, T. Wang, J. Roper, A. Kesarwala, E. Schreibmann, K. Higgins, J. Bradley, T. Liu, X. Yang
TU-IePD-TRACK 3-02 Regional Dose-Responses of Liver Functions Derived from Dynamic Gadoteric Acid-Enhanced (DGAE) MRI of Patients with Hepatocellular Carcinoma (HCC) Treated with SBRT - L. Wei*, M. Aryal, J. Simeth, K. Cuneo, M. Matuszak, J. Evans, R. Ten Haken, I. El Naqa, T. Lawrence, Y. Cao
TU-IePD-TRACK 3-03 Automatic Segmentation of Regions of Interest in Radiotherapy of Lower Abdominal Tumors with Lifelong Learning - K. Men*, X. Chen, B. Yang, J. Zhu, J. Dai
TU-IePD-TRACK 3-04 Using Artificial Intelligence to Automatically Track the Response of Brain Metastases to Stereotactic Radiosurgery - D. Hsu*, M. Aristophanous, A. Ballangrud, J. Deasy, H. Veeraraghavan, K. Beal, L. Cervino
TU-IePD-TRACK 3-05 Novel-View X-Ray Projection Synthesis Through Geometry-Integrated Deep Learning - L. Shen*, L. Yu, W. Zhao, J. Pauly, L. Xing
TU-IePD-TRACK 3-06 Liver 4D Blood Flow Model for Dose Calculation to Circulating Blood and Lymphocytes - S. Xing*, J. Pursley, J. Shin, C. Correa Alfonso, S. Domal, J. Withrow, W. Bolch, C. Grassberger, H. Paganetti
TU-IePD-TRACK 3-07 Development of a Deep Learning Model That Can Create Multiple Auto-Plans Prioritizing Different Clinical Goals to Facilitate Decision Making in Complex Pancreatic VMAT with Dose Painting - Y. Wang*, J. Wo, T. Hong

-TRACK 4

TU-IePD-TRACK 4 Multi-Disciplinary: Research Tools and Databases

TU-IePD-TRACK 4-01 A Clinically Implemented Watchdog Program to Streamline Adaptive LINAC-Based Head and Neck Radiotherapy - M. Aristophanous*, E. Aliotta, A. Caringi, B. Rochford, N. Allgood, P. Zhang, Y. Hu, P. Zhang, L. Cervino
TU-IePD-TRACK 4-02 A Federated Database Design for Pediatric Outcomes Modelling - J. Becksfort*, L. Wilson, F. Xie, R. John, F. Pirlpesov, I. Igrutinovic, J. Lucas, A. Faught
TU-IePD-TRACK 4-03 Integrated Structure Name Mapping with CNN - P. Bose*, W. Sleeman, S. Srinivasan, J. Palta, R. Kapoor, P. Ghosh
TU-IePD-TRACK 4-04 NCI Imaging Data Commons - A. Fedorov*, W. Longabaugh, D. Pot, D. Clunie, S. Pieper, R. Lewis, H. Aerts, A. Homeyer, M. Herrmann, U. Wagner, T. Pihl, K. Farahani, R. Kikinis
TU-IePD-TRACK 4-05 PIXNAT: An XNAT Imaging Archive for Collaborative Radiotherapy Research - E. LoCastro*, A. Apte, A. Iyer, J. Deasy
TU-IePD-TRACK 4-06 The National Biomedical Imaging Archive - S. Gustafson*, Q. Pan, M. Lerner, T. Tran, C. Klinger, R. Rielsing, U. Wagner, K. Farahani

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TU-IePD-TRACK 4-07 Radiation Therapy Ontology: Report of AAPM Working Group - M. Phillips*, J. Bona, A. Dekker, P. Gabriel, C. Mayo

Therapy Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 5

TU-IePD-TRACK 5 Therapy: Particle Therapy Treatment Planning

TU-IePD-TRACK 5-01 The First Modeling of the Spot-Scanning Proton Arc (SPArc) Delivery Sequence and Investigating Its Efficiency Improvement in the Clinical Proton Treatment Workflow - G. Liu*, L. Zhao, D. Yan, R. Deraniyagala, C. Stevens, X. Li, X. Ding
TU-IePD-TRACK 5-02 4D Robust Optimization in Small Spot Intensity-Modulated Proton Therapy (IMPT) for Distal Esophageal Carcinoma - H. Feng*, J. Shan, J. Ashman, W. Rule, R. Bhargoo, N. Yu, J. Chiang, M. Fatyga, W. Wong, S. Schild, T. Sio, W. Liu
TU-IePD-TRACK 5-03 A Monte Carlo Study on Fetal Dose from Craniospinal Irradiation with Proton Pencil Beam Scanning Treatment - Y. Yeom*, K. Griffin, M. Mille, C. Lee, S. O'Reilly, L. Dong, J. Jung, C. Lee
TU-IePD-TRACK 5-04 A Novel Component Method to Delineate Surgical Spine Implants for Proton Monte Carlo Dose Calculation - C. Chang, S. Charyyev, J. Harms, R. Slopsema, J. Wolf, D. Refai, T. Yoon, M. McDonald, J. Bradley, S. Leng, J. Zhou, X. Yang, L. Lin*
TU-IePD-TRACK 5-05 Adaptive Spot Placement Method for Pencil Beam Scanning Proton Therapy - B. Lin, Y. Lin, M. McDonald, J. Bradley, S. Fu, H. Gao*
TU-IePD-TRACK 5-06 Robustness in Biological Dose-Guided IMPT Planning for Rectal Cancer Using a Monte Carlo-Based Optimizer - J. Rivera*, J. Ma, K. Gergelis, R. Mutter, H. Wan Chan Tseung, C. Hallemeier, N. Remmes, M. Herman
TU-IePD-TRACK 5-07 Toward Online Adaptive Proton Therapy of Sinonasal Cancer: The Dosimetric Accuracy of Utilizing Deep-Learning Synthetic CT from CBCT for Daily Treatment Dose Verification - A. Qin*, L. Zhao, S. Chen, X. Li, W. Zheng, D. Yan, R. Deraniyagala, X. Ding

-TRACK 6

TU-IePD-TRACK 6 Therapy: Patient Safety and Quality Improvement

TU-IePD-TRACK 6-01 Development of a Multi-Layer Quality Assurance System for Adaptive Radiotherapy - H. Zhong*, K. Kainz, X. Li
TU-IePD-TRACK 6-02 Development of a Quantitative Method to Evaluate Organ Segmentation for Enhanced Error Detection - E. Pryser*, F. Reynoso, M. Schmidt, G. Hugo, N. Knutson
TU-IePD-TRACK 6-03 A Convolutional Neural Network-Based Retrospective Search for Previously Unreported Treatment Errors in a Planar X-Ray Setup Image Database - R. Petragallo*, D. Low, J. Lamb
TU-IePD-TRACK 6-04 Retrospective Evaluation of Incident Learning Data in the Six Months Prior to and During COVID-19 - J. Crosby*, D. Jacquemin
TU-IePD-TRACK 6-05 Always-On Cherenkov Imaging for Incident Learning in Radiation Therapy - D. Alexander*, M. Jermyn, P. Bruza, R. Zhang, B. Pogue, L. Jarvis, D. Gladstone
TU-IePD-TRACK 6-06 Risk Assessment for Custom Software in the Clinic - E. Covington*, R. Cardan, R. Popple
TU-IePD-TRACK 6-07 How Do More Relaxed Treatment Couch Tolerance Tables Lead to More Consistent Patient Positions? A Statistical Approach to Help Reduce Alert Fatigue - C. Hui*, M. Egan

Break

12:30 pm - 1:00 pm

Tuesday, July 27, 2021

Students and Trainees

1:00 pm - 3:00 pm

-TRACK 1

TU-CD-TRACK 1 MedPhys Slam

Moderators: Mary Gronberg, UT MD Anderson Cancer Center, Houston, TX and Soleil Hernandez, MD Anderson Cancer Center, Houston, TX

1:00 pm M. Gronberg, UT MD Anderson Cancer Center: Host
S. Hernandez, MD Anderson Cancer Center: Host

SAM Imaging Educational Course

1:00 pm - 3:00 pm

-TRACK 2

TU-CD-TRACK 2 Nuclear Medicine Dosimetry in Imaging and Therapy

Moderator: Sara St. James, UCSF, San Francisco, CA

1:00 pm W. Bolch, University of Florida: Dosimetry for Nuclear Medicine Imaging

1:27 pm C. Lawhn Heath, University of California San Francisco: Clinical Perspective on Therapeutic Nuclear Medicine

1:54 pm W. Erwin, UT MD Anderson Cancer Center: Practical Dosimetry for Therapeutic Nuclear Medicine, MIBG

2:21 pm S. St. James, UCSF: Practical Dosimetry for Therapeutic Nuclear Medicine, 177Lu Based Therapies

2:48 pm Audience Q & A

Imaging Scientific Session

1:00 pm - 2:00 pm

-TRACK 3

TU-C-TRACK 3 4D CT/CBCT and Sparse Acquisitions

Moderators: Adam Wang, Stanford University, Stanford, CA and Yi Rong, Mayo Clinic Arizona, Phoenix, AZ

1:00 pm TU-C-TRACK 3-01 A Deep Learning Technique for Projection Interpolation in CBCT Reconstruction - K. Lu*, Z. Zhang, L. Ren, F. Yin

1:07 pm TU-C-TRACK 3-02 BEST IN PHYSICS (IMAGING): A GAN-Based Technique for Synthesizing Realistic Respiratory Motion in the 4D-XCAT Phantoms - Y. Chang*, Z. Jiang, P. Segars, Z. Zhang, F. Yin, L. Ren

1:14 pm TU-C-TRACK 3-03 A Method for 4D Cone-Beam CT in Under 20 Seconds with New Generation Linacs - S. Blake*, O. Dillon, R. O'Brien

1:21 pm TU-C-TRACK 3-04 Dual-Encoder Convolutional Neural Network (DeCNN) for Average Image-Constrained 4D-CBCT Reconstruction - Z. Jiang*, Z. Zhang, Y. Chang, F. Yin, L. Ren

1:28 pm TU-C-TRACK 3-05 Faster Safer Clearer 4DCBCT: Results of the ADAPT Clinical Trial - O. Dillon*, B. Lau, T. Reynolds, P. Keall, S. Vinod, A. Wallis, S. Smith, J. Sonke, R. O'Brien

1:35 pm TU-C-TRACK 3-06 Rapid Low Dose 4DCBCT - B. Lau*, O. Dillon, T. Reynolds, P. Keall, J. Sonke, S. Vinod, R. O'Brien

1:42 pm TU-C-TRACK 3-07 Reference-Free, Learning-Based Rigid Motion Compensation in Cone-Beam CT for Interventional Neuroradiology - H. Huang*, J. Siewerdsen, W. Zbijewski, C. Weiss, T. Ehtiat, A. Sisniega

Multi-Disciplinary Scientific Session

1:00 pm - 2:00 pm

-TRACK 4

TU-C-TRACK 4 Biologically- and Functionally-Guided Radiation Therapy

Moderators: Indrin Chetty, Henry Ford Health System, Detroit, MI and Michael Lawless, University of Wisconsin-Madison, Madison, WI

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1:00 pm TU-C-TRACK 4-01 Evaluation of CT-Derived Lung Perfusion with Deep Learning in Radiotherapy Patients - G. Ren*, B. Li, Y. Lu, R. Mao, H. Ge, F. Kong, W. Ho, J. Cai

1:07 pm TU-C-TRACK 4-02 Functional Dose Sparing of the Parotid Glands: How Sparing the Parotid Ducts Yields Improvements in Patient Reported Xerostomia - D. Fried*, M. Ahmidouch, K. Pant, S. Das, C. Shen, K. Pearlstein, L. Marks, B. Chera

1:14 pm TU-C-TRACK 4-03 BEST IN PHYSICS (MULTI-DISCIPLINARY): Lung Treatment Planning with Parametric Response Mapping Function Guidance - C. Matrosic*, D. Owen, D. Polan, Y. Sun, S. Jolly, C. Schonewolf, M. Schipper, R. Ten Haken, C. Galban, M. Matuszak

1:21 pm TU-C-TRACK 4-04 Predicting Lung Ventilation Loss Caused by Local and Distant Radiation-Induced Damage - E. Vicente*, A. Modiri, J. Kipritidis, K. Yu, Y. Yan, D. Owen, M. Matuszak, P. Mohindra, R. Timmerman, A. Sawant

1:28 pm TU-C-TRACK 4-05 Simultaneous Whole-Lung Ventilation-Perfusion Imaging with Volumetric CT in Non-Small Cell Lung Cancer: A Feasibility Study - H. Young*, F. Su, T. Lee, S. Gaede

1:35 pm TU-C-TRACK 4-06 Ventilation Derived from Clinical 4D-CBCT Using a Deep Learning-Based Model: First Comparison with Technegas SPECT Ventilation - Z. Liu*, Y. Tian, J. Dai

1:42 pm TU-C-TRACK 4-07 Protons Combined with PARP Inhibition Sensitize Cancer Cells and Activate Immune Signaling More Than Photons - M. Ben Kacem*, S. Bright, B. Turner, D. Flint, M. Manandhar, D. Martinus, C. McFadden, S. Shaitelman, G. Sawakuchi

Therapy Scientific Symposium

1:00 pm - 3:00 pm

-TRACK 5

TU-CD-TRACK 5 Radiomics and Outcome Prediction

Moderator: Fang-Fang Yin, Duke University, Chapel Hill, NC

1:00 pm H. Aerts, Dana-Farber/Brigham Womens Cancer Center: Artificial Intelligence in Cancer Imaging

1:30 pm Y. Xiao, University of Pennsylvania: Standardizing Radiomics Applications for Clinical Trials

2:00 pm F. Yin, Duke University: Impact of Image Quality on Radiomics Applications

2:30 pm E. Deutsch, Universite Paris-saclay: State-Of-The-Art Multi-Omics

Therapy Scientific Session

1:00 pm - 2:00 pm

-TRACK 6

TU-C-TRACK 6 Radiobiology

Moderators: David Carlson, University of Pennsylvania, Philadelphia, PA and Wilfred Ngwa, Brigham and Women's Hospital, Boston, MA

1:00 pm TU-C-TRACK 6-01 A DNA Repair Inhibitor Targeting ATR Modulates Immune Responses to Radiotherapy - S. Bright*, B. Turner, M. Manandhar, C. McFadden, D. Flint, D. Martinus, M. Ben Kacem, S. Shaitelman, G. Sawakuchi

1:07 pm TU-C-TRACK 6-02 DNA Repair Inhibitors Combined with Protons Increase Cell Radiosensitivity in Vitro - D. Flint*, S. Bright, B. Turner, M. Manandhar, M. Ben Kacem, S. Shaitelman, G. Sawakuchi

1:14 pm TU-C-TRACK 6-03 Features Of TOPAS-NBio - Release 1.0 - J. Schuemann*, A. McNamara, J. Ramos-Mendez, N. Dominguez-kondo, J. Perl, D. Yoo, N. Henthron, J. Warmenhoven, S. Ingram, M. Merchant, K. Kirkby, K. Held, J. Laverne, H. Paganetti, B. Faddegon

1:21 pm TU-C-TRACK 6-04 Investigating the Impact of Sustainable Delivery of Immunoadjuvant from Smart Radiotherapy Biomaterial in Pancreatic Cancer - M. Moreau*, S. Yasmin-Karim, N. Bih, W. Ngwa

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- 1:28 pm **TU-C-TRACK 6-05 Nanoparticle-Mediated Assessment of ROS and Radiosensitization of Brain Cancer Cells for Improved Radiotherapy Outcomes** - C. Thiegs*, K. Djam, H. Kramer, Y. Walter, A. Hubbard, A. Benoit, E. Yank, O. Salas, M. Schwengler, J. Lewison, S. McKinley, A. Ekpenyong
- 1:35 pm **TU-C-TRACK 6-06 Potential Anti-Kras Activity OffFlavonoid Derivative of Cannabis Is Enhanced by a Single Fraction of Low Dose of Radiation Therapy** - S. Yasmin-Karim*, M. Moreau, N. Bih, H. Lowe, N. Toyang, W. Ngwa
- 1:42 pm **TU-C-TRACK 6-07 BEST IN PHYSICS (THERAPY): Radio-Immunotherapy dose-Painting with Survival Boost Using Checkpoint Inhibitors** - S. Yasmin-Karim*, M. Moreau, N. Bih, J. Wirtz, W. Ngwa

SAM Therapy Educational Course

1:00 pm - 3:00 pm

-TRACK 7

TU-CD-TRACK 7 State of the Art (Non-MRI) Motion Management for External Radiotherapy

Moderator: Jennifer Smilowitz, University of Wisconsin, Madison, WI

- 1:00 pm **T. McCaw, University of Wisconsin-Madison: Application of Optical and Infrared Imaging Systems for Respiratory Motion Management**
- 1:30 pm **E. Colvill, Paul Scherrer Institute: MLC Tracking for Motion Management**
- 2:00 pm **G. Mageras, Memorial Sloan-Kettering Cancer Center: Planar Radiographic Imaging for Prostate Fiducial Tracking**
- 2:30 pm **X. Li, Medical College of Wisconsin: Motion Tracking with MLC and Jaw During Tomotherapy Delivery**

SAM Partners in Solutions Imaging

1:00 pm - 3:00 pm

-TRACK 8

TU-CD-TRACK 8 Imaging: Artificial Intelligence in Medical Imaging

Moderators: Colin Schaeffer, University of Florida, Gainesville, FL and Stephanie Leon, University of Florida, Gainesville, FL

- 1:00 pm **C. Schaeffer, University of Florida: Artificial Intelligence in Medical Imaging**
- S. Leon, University of Florida: Artificial Intelligence in Medical Imaging**
- 1:30 pm **N. Mistry, Siemens Healthineers GmbH: Artificial Intelligence in Medical Imaging – Progresses in Radiation Oncology**
- 1:50 pm **J. Vaishnav, Canon Medical Systems, USA: Deep Learning in Medical Imaging: from Image Generation to Workflow Automation**
- 2:10 pm **R. Bammer, Rapidai: Embracing Artificial Intelligence and Machine Learning in Radiology to Streamline Emergent Care**
- 2:30 pm **A. Dresner, Philips Healthcare: Next Generation Synthetic CT for MR-Only Brain Radiotherapy Planning**
- 2:50 pm **Q&A**

Imaging Scientific Session

2:00 pm - 3:00 pm

-TRACK 3

TU-D-TRACK 3 AI in CT and CBCT: Image Enhancement and Synthesis

Moderators: Shuai Leng, Mayo Clinic, Rochester, MN and Grace Jianan Gang, Johns Hopkins University, Baltimore, MD

- 2:00 pm **TU-D-TRACK 3-01 Convolutional Neural Network Based Metal Artifact Correction for Sparse View Dental CT Imaging** - S. Kim*, J. Ahn, B. Kim, J. Back

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- 2:07 pm **TU-D-TRACK 3-02 Low-Dose CT Image Enhancement Through a Texture Transformer** - S. Zhou*, L. Yu, M. Jin
- 2:14 pm **TU-D-TRACK 3-03 Multi-Resolution Residual Deep Neural Network for Generating Synthetic CT Images with High HU Accuracy and Structural Fidelity** - W. Wu*, J. Qu, J. Cai, R. Yang
- 2:21 pm **TU-D-TRACK 3-04 Renal Stone Quantification in Contrast Enhanced CT Using Convolutional Neural Network Assisted Dual-Energy Virtual Non-Contrast Imaging** - H. Gong*, A. Ferrero, J. Marsh, N. Huber, J. Fletcher, C. McCollough, S. Leng
- 2:28 pm **TU-D-TRACK 3-05 Synthesize 3D Realistic CT Textures and Anatomy in the XCAT Phantom Using Generative Adversarial Network (GAN)** - Y. Yuan*, L. Ren, Y. Chang
- 2:35 pm **TU-D-TRACK 3-06 Task-Based Loss Function for Convolutional Neural Network-Based CT Denoising** - B. Nelson*, D. Gomez Cardona, N. Huber, A. Missert, L. Yu, C. McCollough
- 2:42 pm **TU-D-TRACK 3-07 Evaluation of Image-Domain Training Frameworks for Deep Learning Based Denoising and Deconvolution** - P. VanMeter*, S. Hsieh, J. Marsh, N. Huber, A. Ferrero, C. McCollough

Multi-Disciplinary Scientific Symposium

2:00 pm - 3:00 pm

-TRACK 4

TU-D-TRACK 4 The Anne and Donald Herbert Distinguished Lectureship in Modern Statistical Modeling

Moderator: Ioannis Sechopoulos, Radboud University Medical Centre, Nijmegen, The Netherlands

- 2:00 pm **Introduction**
- 2:05 pm **N. Obuchowski, Cleveland Clinic Foundation: Importance of Quantitative Imaging Biomarkers' Technical Performance Characteristics in Designing and Analyzing Clinical Trials**
- 2:50 pm **Q&A**

Therapy Scientific Session

2:00 pm - 3:00 pm

-TRACK 6

TU-D-TRACK 6 Radiobiology and Preclinical Systems

Moderators: Yannick Poirier, University of Maryland School of Medicine, Baltimore, MD and Magdalena Bazalova-Carter, University of Victoria, Victoria, BC

- 2:00 pm **TU-D-TRACK 6-01 ATR Inhibition Suppresses DNA Damage Signaling and Sensitizes Cancer Cells to Photons and Protons** - D. Martinus*, S. Bright, D. Flint, B. Turner, M. Manandhar, M. Ben Kacem, S. Shaitelman, G. Sawakuchi
- 2:07 pm **TU-D-TRACK 6-02 Modeling DNA Structure with Different Chromatin Compaction in TOPAS-NBio Using Hi-C Representations** - D. Yoo*, N. Henthron, S. Ingram, M. Merchant, K. Kirkby, J. Warmenhoven, A. McNamara, K. Held, H. Paganetti, J. Schuemann
- 2:14 pm **TU-D-TRACK 6-03 Mechanistic Modelling of Oxygen Enhancement Ratio with DNA Damage by GMicroMC** - Y. Lai*, Y. Chi, X. Jia
- 2:21 pm **TU-D-TRACK 6-04 Radiodynamic Therapy for Treatment of Lung Cancer: An In-Vivo Study** - D. Yang*, D. Cvetkovic, L. Chen, C. Ma
- 2:28 pm **TU-D-TRACK 6-05 Second Generation Silica-Based Bismuth Gadolinium Nanoparticles for Tumor Dose Enhancement and Real-Time MR-Tracking** - N. Virani*, P. Rocchi, F. Lux, T. Doussineau, C. Williams, E. Huynh, E. Kaza, O. Tillement, R. Berbeco
- 2:35 pm **TU-D-TRACK 6-06 Development of a Novel System for Preclinical Small Animal MR-Guided Radiation Experiments** - J. Grandinetti*, Y. Zhong, Y. Peng, C. Shen, X. Jia

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2:42 pm **TU-D-TRACK 6-07 Improving the Efficiency of Small Animal IMRT with Submillimeter Dose Deposition Kernels and Total Variation Regularization** - X. Liu*, A. Van Slyke, K. Shoniyozov, R. Wiersma

Imaging Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 1

TU-IePD-TRACK 1 Imaging: CT Artifacts, Reconstruction, and Imaging Performance Assessment

TU-IePD-TRACK 1-01 Development of An Automated Analysis Software for Daily CT QA - A. Hart*, A. Watkins, M. Bazalova-Carter, C. Uribe

TU-IePD-TRACK 1-02 CARE-CT: CARDiac and RESpiratory Adaptive Computed Tomography - N. Morton*, T. Reynolds, P. Keall, R. O'Brien

TU-IePD-TRACK 1-03 A Spatiotemporal Denoising Method for Low-Dose Cardiac CT Images - J. Yang, S. Zhou*, J. Huang, L. Yu, M. Jin

TU-IePD-TRACK 1-04 Automated Assessment of Image Sharpness Degradation in Iterative CT Reconstruction Techniques: Vessel Sharpness in Contrast-Enhanced Liver - M. Chun*, H. Jin, S. Kim, W. Jeong, C. Heo, J. Kim

TU-IePD-TRACK 1-05 Quantitative Evaluation of Noise Texture of Deep-Learning-Based CT Reconstruction with An Anthropomorphic Phantom - K. Yang*, J. Cao, N. Pisuchpen, T. Marschall, X. Li, R. Gupta, A. Kambadakone, B. Liu

TU-IePD-TRACK 1-06 Assessing the Severity of Metal Artifacts and Detectability of Lesions in CT Metal Artifact Reduction Images - C. Topbas*, F. Dong

TU-IePD-TRACK 1-07 "Focused" CT: A Reconstruction Algorithm Permitting Radiation Dose Reduction for Region-Of-Interest Viewing - T. Olson, S. Leon*

Multi-Disciplinary Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 3

TU-IePD-TRACK 3 Multi-Disciplinary: Adaptive Radiation Therapy

TU-IePD-TRACK 3-01 A Method to Select Optimal Candidates for Adaptive Radiation Therapy (ART) in Anal Cancer - O. Dona*, D. Horowitz, M. Savacool, K. Rayn, F. Li, M. Price, C. Wu, L. Kachnic

TU-IePD-TRACK 3-02 A Prediction Model for Dosimetric-Based Lung Adaptive Radiotherapy - C. Ma*, R. Wang, H. Wu, F. Jiang, Z. Feng, Q. Hu, A. Shi, F. Yang

TU-IePD-TRACK 3-03 Analysis of the Benefits of Daily Online Adaptive Radiotherapy Via Ethos for Prostate Cancer - M. Moazzezi*, K. Moore, B. Rose, X. Ray

TU-IePD-TRACK 3-04 Elimination of the Set-Up Margin Using Daily Adaptive Radiotherapy for Head and Neck Radiotherapy: A Feasibility Study - M. Lin*, J. Park, X. Zhong, L. Chen, H. Morgan, Z. Trivedi, A. Godley, A. Pompos, S. Jiang, D. Sher

TU-IePD-TRACK 3-05 Initial Experience of CBCT-Based Adaptive Radiotherapy with Ethos for Postoperative Prostate SBRT - H. Morgan*, D. Nguyen, A. Garant, N. Desai, M. Folkert, R. Hannan, B. Cai, M. Lin, S. Jiang, J. Park

TU-IePD-TRACK 3-06 Use of Deep Learning Segmentation and Biomechanical Models to Improve Dose Accumulation Accuracy in GI Structures - M. McCulloch*, G. Cazoulat, B. Rigaud, B. Anderson, E. Kirimli, S. Gryshkevych, S. Svensson, A. Ohrt, J. Ohrt, N. Chopra, R. Mathew, M. Zaid, D. Elganainy, P. Balter, E. Koay, K. Brock

TU-IePD-TRACK 3-07 CBCT-Based, Physicist-Driven Daily Adaptive Protocol for Locally Advanced Cervical Cancer: Improved Target Coverage and Reduced Margins in a 20-Minute Treatment Slot - D. Branco*, J. Mayadev, K. Moore, X. Ray

-TRACK 4

TU-IePD-TRACK 4 Multi-Disciplinary: Segmentation II

TU-IePD-TRACK 4-01 A Deep Reinforcement Learning Based Pipeline for Prostate Segmentation on MRI with Low Variance Performance - L. Xu*, W. Shi, N. Wen

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TU-IePD-TRACK 4-02 Automatic Segmentation of Low-Contrast Head and Neck Tumors for Palliative Radiotherapy - S. Gay*, C. Cardenas, C. Nguyen, T. Netherton, A. Aggarwal, K. Naidoo, H. Simonds, B. Beadle, L. Court

TU-IePD-TRACK 4-03 Evaluation of Deep Learning-Based Automatic Segmentation of the Pancreas - B. Rigaud*, E. Kirimli, S. Yedururi, G. Cazoulat, B. Anderson, M. McCulloch, M. Zaid, D. Elganainy, E. Koay, K. Brock

TU-IePD-TRACK 4-04 Improving Deep Learning Auto-Segmentation Using An Adaptive Spatial Resolution Approach - A. Amjad*, J. Xu, D. Thill, M. Awan, M. Shukla, W. Hall, B. Erickson, X. Li

TU-IePD-TRACK 4-05 On the Application of a Variational Autoencoder (VAE) and Transfer Learning to Account for Inter-Observer Uncertainties in Automatic Prostate Gland Segmentation - X. Li*, H. Bagher-Ebadian, E. Mohamed, B. Movsas, D. Zhu, I. Chetty

TU-IePD-TRACK 4-06 Deploying Deep Learning-Based Image Segmentation Models Via CERR - A. Iyer*, E. LoCastro, J. Deasy, A. Apte

TU-IePD-TRACK 4-07 Saliency-Guided Deep Learning Network for Automatic Gross Target Volume Delineation in Partial Breast Irradiation - M. Kazemimoghdam*, W. Chi, A. Rahimi, N. Kim, P. Alluri, C. Nwachukwu, X. Gu, W. Lu

Therapy Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 5

TU-IePD-TRACK 5 Therapy: Particle Therapy Verification

TU-IePD-TRACK 5-01 A Feasibility Study of Proton Beam Dosimetry Using Cerenkov Radiation - S. Thompson*

TU-IePD-TRACK 5-02 Characteristics Evaluation of Contact Lens in Vivo Ocular Dosimeter for Proton Therapy - J. Son*, J. Han, J. Jeong, D. Shin, S. Jung, C. Choi, J. Park, J. Kim

TU-IePD-TRACK 5-03 Validation of a Commercial Treatment Planning System for Small-Field Patient-Specific Apertures in Pencil Beam Scanning Proton Therapy - J. Holmes*, J. Shen, J. Shan, W. Wong, R. Foote, S. Patel, M. Bues, W. Liu

TU-IePD-TRACK 5-04 Proton Modulation Technique but Not Acceleration Method Is Associated with Variations in Dose-Averaged Linear Energy Transfer - L. Wilson*, V. Moskvina, F. Pirlpesov, A. Faught

TU-IePD-TRACK 5-05 Investigate the Delivery Efficiency and Accuracy of Spot-Scanning Proton Arc (SPArc) in Comparison with Conventional IMPT, Automatic Step-And-Shoot Multifield IMPT - L. Zhao*, G. Liu, D. Yan, X. Li, X. Ding

TU-IePD-TRACK 5-06 Hausdorff Distance Between Plan and Delivery Logs for Daily Treatment Quality Assurance - Y. Hao*, B. Sun, A. Darafsheh, T. Mazur, W. Smith, T. Zhang, T. Zhao

TU-IePD-TRACK 5-07 A 3D Printed Phantom for Range Verification of Low-Energy Proton Fields - G. Roe*, J. Scholey, S. St. James

-TRACK 6

TU-IePD-TRACK 6 Therapy: Pre-Clinical

TU-IePD-TRACK 6-01 Imputation of Truncated Tumor Growth Data Via Bayesian Mixed Modelling - M. Bleile*, Y. Xing, C. Timmerman, D. Nguyen, B. Chen, D. Saha, R. Timmerman, M. Story, S. Jiang, D. Heitjan

TU-IePD-TRACK 6-02 Amplification of Reactive Oxygen Species Generation Under Gamma-Ray Irradiation for Gold Nanoparticle Mediated Radiation Therapy - N. Charchi*, K. Xie, P. Nath, A. Ray, E. Parsai, D. Shvydka

TU-IePD-TRACK 6-03 Monte Carlo Simulation of Enhanced Free Radical Generation Due to Presence of Gold Nanoparticle Under High Energy Photon Irradiation - K. Xie*, A. Ray, D. Shvydka

TU-IePD-TRACK 6-04 Development of a Treatment Planning System for Preclinical Small Animal Irradiation with Intensity-Modulated Radiation Delivery Capability - D. Kuksenkov*, Y. Lai, H. Liu, Y. Zhong, C. Shen, Y. Gonzalez, X. Jia

TU-IePD-TRACK 6-05 Hesperetin Enhances Radiotherapy of Human Lung Cancer Cells - A. Fam*, W. Ngwa, G. Makrigiorgos, S. Yasmin-Karim

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TU-IePD-TRACK 6-06 Monte Carlo Dose Calculations for Radiobiology Studies - C. Mahuvava*, N. Esplen, S. Kry, M. Bazalova-Carter

TU-IePD-TRACK 6-07 Radiotherapy Enhanced by Cherenkov Photo-Activation in a Novel Rat Brain Slice Model - R. Holden*, A. Lynnette Price, J. Park, D. Dunn, S. Floyd, M. Oldham

Break

3:00 pm - 3:30 pm

SAM Professional Symposium

3:30 pm - 4:30 pm

-TRACK 1

TU-E-TRACK 1 Overview of Equity, Diversity and Inclusion (EDI) Efforts in AAPM

Moderators: Laura Cervino, Memorial Sloan Kettering Cancer Center, New York, NY and Stephen Avery, University of Pennsylvania, Philadelphia, PA

3:30 pm **B. Gittens, University of Arkansas: What Is EDI and How Can It Benefit AAPM?**

3:55 pm **J. Pollard-Larkin, University of Texas MD Anderson Cancer Center: Overview of EDI Efforts in AAPM**

4:15 pm **Audience Q&A and Feedback**

SAM Imaging Educational Course

3:30 pm - 5:30 pm

-TRACK 2

TU-EF-TRACK 2 Breast Imaging 1: Current State of the Art

Moderator: Ingrid Reiser, University of Chicago, Chicago, IL

3:30 pm **R. Zuley, University of Pittsburgh Medical Center: Clinical Experience: Contrast Enhanced Mammography**

3:50 pm **R. Mann, Radboud University Nijmegen Medical Center: Novel Approaches to Screening for Breast Cancer**

4:10 pm **K. Little, Ohio State Univ: Contrast-Enhanced Mammography: Physics and QC Testing**

4:30 pm **C. Hruska, Mayo Clinic: Molecular Breast Imaging (MBI): Physics and QC Testing**

4:50 pm **T. Hall, University of WI-Madison/ADCL: Novel Ultrasound for Breast Imaging**

5:10 pm **Audience Q & A**

SAM Imaging Scientific Symposium

3:30 pm - 4:30 pm

-TRACK 3

TU-E-TRACK 3 Quantitative SPECT for Radionuclide and External Beam Treatment Planning

Moderator: Srinivas Cheenu Kappadath, UT MD Anderson Cancer Center, Houston, TX

3:30 pm **J. Dickson, University College London: Evolution of SPECT from Qualitative to Quantitative Imaging**

3:55 pm **S. Kappadath, UT MD Anderson Cancer Center: SPECT in Radionuclide and External Beam Treatment Planning**

4:20 pm **Q&A & Panel Discussion**

Science Council Session

3:30 pm - 5:30 pm

-TRACK 4

TU-EF-TRACK 4 Science Council Session: Innovative Technologies to Advance Diagnosis and Treatment

Moderators: Jan Seuntjens, McGill University, Montreal, QC and Zheng Feng Lu, University of Chicago, Chicago, IL

3:30 pm **TU-EF-TRACK 4-01 An Imaging Based Biological Framework for Personalizing Radiation Therapy of Lung Cancer Using Interpretable Bayesian Networks and NTCP-Based Treatment Planning** - A. Ajdari*, T. Bortfeld

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3:42 pm **TU-EF-TRACK 4-02 BEST IN PHYSICS (MULTI-DISCIPLINARY): Focused KV X-Rays for Radiotherapy and Imaging of Small Targets** - W. Liu*, N. Bennett, Y. Li, L. Shi, Z. Zhang, H. Yan, W. Sun, E. Graves, L. Xing, C. MacDonald, A. Wang

3:54 pm **TU-EF-TRACK 4-03 Biologically Guided Deep Learning for Post-Radiation PET Image Outcome Prediction: A Feasibility Study of Oropharyngeal Cancer Application** - C. Wang*, H. Ji, A. Bertozzi, D. Brizel, Y. Mowery, F. Yin, K. Lafata

4:06 pm **TU-EF-TRACK 4-04 Computing Dose to Circulating Blood Cells Using Whole-Body Blood Flow Simulations** - J. Shin*, S. Xing, A. Hammi, J. Pursley, C. Correa Alfonso, J. Withrow, S. Domal, W. Bolch, H. Paganetti, C. Grassberger

4:18 pm **TU-EF-TRACK 4-05 Deep Learning-Based Framework for the Assessment of Radiation Dermatitis in Nasopharyngeal Carcinoma (NPC) Patients** - R. Ni*, G. Ren, V. Tam, Z. Dai, X. Wang, S. Lee, J. Cai

4:30 pm **TU-EF-TRACK 4-06 Patient-Specific Deep Learning-Based Self-High-Resolution for MR Imaging** - Y. Lei*, J. Roper, E. Schreibmann, H. Mao, J. Bradley, T. Liu, X. Yang

4:42 pm **TU-EF-TRACK 4-07 Spatiotemporal Dose Characterization of An Electron FLASH Beam from a LINAC Using Radioluminescence and Cherenkov Imaging** - M. Rahman*, M. Ashraf, R. Zhang, D. Gladstone, X. Cao, B. Williams, J. Hoopes, B. Pogue, P. Bruza

4:54 pm **TU-EF-TRACK 4-08 Thermoacoustic Range Verification During Pencil Beam Delivery of a Clinical Plan to An Abdominal Imaging Phantom** - S. Patch*, C. Nguyen, M. Cohilis, K. Souris, J. Lambert, S. Ono, T. Lynch, G. Janssens, R. Labarbe

5:06 pm **TU-EF-TRACK 4-09 Thoracic 4D Cone-Beam CT Registration Incorporating a Fan-Beam CT-Derived Feasible Motion Descriptor** - Y. Sang*, D. Ruan

5:18 pm **TU-EF-TRACK 4-10 Toward Magnetic Resonance Fingerprinting for Low-Field MR-Guided Radiation Therapy** - N. Mickevicius*, Z. Morris, C. Glide-Hurst

Therapy Scientific Session

3:30 pm - 4:30 pm

-TRACK 5

TU-E-TRACK 5 FLASH: Radiobiology

Moderators: Pierre Montay-gruel, UC Irvine Health, Irvine, CA and Jan Schuemann, Physics Division, Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, USA, Boston, MA

3:30 pm **TU-E-TRACK 5-01 Abdominal Flash Proton Irradiation Does Not Benefit the Intestine** - Q. ZHANG*, E. Cascio, Q. Yang, L. Gerweck, P. Huang, A. McNamara, W. Sung, J. Schuemann

3:37 pm **TU-E-TRACK 5-02 Analysis of Proton Inter-Track Interactions at Ultra-High Dose Rates** - S. Thompson*, K. Prise, S. McMahon

3:44 pm **TU-E-TRACK 5-03 BEST IN PHYSICS (THERAPY): FLASH Sparing of Normal Tissue in a Proton Spread Out Bragg Peak** - M. Kim*, I. Verginadis, A. Haertter, D. Goia, K. Shoniyozov, J. Zou, C. Koumenis, J. Metz, K. Cengel, L. Dong, E. Diffenderfer

3:51 pm **TU-E-TRACK 5-04 Measuring Oxygen Concentration at Ultra-Fast Rates During Proton FLASH Delivery Using Phosphorescence Quenching of Soluble Oxyphor Probes** - A. Van Slyke*, M. El Khatib, K. Shoniyozov, E. Diffenderfer, M. Kim, C. Koch, S. Vinogradov, R. Wiersma

3:58 pm **TU-E-TRACK 5-05 Modeling of Cellular Response After FLASH Irradiation: A Quantitative Analysis Based on the Radiolytic Oxygen Depletion Hypothesis** - H. Zhu*, J. Li, X. Deng, R. Qiu, Z. Wu, H. Zhang

4:05 pm **TU-E-TRACK 5-06 TOPAS-NBio Simulation of Radiation Chemistry Following FLASH Irradiation Including Reactions of Biological Importance** - M. Grochowska*, A. Rucinski, R. Schulte, J. Ramos-Mendez

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4:12 pm **TU-E-TRACK 5-07 Modeling Radiation-Induced Oxygen Depletion and Its Effects on Normal Tissue Complications in FLASH-RT** - S. Cui*, G. Pratz

Multi-Disciplinary Scientific Session

3:30 pm - 4:30 pm

-TRACK 6

TU-E-TRACK 6 AI-Based Auto-Segmentation and Auto-Contouring - I

Moderators: Lei Ren, University of Maryland, Baltimore, MD and Harini Veeraraghavan, Memorial Sloan Kettering Cancer Center, New York, NY

- 3:30 pm **TU-E-TRACK 6-01 Automatic Segmentation of High-Risk CTV for Tandem and Ovoid Brachytherapy Patients Using a Dual-Path Convolutional Neural Network** - Y. Cao*, A. Vassantachart, O. Ragab, J. Cui, A. Zhuang, Z. Shen, S. Balik, M. Gribble, E. Chang, W. Yang
- 3:37 pm **TU-E-TRACK 6-02 Cardiac Substructure Segmentation Using a Mask-Scoring Attention Convolutional Neural Network** - J. Harms*, Y. Lei, S. Tian, N. McCall, K. Higgins, J. Bradley, T. Liu, X. Yang
- 3:44 pm **TU-E-TRACK 6-03 GAN-Driven Anomaly Detection for Active Learning in Medical Imaging Segmentation** - M. Woodland*, A. Patel, B. Anderson, E. Lin, E. Koay, B. Odisio, K. Brock
- 3:51 pm **TU-E-TRACK 6-04 Multi-Organ Auto-Segmentation of Abdominal Structures from Contrast-Enhanced and Non-Contrast-Enhanced CT Images** - C. Yu*, C. Anakwenze, Y. Zhao, R. Martin, J. Niedzielski, E. Ludmir, J. Yang, L. Court, C. Cardenas
- 3:58 pm **TU-E-TRACK 6-05 Rapid Organ-At-Risk Delineation in Pancreatic CBCT for CBCT-Guided Adaptive Radiotherapy** - X. Dai*, Y. Lei, J. Janopaul-naylor, J. Wynne, T. Wang, J. Zhou, J. Roper, J. Bradley, P. Patel, T. Liu, X. Yang
- 4:05 pm **TU-E-TRACK 6-06 Simultaneous Segmentation of Target and Organ at Risk in Thoracic Kilovoltage Images** - M. Mueller*, A. Mylonas, P. Keall, J. Booth, D. Nguyen
- 4:12 pm **TU-E-TRACK 6-07 Towards Artificial Intelligence and Clinician Integrated Systems (AICIS): Interactive Contour Revision with Deep Boundary Net** - T. Bai*, A. Balagopal, M. Dohopolski, H. Morgan, R. McBeth, J. Tan, D. Nguyen, S. Jiang

SAM Therapy Scientific Symposium

3:30 pm - 5:30 pm

-TRACK 7

TU-EF-TRACK 7 Joint AAPM-EFOMP Symposium: Non-conventional Treatment in Radiation Therapy

Moderator: Yolanda Prezado, Institut Curie, Paris, FR

- 3:30 pm **R. Timmerman, The University of Texas Southwestern Medical Ctr: PULSAR: The Adaptation of SABR Toward Personalized Medicine**
- 3:55 pm **Y. Prezado, Institut Curie: Overview of Spatially Fractionated Radiation Therapy: from Photons to Charged Particles**
- 4:20 pm **S. Chang, University of North Carolina, School of Medicine: Understanding the Correlation Between Dosimetric Parameters and Treatment Responses for Spatially Fractionated Radiation Therapy**
- 4:45 pm **K. Sheng, UCLA School of Medicine: Radiotherapy Beyond 4pi**
- 5:10 pm **Q&A**

SAM Partners in Solutions Therapy

3:30 pm - 5:30 pm

-TRACK 8

TU-EF-TRACK 8 Therapy: Adaptive Therapy AI Software Delivery Systems

Tuesday, July 27, 2021

Moderators: Leigh Conroy, Princess Margaret Cancer Centre, Toronto, ON and Deborah Schofield, AdventHealth Orlando, Orlando, FL

- 3:30 pm **L. Conroy, Princess Margaret Cancer Centre: Adaptive Therapy AI Software Delivery Systems**
- 4:00 pm **A. Yock, Vanderbilt University Medical Center: Ethos™ Therapy, An Adaptive Intelligence™ Solution**
- 4:25 pm **D. Casey, Accuray Inc.: Real-Time Delivery Adaptation with Synchrony®, and Adaptive Therapy with Automated Dose Trending on the Radixact® System**
- 4:50 pm **D. Ly, Elekta, Inc.: Adaptive Planning with Monaco TPS for Unity**
- 5:15 pm **Q&A**

Professional Symposium

4:30 pm - 5:30 pm

-TRACK 1

TU-F-TRACK 1 New Member Symposium

Moderators: Kathryn Mittauer, Miami Cancer Institute, Baptist Health South Florida, Miami, FL and Shelby Grzetic, Advocate Christ Medical Center, Oak Lawn, IL

- 4:30 pm **Introduction**
- 4:35 pm **J. Dobbins, Duke University Medical Center: President's Remarks: Volunteer History of AAPM / How You Can Become Involved**
- 4:43 pm **F. Fahey, Children's Hospital: Administrative Council**
- 4:51 pm **J. Prisciandaro, University of Michigan: Education Council**
- 4:59 pm **J. Palta, Virginia Commonwealth University: International Council**
- 5:07 pm **B. Parker, The University of Texas M.D. Anderson Cancer Center: Professional Council**
- 5:15 pm **J. Seuntjens, McGill University: Science Council**
- 5:23 pm **Moderated Panel Discussion / Drawing for Attendees**

Imaging Scientific Session

4:30 pm - 5:30 pm

-TRACK 3

TU-F-TRACK 3 New Technologies and Image Reconstruction in CT and CBCT

Moderators: Joseph Stayman, Johns Hopkins University, Baltimore, MD and Ashley Tao, Gunderson Health System, La Crosse, WI

- 4:30 pm **TU-F-TRACK 3-01 Estimating Ischemic Core Volume with Four Dynamic Images in CT Perfusion** - K. Chung*, D. Lee, S. Pandey, J. Mandzia, A. Khaw, T. Lee
- 4:37 pm **TU-F-TRACK 3-02 JACK FOWLER EARLY-CAREER INVESTIGATOR COMPETITION WINNER: Imaging from the Cervical to the Lumbar Spine with a Continuous Multi-Turn Reverse Helical 3D Cone-Beam CT Scan** - T. Reynolds*, Y. Ma, G. Gang, O. Dillon, T. Russ, W. Wang, T. Ehtiati, C. Weiss, N. Theodore, J. Siewerdsen, R. O'Brien, J. Stayman
- 4:44 pm **TU-F-TRACK 3-03 Intraoperative Cone-Beam CT Image Quality and Dose with a Slot Collimator On the O-Arm** - X. Zhang*, P. Wu, Y. Huang, A. Uneri, C. Jones, P. Helm, S. Lo, W. Zbijewski, J. Siewerdsen
- 4:51 pm **TU-F-TRACK 3-04 Ordered Subsets PWLS Reconstruction of Multi-Layer Detector MV-CBCT Data Using TIGRE** - M. Jacobson*, M. Lehmann, P. Huber, M. Myronakis, T. Harris, I. Valencia Lozano, R. Fueglistaller, C. Williams, D. Morf, R. Berbeco
- 4:58 pm **TU-F-TRACK 3-05 Reconstructing Dual KV Data Using the COSSCIR "One-Step" Direct Inversion Algorithm** - B. Rizzo*, E. Sidky, T. Schmidt
- 5:05 pm **TU-F-TRACK 3-06 Weight-Bearing C-Arm Cone-Beam CT Using a Dynamic Range Reducer (DyRaR): Initial Prototype and Phantom Studies** - N. Bennett*, H. Zhang, K. Mueller, R. Fahrig, A. Maier, M. Levenston, G. Gold, A. Wang

Tuesday, July 27, 2021

- 5:12 pm TU-F-TRACK 3-07 Simultaneous Analytical Image Reconstruction and Material Decomposition Denoising in Single-Scan Dual-Energy Cone-Beam CT Using Dual Energy Vectorization and Joint Bilateral Filtering - X. Jiang*, C. Fang, H. Cui, L. Zhu, Y. Yang

Therapy Scientific Session

4:30 pm - 5:30 pm

-TRACK 5

TU-F-TRACK 5 FLASH: Treatment Planning, Delivery, and Verification

Moderators: Eric Diffenderfer, University of Pennsylvania, Philadelphia, PA and Sina Mossahebi, University of Maryland Medical School, Baltimore, MD

- 4:30 pm TU-F-TRACK 5-01 Simulating Spatial-Temporal Dose Rate Deposition on Tissue Sparing for Scanned Pencil-Beam Vs Double-Scattered Protons - R. Yang*, E. Diffenderfer
- 4:37 pm TU-F-TRACK 5-02 Feasibility of 3D Printed Ridge Filter to Enable SBRT FLASH Therapy Using Scanning Proton Beam - R. Liu*, S. Charyyev, J. Zhou, X. Yang, T. Liu, M. McDonald, K. Higgins, J. Bradley, L. Lin
- 4:44 pm TU-F-TRACK 5-03 Need for Beam Collimation Design for Dose-Rate Fall-Off in Proton Flash Treatment Using Pencil Beam Scanning - E. Bentefour*, A. Sawant, S. Mossahebi
- 4:51 pm TU-F-TRACK 5-04 Prompt Gamma Timing as a Real-Time Relative Dose Rate Monitor of FLASH Proton Delivery - A. Haertter*, M. Kim, J. Zou, K. Shoniyozov, S. Avery, B. Teo, J. Metz, K. Cengel, L. Dong, E. Diffenderfer
- 4:58 pm TU-F-TRACK 5-05 Pulse Resolved Beam Characterization and Feedback for FLASH-RT Using Radioluminescent Dosimeters - M. Ashraf*, M. Rahman, R. Zhang, B. Williams, J. Hoopes, D. Gladstone, B. Pogue, P. Bruza
- 5:05 pm TU-F-TRACK 5-06 Absolute Dosimetry of Ultra-High Dose Rate Pulsed Electron Beams Using a Graphite Probe Calorimeter - F. Keszi*, A. Bourgouin, A. Schueller, W. Simon, A. Schoenfeld, J. Seuntjens, J. Renaud
- 5:12 pm TU-F-TRACK 5-07 A Pyroelectric Calorimeter with Electrometer Readout for the Absolute Dosimetry of FLASH Radiation: Proof of Principle - J. Renaud*, B. Muir

Multi-Disciplinary Scientific Session

4:30 pm - 5:30 pm

-TRACK 6

TU-F-TRACK 6 AI-Based Auto-Segmentation and Auto-Contouring - II

Moderators: Kristy Brock, UT MD Anderson Cancer Center, Houston, TX and Dan Ruan, UCLA School of Medicine, Los Angeles, CA

- 4:30 pm TU-F-TRACK 6-01 3D Dense U-Net for Fully Automated Multi-Organ Segmentation in Female Pelvic Magnetic Resonance Imaging - F. Zabihollahy*, E. Schmidt, A. Viswanathan, J. Lee
- 4:37 pm TU-F-TRACK 6-02 Automatic Segmentation and Physician Review of Intact and Post-Operative Prostate Radiotherapy Contours - M. El Basha*, D. Fuentes, J. Pollard-Larkin, F. Poenisch, Z. Yu, S. Frank, C. Tang, A. Aggarwal, L. Court, C. Cardenas
- 4:44 pm TU-F-TRACK 6-03 Autosegmentation Anomaly Detection by Clustering of Shapes - D. Sawkey*
- 4:51 pm TU-F-TRACK 6-04 Auto-Segmentation of Organs-At-Risk in Head and Neck CT Images with Dual Shape Guided Network - S. Wang*, T. Yanagihara, B. Chera, C. Shen, P. Yap, J. Lian
- 4:58 pm TU-F-TRACK 6-05 Improving Cone-Beam CT Based Organ Segmentation with Attention and Knowledge Transfer - H. Zhou*, Y. Min, A. Kishan, S. Yoon, M. Cao, D. Ruan

Tuesday, July 27, 2021

- 5:05 pm TU-F-TRACK 6-06 Measuring the Clinical Impact of the Introduction of a Novel Auto-Contouring Workflow for 0.35T MRI-Guided Pelvic Radiotherapy - Y. Abdulkadir*, D. Luximon, E. Morris, P. Chow, J. Lamb
- 5:12 pm TU-F-TRACK 6-07 Weaving Attention U-Net for Head and Neck Multi-Organ CT Segmentation - Z. Zhang*, T. Zhao, H. Gay, W. Zhang, B. Sun

Awards Ceremony

6:00 pm - 8:00 pm

Wednesday, July 28, 2021

SAM Professional Symposium

10:30 am - 11:30 am

-TRACK 1

WE-A-TRACK 1 Building and Mentoring Diverse Teams to Achieve Equity, Diversity, Inclusion and Greater Success

Moderators: Jeremy Hoisak, UC San Diego, Chula Vista, CA and Ghada Aldosary, Carleton University, Ottawa, ON

- 10:30 am Introduction
- 10:35 am T. Juang, UC San Diego: Strategies for Equity, Diversity, and Inclusion in the Medical Physics Residency Recruitment Process
- 10:50 am A. Johnson, Kaiser Permanente: Strategies for Mentoring and Retaining Underrepresented Minorities in Medical Physics Practice Environments
- 11:05 am M. Siker, Medical College of Wisconsin: Representation Matters: Our Responsibility in Cultivating Inclusion and Belonging in Radiation Oncology
- 11:20 am Panel Discussion and Audience Q&A

SAM Imaging Educational Course

10:30 am - 12:30 pm

-TRACK 2

WE-AB-TRACK 2 Principles and Applications of Multienergy CT: Report of AAPM Task Group 291 Moderator: Cynthia McCollough, Mayo Clinic, Rochester, MN

- 10:30 am C. McCollough, Mayo Clinic: Introduction & Clinical Motivation
- 10:45 am T. Flohr, Siemens Healthcare GmbH: Physical Principles of Multi-Energy CT
- 11:20 am X. Duan, UT Southwestern Medical Center: Technical Implementations of Multi-Energy CT
- 11:55 am C. McCollough, Mayo Clinic: Clinical Applications & Dosimetric Considerations

SAM Imaging Scientific Symposium

10:30 am - 12:30 pm

-TRACK 3

WE-AB-TRACK 3 Robotic X-ray Systems: Emerging Platform for Improved Radiography, 3D Imaging, and Interventional Radiology

Moderator: Tess Reynolds, University of Sydney, Eveleigh, AU

- 10:30 am T. Reynolds, University of Sydney: Adaptive Imaging - Syncing with Patients for Safer and Smarter 3D Imaging
- 11:00 am G. Gang, Johns Hopkins University: Task Driven/Metal Artefact Reduction Orbits
- 11:30 am F. Noo, University of Utah: Beyond the Conventional Circular Trajectory in Cone-Beam CT Imaging
- 12:00 pm L. Ritschl, Siemens Healthineers: Advanced Imaging using Multitom Rax

Wednesday, July 28, 2021**SAM Multi-Disciplinary Scientific Symposium**

10:30 am - 12:30 pm

-TRACK 4

WE-AB-TRACK 4 AI in Image Guided Radiation Therapy

Moderator: Xiaofeng Yang, Emory University, Atlanta, GA

10:30 am **G. Chen, University of Wisconsin: Deep Learning in CT Image Reconstruction**11:00 am **L. Ren, University of Maryland: AI Based Image Augmentation: Advances and Clinical Implications**11:30 am **X. Yang, Emory University: Deep Learning in Image Registration**12:00 pm **D. Nguyen, University of Technology Sydney: AI for Intrafraction Motion Monitoring: Are We There Yet?****Multi-Disciplinary Scientific Symposium**

10:30 am - 11:30 am

-TRACK 5

WE-A-TRACK 5 Grand Challenges: Deep Learning Sparse-View CT and DBTex

Moderator: Samuel Armato, The University of Chicago, Chicago, IL

10:30 am **X. Pan, University of Chicago: DL-Sparse-View CT Challenge****E. Sidky, University of Chicago: DL-Sparse-View CT Challenge**10:40 am **DL-Sparse-View CT Challenge, Group 1**10:50 am **DL-Sparse-View CT Challenge, Group 2**11:00 am **M. Mazurowski, Duke Univ: DBTex Challenge**11:10 am **DBTex Challenge, Group 1**11:20 am **DBTex Challenge, Group 2****Therapy Scientific Session**

10:30 am - 11:30 am

-TRACK 6

WE-A-TRACK 6 Particle Therapy: Treatment Planning and Radiobiology

Moderators: Stella Flampouri, Emory University, Atlanta, GA and John Eley, Vanderbilt University School of Medicine, Nashville, TN

10:30 am **WE-A-TRACK 6-01 Analytical Modeling of the Dynamic Collimation System Using Dual Trimmer Planes -****L. Bennett*, D. Hyer, K. Erhart, N. Nelson, P. Hill, K. Patwardhan, T. Geoghegan, B. Smith, R. Flynn**10:37 am **WE-A-TRACK 6-02 Dose-Averaged LET in Proton Therapy for Patients with MRI Abnormalities and Its Role in Normal Tissue Complication Probability - A. Bertolet*, R. Abolfath, D. Carlson, R. Lustig, C. Hill-Kayser, M. Alonso-Basanta, A. Carabe-fernandez**10:44 am **WE-A-TRACK 6-03 Robust Optimization of Proton Therapy Treatments Using a Variable Range Uncertainty - M. Cohilis*, E. Sterpin, C. Chang, S. Rivas, L. Lin, J. Lee, K. Souris**10:51 am **WE-A-TRACK 6-04 The Effect of Treatment Planning Approach on Head-And-Neck IMPT for Patients with Implanted Dental Fixtures - Y. Hu*, O. Muller, R. Foote, D. Mundy**10:58 am **WE-A-TRACK 6-05 The Relative Variability in Radiosensitivity Between Cell Lines Is the Same for Carbon Ions, Protons and X-Rays - D. Flint*, S. Bright, B. Turner, M. Manandhar, M. Ben Kacem, D. Martinus, S. Shaitelman, G. Sawakuchi**11:05 am **WE-A-TRACK 6-06 A Beamlet-Based Optimization Algorithm for Arc Proton Therapy Planning - S. Wuyckens*, G. Janssens, E. Sterpin, J. Lee, K. Souris**11:12 am **WE-A-TRACK 6-07 The Combined Effects of Protons and An Inhibitor of ATR Increase Micronuclei Formation and Potentiate Anti-Tumor Immunity - B. Turner*, S. Bright, D. Flint, G. Sawakuchi, S. Shaitelman, M. Manandhar, M. Ben Kacem, D. Martinus****Wednesday, July 28, 2021****Ultrasound Symposium**

10:30 am - 11:30 am

-TRACK 7

WE-A-TRACK 7 Ultrasound QA/QC Workshop

Moderator: Zheng Feng Lu, University of Chicago, Chicago, IL

10:30 am **Z. Long, Mayo Clinic: ACR Required QC Tests**10:40 am **M. Holland, Indiana University- School of Medicine: Automated Whole-Breast US QC**10:50 am **J. Zagzebski, University of Wisconsin: Doppler QC**11:00 am **I. Rosado-Mendez, University of Wisconsin-Madison: Quantitative Ultrasound and Shear Wave Elastography Evaluation**11:10 am **S. Dekker, Cablon Medical: Automated Ultrasound QC Methods**11:20 am **Q&A****Vendor Showcase**

10:30 am - 11:00 am

-TRACK 8

WE-SHOWCASE-TRACK 8 Sun Nuclear10:30 am **WE-SHOWCASE-TRACK 8-11-01 What's New from Sun Nuclear - J. Tracy*****SAM Professional Symposium**

11:30 am - 12:30 pm

-TRACK 1

WE-B-TRACK 1 MPLA Career Development: Secrets to Your Success

Moderators: Jatinder Saini, SCCA Proton Therapy Center, Seattle, WA and Paige Taylor, UT MD Anderson Cancer Center, Houston, TX

11:30 am **I. Barreto, University of Florida College of Medicine: Your Technical Skills Won't Get You There: Identifying Vital Skills to Thrive in Your Career**11:40 am **J. Johnson, Kelsey-Seybold Clinic: Leaders Making #Goals Happen: Taking Your Discovery Journey**11:50 am **A. Schreuder, Leo Cancer Care: Leadership Lessons: Key Factors Affecting Your Career Advancement (Panel Discussion)**11:57 am **K. Kanal, University of Washington: Leadership Lessons: Key Factors Affecting Your Career Advancement (Panel Discussion)**12:04 pm **M. Howard, Parkridge Medical Ctr: Leadership Lessons: Key Factors Affecting Your Career Advancement (Panel Discussion)**12:11 pm **E. Angel, Canon Medical Systems, USA: Leadership Lessons: Key Factors Affecting Your Career Advancement (Panel Discussion)**12:18 pm **Audience Q&A****SAM Therapy Educational Course**

11:30 am - 12:30 pm

-TRACK 5

WE-B-TRACK 5 TG-302 Surface Image Guided Radiotherapy (SGRT): Prevalence and Clinical Applications

Moderator: Hania Al-Hallaq, The University of Chicago, Chicago, IL

11:30 am **H. Al-Hallaq, The University of Chicago: SGRT for Breast Radiotherapy Including DIBH Techniques**11:45 am **T. Pawlicki, UC San Diego: SGRT-Based Cranial SRS and Risk Mitigation Strategies**12:00 pm **L. Padilla, Virginia Commonwealth University: Current Prevalence and Uses of SGRT in the US and Future Applications**12:15 pm **L. Cervino, Memorial Sloan Kettering Cancer Center: Considerations for Commissioning and QA of SGRT Systems**

Wednesday, July 28, 2021

Therapy Scientific Session

11:30 am - 12:30 pm

-TRACK 6

WE-B-TRACK 6 Particle Therapy: Treatment Delivery and Verification

Moderators: Harald Paganetti, Physics Division, Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School, Boston, MA and Mingyao Zhu, Emory University School of Medicine, Emory Proton Therapy Center, Atlanta, GA

- 11:30 am **WE-B-TRACK 6-01 Electrostatic Focusing Lens System for Low MeV-Ion Microprobe: A Simulation and Optimization Study** - H. Arya*, V. Chirayath, Y. Chi
- 11:37 am **WE-B-TRACK 6-02 The Potential of Online-Adaptive Head and Neck Proton Therapy to Reduce Normal Tissue Complication Probability** - A. Lalonde*, M. Bobic, B. Winey, J. Verburg, G. Sharp, H. Paganetti
- 11:44 am **WE-B-TRACK 6-03 Design and Initial Testing of An Isocenter Alignment Prototype for the Proton Dynamic Collimation System** - T. Geoghegan*, K. Patwardhan, B. Smith, R. Flynn, J. Yu, A. Gutierrez, D. Hyer
- 11:51 am **WE-B-TRACK 6-04 Fast MCsquare-Based Independent Dose Verification Platform for Pencil Beam Scanning Proton Therapy** - Y. Zhang*, C. Liu, M. Ho, J. Park, W. Hsi, X. Liang, Z. Li, y. song, H. Feng
- 11:58 am **WE-B-TRACK 6-05 BEST IN PHYSICS (THERAPY): New System for Fast and Independent Proton Beam Energy Measurement** - F. Milian*, O. Villarreal, M. Abujami, R. Cirio, C. Galeone, S. Giordanengo, N. Minafra, V. Monaco, E. Verro, A. Vignati, R. Sacchi
- 12:05 pm **WE-B-TRACK 6-06 Simultaneous Proton Dose and LET Measurements Using Dual Storage Phosphors** - J. Setianegara*, T. Mazur, D. Yang, H. Li
- 12:12 pm **WE-B-TRACK 6-07 Development of An Imaging System for Proton Pencil Beam Spot Profile Determination** - J. Setianegara*, T. Mazur, Y. Hao, D. Yang, H. Li

Ultrasound Symposium

11:30 am - 12:30 pm

-TRACK 7

WE-B-TRACK 7 Ultrasound Image Guidance for Interventions

Moderator:

- 11:30 am **E. Harris, Institute of Cancer Research and Royal Marsden Hospital: Frustrations in Ultrasound Guided Radiotherapy: Automated Solutions**
- 11:47 am **S. Camps, EBAMed: Ultrasound-Guided Cardiac Radio-Ablation**
- 12:04 pm **M. Antico, Queensland University of Technology: Platform for Ultrasound-Guided Autonomous Minimally Invasive Surgery: Application to the Knee**
- 12:21 pm **Q&A**

Vendor Showcase

11:30 am - 12:00 pm

-TRACK 8

WE-SHOWCASE-TRACK 8 MIM Software, Inc.

- 11:30 am **WE-SHOWCASE-TRACK 8-12-01 Overcoming Peer Review Challenges with MIM Harmony** - K. Ostergren*

Imaging Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 1

WE-IePD-TRACK 1 Imaging: CBCT Acquisition and Reconstruction

WE-IePD-TRACK 1-01 An X-Ray Fluence Modulation Apparatus for Cone-Beam CT - P. Ghazi*, S. Youssefian, T. Ghazi

Wednesday, July 28, 2021

WE-IePD-TRACK 1-02 The Evaluation of the Impact of Rotational Corrections on Translational Setup Errors - m. fu*, Z. Cui, Y. Zhang, Y. Wang, W. Qiu, J. Zhu

WE-IePD-TRACK 1-03 Online Bayesian Geometric Calibration of CBCT Systems - O. Dillon*, T. Reynolds, R. O'Brien

WE-IePD-TRACK 1-04 Dictionary-Learning Iterative Reconstruction for Sparse Data, Slot-Scanning, Breast CT - C. Zhao*, W. Wang, A. Leong, S. Bambot, J. Stayman

WE-IePD-TRACK 1-05 Towards Megavoltage Cone Beam CT (CBCT) with Image Quality of Kilovoltage CBCT - J. O'Connell*, C. Lindsay, M. Bazalova-Carter

WE-IePD-TRACK 1-06 Evaluation of U-Net++ On Low Dose CT Enhancement - B. Pan*, L. Ren

WE-IePD-TRACK 1-07 A Geometry-Guided Deep Learning Technique for CBCT Reconstruction - K. Lu*, L. Ren, F. Yin

-TRACK 2

WE-IePD-TRACK 2 Imaging: Nuclear Medicine, PET

WE-IePD-TRACK 2-01 Patient-Specific Estimates of Absorbed and Effective Dose in Pediatric 18FDG PET/CT Imaging Studies - R. Nosrati*, C. Kofler, B. Sexton-stallone, R. MacDougall, W. Bolch, F. Fahey

WE-IePD-TRACK 2-02 Learning Feature Fusion for Multi-Modality PET-CT Segmentation with An Interpretation Method - Z. Chen, W. Lu, X. Qi, S. Tan*

WE-IePD-TRACK 2-03 Independent Verification of a Ge-68/Ga-68 Well Counter Accuracy Source Activity Mis-Calibration - W. Erwin*, D. Mitchell

WE-IePD-TRACK 2-04 Monte Carlo Study on PET Imaging Used as An Image-Guidance Tool in Very High-Energy Electron Therapy - A. Bonfrate*, R. Jones

WE-IePD-TRACK 2-05 Predicting Breast Cancer Hormone Receptor Status with PET/MR Images Using Dual-Input Deep Convolutional Neural Network (DCNN) - S. Choi*, H. Cho, C. Lee, E. Kong

WE-IePD-TRACK 2-06 Predicting Breast Cancer Hormone Receptor Status with PET/MR Images Using Dual-Input Deep Convolutional Neural Network (DCNN) - S. Choi*, H. Cho, C. Lee, E. Kong

Multi-Disciplinary Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 3

WE-IePD-TRACK 3 Multi-Disciplinary: Biologically and Functionally-Guided Radiation Therapy

WE-IePD-TRACK 3-01 Change in ADC as An Indicator of Radionecrosis - M. Gwilliam*, T. Muniz, J. Xie, B. Driscoll, M. Butler, D. Shultz, C. Coolens

WE-IePD-TRACK 3-02 Characterization of Lobe-Wise Ventilation and Elasticity in Patients with Chronic Obstructive Pulmonary Disease - M. Lauria*, B. Stiehl, L. Naumann, A. Santhanam, D. O'Connell, K. Singhrao, J. Goldin, I. Barjaktarevic, D. Low

WE-IePD-TRACK 3-03 Machine Learning Based Prediction of Big Inter-Fractional Changes in Lung Tumor Motion During Radiotherapy Course Using Robust Feature Selection - Q. Wang*, L. Dong, B. Teo, H. Lin, S. O'Reilly

WE-IePD-TRACK 3-04 Powering Predictive Treatment Planning by a Seq2seq Deep Learning Predictor - D. Lee*, Y. Hu, L. KUO, S. Alam, E. Yorke, A. Rimner, P. Zhang

WE-IePD-TRACK 3-05 Positron Emission Tomography (PET) Characterization for Biology-Guided Radiotherapy (BgRT) - Z. Hu*, M. Narayanan, V. Ferri, A. Iagaru, N. Kovalchuk, B. Han, L. Xing, L. Vitzthum, P. Olcott, M. Bieniosek, T. Laurence, S. Shirvani, D. Chang, M. Surucu

WE-IePD-TRACK 3-06 Comparison of 3D Deep Convolutional Neural Networks and Training Strategies for Ventilated Lung Segmentation Using Multi-Nuclear Hyperpolarized Gas MRI - J. Astley*, A. Biancardi, P. Hughes, L. Smith, H. Marshall, J. Eaden, N. Weatherley, G. Collier, J. Wild, B. Tahir

WE-IePD-TRACK 3-07 First Beam QA and Commissioning Report of a Novel Biology-Guided Radiotherapy (BgRT) System - B. Han*, N. Kovalchuk, D. Capaldi, E. Simiele, A. Purwar, J. White, D. Zaks, L. Vitzthum, D. Chang, L. Xing, M. Surucu

Wednesday, July 28, 2021

-TRACK 4

WE-IePD-TRACK 4 Multi-Disciplinary: Imaging for Particle Therapy

WE-IePD-TRACK 4-01 IGRT-Based On-Line Dose Estimation in Proton Therapy - S. Flampouri*, W. LePain, M. McDonald

WE-IePD-TRACK 4-02 A Scatter-Rejection Method for Proton Computed Tomography - J. Hourti*, A. Kapadia

WE-IePD-TRACK 4-03 Improving the Performance of a Proton Computed Tomography Scanner with An Empirical Artifact

Correction Method - J. Dickmann, C. Sarosiek, S. Götz, M. Pankuch, G. Coutrakon, R. Johnson, R. Schulte, K. Parodi, G. Landry, G. Dedes*

WE-IePD-TRACK 4-04 Assessment of Clinical to High Energy Proton Radiography Viability Using TOPAS - B. Broder*, M. Freeman

WE-IePD-TRACK 4-05 Histogram Analysis Method of Water Equivalent Path Length to Evaluate Dose Variation Due to Anatomical Change in Spot-Scanning Proton Beam Therapy - T. Fujii*, S. Takao, T. Matsuura, S. Hirayama, N. Miyamoto, K. Umegaki, S. Shimizu, H. Shirato

WE-IePD-TRACK 4-06 A Novel Reconstruction Method for 3D Cone Beam CT Images in Proton Therapy Using RTK - J. Lindsay*, A. Bryce-atkinson, M. Taylor, S. Meara, M. Aznar, M. van Herk

WE-IePD-TRACK 4-07 Performance of Dose Restoration in Head and Neck Cancer for Adaptive IMPT - E. Borderias Villarroel*, V. Taasti, W. Van Elmpt, X. Geets, E. Sterpin

Therapy Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 5

WE-IePD-TRACK 5 Therapy: Particle Therapy: Biological Effect and Modeling

WE-IePD-TRACK 5-01 Modelling Toxicity Risk and Uncertainty in Breast Radiotherapy with Bayesian Networks - P. Ciunkiewicz*, M. Roumeliotis, K. Stenhouse, P. Mcgeachy, P. Grendarova, S. Quirk, S. Yanushkevich

WE-IePD-TRACK 5-02 Multi-Domain Statistical Modeling of Treatment Tolerance in Patients with Gastric and Esophageal Adenocarcinoma - A. Toronka*, M. Defreitas, B. Konkel, M. Nedrud, I. Zaki, A. Valentine, S. Cubberley, F. Yin, M. Bashir, K. Lafata

WE-IePD-TRACK 5-03 Influence of Sub-Lethal Damage Repair on Biological Effectiveness of Proton with the Consideration of Dose Delivery Time Structure in Scanning Proton Therapy - K. Kasamatsu*, H. Hosoi, S. Tanaka, K. Miyazaki, S. Takao, N. Miyamoto, K. Umegaki, T. Hashimoto, K. Nishioka, S. Shimizu, T. Matsuura

WE-IePD-TRACK 5-04 A Mechanistic Model for the Calculation of Oxygen Dependent DNA Damage After Radiation Exposure - H. Zhu*, J. Li, X. Deng, R. Qiu, Z. Wu, H. Zhang

WE-IePD-TRACK 5-05 Contribution of Nuclear Fragmentation to Dose and Relative Biological Effectiveness (RBE) Across Common RBE Models in Carbon Radiotherapy - S. Hartzell*, F. Guan, P. Taylor, C. Peterson, R. Howell, S. Kry

WE-IePD-TRACK 5-06 Robust Alternating RBE- and LET-Weighted Beam Orientation and Fluence Map Optimization for Intensity Modulated Proton Therapy - P. Ramesh*, Q. Lyu, W. Gu, D. Ruan, K. Sheng

WE-IePD-TRACK 5-07 Improving the Uniqueness of Numerically Extracted Proton Pencil-Beam Energy Spectrum from Integral Depth Dose - W. Yao*

-TRACK 6

WE-IePD-TRACK 6 Therapy: Quality assurance

WE-IePD-TRACK 6-01 Design and Testing of a Novel Phantom for Camera Calibration of Skin Tones with SGRT - V. Bry*, N. Bice, N. Kirby, D. Saenz, N. Papanikolaou, K. Rasmussen

WE-IePD-TRACK 6-02 EPID-Based Detection of Anatomical Changes During Radiotherapy Treatment for Head-And-Neck and Prostate Cancer Patients - N. Dang*, V. Leandro Alves, M. Ahmed, J. Siebers

WE-IePD-TRACK 6-03 Modeling the Geometric Relationship Between Targets and OARs for Patient-Specific Plan Quality Evaluation in Head and Neck Radiotherapy - E. Aliotta*, C. Della-Biancia, K. Ohri, M. Aristophanous

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WE-IePD-TRACK 6-04 An Uncollided Energy Fluence Convolution Method for EPID Image Prediction - N. Dang*, A. Harju, A. Maslowski, J. Siebers

WE-IePD-TRACK 6-05 An Automatic, Uncertainty Model-Guided, Target-Generating Algorithm Improves Target Volumes in Lung SBRT - A. Yock*, A. Knutson, E. Osmundson

WE-IePD-TRACK 6-06 Miniaturized Scintillator Dosimeter for Small Field Dosimetry - M. Gonod*, C. Chacon Avila, M. Suarez, J. Crouzilles, S. Laskri, J. Vinchant, L. Aubignac, T. Grosjean

WE-IePD-TRACK 6-07 Small-Field Dosimetry in Single-Isocenter Stereotactic Irradiation for Brain Metastases Using a Detector-Specific Field Output Correction Factor - T. Ono*, M. Nakamura, M. Uto, T. Mizowaki

Vendor Showcase

12:30 pm - 1:00 pm

-TRACK 8

WE-SHOWCASE-TRACK 8 Elekta

12:30 pm WE-SHOWCASE-TRACK 8-13-01 Elekta Unity - Designed for Today and the Future - K. Brown*

Break

12:30 pm - 1:00 pm

Professional Symposium

1:00 pm - 2:00 pm

-TRACK 1

WE-C-TRACK 1 Personal Finance for Medical Physicists

Moderators: Mahadevappa Mahesh, Johns Hopkins University, Baltimore, MD and Julianne Pollard-Larkin, University of Texas MD Anderson Cancer Center, Houston, TX

1:00 pm M. Mahesh, Johns Hopkins University: Personal Financing 101

1:20 pm J. Harper, Capstone Financial: Holistic Financial Planning

1:50 pm Q&A

SAM Imaging Educational Course

1:00 pm - 3:00 pm

-TRACK 2

WE-CD-TRACK 2 ACR Activities and Updates

Moderator: Dustin Gress, American College of Radiology, Reston, VA

1:00 pm D. Gress, American College of Radiology: Update from HQ

1:15 pm W. Geiser, UT MD Anderson Cancer Center: SBB QC Manual in Development

1:30 pm B. Harkness, Henry Ford Hospital System: NM-PET QC Manual in Development

1:45 pm D. Reeve: MRAP Medium Phantom

1:59 pm G. Clarke, UT Health San Antonio: MRAP Medium Phantom

2:00 pm E. Samei, Duke University: In Pursuit of Meaningful and Efficient Automatic Quantification of Clinical CT Exams

2:45 pm Audience Q & A

Therapy Scientific Session

1:00 pm - 2:00 pm

-TRACK 3

WE-C-TRACK 3 Quality Assurance

Moderators: Shifeng Chen, University of Maryland School of Medicine, Baltimore, MD and Jennifer O'Daniel, Duke University Medical Center, Durham, NC

1:00 pm WE-C-TRACK 3-01 Clinical Implementation of Fully-Automated Comprehensive Quality Assurance Tool Using In-Vivo EPID Image Analysis for Varian Halcyon - A. Chalise*, C. Bojcheko

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- 1:07 pm **WE-C-TRACK 3-02 Establishment of a Standard High-Energy X-Ray Beam for Replacement of Cs-137** - E. King*, L. DeWerd
- 1:14 pm **WE-C-TRACK 3-03 Evaluation of MRI-Only Treatment Planning (MRTP) Quality for Gynecologic HDR Brachytherapy Using PETRA Sequence** - C. Lee*, E. Kaza, T. Harris, D. O'Farrell, M. King, R. Cormack, I. Buzurovic
- 1:21 pm **WE-C-TRACK 3-04 Monte Carlo Dose Calculations for Patient-Specific QA Based on Machine Log Files** - H. Parenica*, C. Kabat, P. Papaconstadopoulos, N. Kirby, P. Myers, T. Wagner, N. Papanikolaou, S. Stathakis
- 1:28 pm **WE-C-TRACK 3-05 Multi-Institution Plan Complexity Characteristics Based on IROC Phantoms** - V. Desai*, S. Kry
- 1:35 pm **WE-C-TRACK 3-06 Predicting Ion Chamber Disagreements for Patient-Specific Quality Assurance of VMAT Plans Using Machine Learning** - P. Wall*, M. Lafreniere, E. Hirata, O. Morin, G. Valdes, A. Witzum
- 1:42 pm **WE-C-TRACK 3-07 Sensitivity Evaluation of Patient Specific Quality Assurance - Independent Assessment of Quality** - J. Lehmann*, M. Hussein, S. Siva, A. Moore, T. Standen, B. Subramanian, P. Greer, C. Clark

Ultrasound Symposium

1:00 pm - 2:00 pm

-TRACK 4

WE-C-TRACK 4 Carson-Zagzebski Distinguished Lectureship on Medical Ultrasound

Moderators: Tian Liu, Emory University, Atlanta, GA, and Chris John Diederich, UC San Francisco, San Francisco, CA

- 1:00 pm **Introduction**
- 1:05 pm **E. Konofagou, Columbia University: Ultrasound-Based Neurotherapeutics and Imaging of Cardiovascular Disease and Cancer**
- 1:50 pm **Q&A**

SAM Therapy Scientific Symposium

1:00 pm - 3:00 pm

-TRACK 5

WE-CD-TRACK 5 Advances in Proton Therapy

Moderators: Thomas Bortfeld, Massachusetts General Hospital, Boston, MA and Wei Liu, Mayo Clinic Arizona, Phoenix, AZ

- 1:00 pm **Introduction**
- 1:05 pm **W. Liu, Mayo Clinic Arizona: LET/RBE in Proton Planning**
- 1:25 pm **A. Knopf, University of Groningen: 4D Adaptive Proton Therapy**
- 1:45 pm **J. Langendijk, University of Groningen: Patient Selection Models**
- 2:05 pm **J. Unkelbach, University Hospital Zurich: Combining Proton-Photon Treatments**
- 2:25 pm **S. Yan, Massachusetts General Hospital: Low-Cost Proton Therapy**
- 2:45 pm **Q&A & Panel Discussion**

Multi-Disciplinary Scientific Session

1:00 pm - 2:00 pm

-TRACK 6

WE-C-TRACK 6 MRI for Adaptive Treatment Planning and Delivery

Moderators: Zhaoyang Fan, Keck School of Medicine of USC, Los Angeles, CA and Victoria Yu, Memorial Sloan Kettering Cancer Center, New York, NY

- 1:00 pm **WE-C-TRACK 6-01 A Physics-Aware Deep Neural Network for Real Time Volumetric MRI in Support of MR-Guided Radiotherapy** - L. Liu*, L. Shen, A. Johansson, J. Balter, Y. Cao, L. Xing

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- 1:07 pm **WE-C-TRACK 6-02 BEST IN PHYSICS (MULTI-DISCIPLINARY): Multi-Task MR (MT-MR) for Free-Breathing Simulation in Abdominal Radiotherapy Treatment Planning** - J. Chen*, P. Han, F. Han, Z. Hu, N. Wang, W. Yang, D. Ling, S. Palmer, A. Christodoulou, D. Li, Z. Fan
- 1:14 pm **WE-C-TRACK 6-03 Real-Time MRI Motion Estimation Through an Unsupervised K-Space-Driven Deformable Registration Network (KS-RegNet)** - H. Shao*, Y. Zhang
- 1:21 pm **WE-C-TRACK 6-04 The Optimal Imaging Plane Determination for Motion Monitoring in MRI Guided Radiation Therapy** - Y. Zhang*, N. Yue, X. Zhang, Y. Zhou, K. Nie
- 1:28 pm **WE-C-TRACK 6-05 Time-Resolved Estimated Synthetic CTs Based on Orthogonal Cine MRI for Low-Field MR-Linac Treatments** - M. Rabe*, C. Paganelli, H. Schmitz, G. Meschini, M. Riboldi, J. Hofmaier, J. Dinkel, M. Reiner, K. Parodi, C. Belka, G. Landry, C. Kurz, F. Kamp
- 1:35 pm **WE-C-TRACK 6-06 Treatment Window Determination for Cardiac Synchronized VMAT** - J. Poon*, R. Thompson, M. Deyell, D. Schellenberg, K. Kohli, H. Clark, S. Thomas
- 1:42 pm **WE-C-TRACK 6-07 Auto-Detection of Structural Similarity Index Map from Daily MRI as An Indicator for MR-Guided Online Adaptation Replanning** - A. Parchur*, S. Lim, H. Nasief, E. Omari, Y. Zhang, X. Li

SAM Therapy Educational Course

1:00 pm - 3:00 pm

-TRACK 7

WE-CD-TRACK 7 Artificial Intelligence in the Clinic - Is It Going to Help or Hurt Our Productivity?

Moderator: Eduard Schreibmann, Emory University, Atlanta, GA

- 1:00 pm **C. Cardenas, UT MD Anderson Cancer Center: Adding AI-Based Automated Contouring and Treatment Planning to Every Medical Physicist's Toolbox**
- 1:24 pm **Y. Yang, Stanford University Cancer Center: Clinical Implementation of An Auto-Planning and Plan Check Tool**
- 1:48 pm **A. Apte, Memorial Sloan-Kettering Cancer Center: from Data to Segmentation Models: AI for Everybody**
- 2:12 pm **K. Moore, UC San Diego: Widespread Clinical Implementation of Data-Driven Automated Treatment Planning**
- 2:36 pm **D. Ruan, UCLA School of Medicine: The Two Sides of the AI Coin**

Vendor Showcase

1:30 pm - 2:00 pm

-TRACK 8

WE-SHOWCASE-TRACK 8 Radiological Imaging Technology, Inc.

- 1:30 pm **WE-SHOWCASE-TRACK 8-14-01 The Clinical Stereotactic Environment: Revealing a Paradoxical Inverse Correlation Between Individual Maximum 3D Deviations and the Overall Winston-Lutz 3D Displacement** - D. Ritt*, N. Battaglia*

Therapy Scientific Session

2:00 pm - 3:00 pm

-TRACK 1

WE-D-TRACK 1 Quality Control in Treatment Planning and Delivery

Moderators: Xuejun Gu, UT Southwestern Medical Center, Dallas, TX and Sonja Dieterich, UC Davis Medical Center, Sacramento, CA

- 2:00 pm **WE-D-TRACK 1-01 Towards Contour Quality Assurance of Cardiac Structures with Automatic Segmentation** - C. Uche*, H. Geng, J. Yu, E. Gore, Y. Xiao
- 2:07 pm **WE-D-TRACK 1-02 Automated ICC Tool for a Novel Planning Incident Learning Environment** - D. Ferguson*, E. Hirata, A. Witzum

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- 2:14 pm **WE-D-TRACK 1-03 Plan Quality Assessment of the Leksell Gamma Knife Lightning Dose Optimizer** - D. Wiczeorek*, R. Kotecha, A. Gutierrez, M. Hall, M. Tom, S. Davis, M. McDermott, M. Mehta, R. Tolakanahalli
- 2:21 pm **WE-D-TRACK 1-04 Power Transformations on Multivariate Non-Normal Radiotherapy Plan Quality Measures** - R. Widjaja*, A. Roy, M. Gopalakrishnan, B. Mittal
- 2:28 pm **WE-D-TRACK 1-05 Artificial Intelligence for Dose-Volume Histogram Based Clinical Decision-Making Support System in Radiation Therapy Plans for Brain Tumors** - P. Siciarz*, B. McCurdy, S. Alfaifi, S. Rathod, E. Van Uytven, R. Koul
- 2:35 pm **WE-D-TRACK 1-06 Feasibility of Time-Resolved DVH Based Treatment Delivery Verification of VMAT with EPID** - P. Greer*, R. David, J. Wolf
- 2:42 pm **WE-D-TRACK 1-07 6-DoF Robotic Motion Phantom: An Open-Source Project for Quality Assurance of Real-Time Image-Guided Radiotherapy Technologies** - C. Sengupta*, S. Alnaghy, D. Nguyen, A. Kyme, K. Makhija, T. Moodie, D. Mason, V. Cailliet, K. Shi, R. O'Brien, J. Booth, S. Tomka, P. Keall

Imaging Scientific Session

2:00 pm - 3:00 pm

-TRACK 3

WE-D-TRACK 3 Dose and Imaging Performance Assessment in CT and CBCT

Moderators: Jochen Cammin, University of Maryland School of Medicine, Baltimore, MD and Catherine Coolens, Princess Margaret Cancer Centre, Toronto, ON

- 2:00 pm **WE-D-TRACK 3-01 A Method to Estimate a Fan-Beam CT NPS Using Two Basis Functions with a Limited Number of Noise Realizations** - H. Jang*, M. Han, M. Ko, J. Baek
- 2:07 pm **WE-D-TRACK 3-02 An Assessment of Uncertainties in Pediatric CT Organ Dosimetry When Scan Parameters and Individual Body Morphometry Are Unknown** - C. Kofler*, E. Olguin, E. Stepusin, D. Long, M. Kwan, D. Miglioretti, R. Smith-bindman, W. Bolch
- 2:14 pm **WE-D-TRACK 3-03 Diagnostic Reference Levels (DRLs) and Achievable Doses (ADs) for the 11 Most Commonly Performed Pediatric CT Examinations in the United States (USA) as a Function of Patient Age and Size Using 1.5 Million Examinations in the American College of Radiology (ACR) CT Dose Index Registry** - K. Kanal*, P. Butler, M. Chatfield, J. Wells, E. Samei, M. Simanowith, D. Golden, D. Gress, J. Burleson, W. Sensakovic, K. Strauss, D. Frush
- 2:21 pm **WE-D-TRACK 3-04 Fast Monte Carlo Simulation of Non-Isotropic X-Ray Source for CT Dose Calculation** - S. Wang*, A. Imran, D. Pal, E. Zucker, A. Wang
- 2:28 pm **WE-D-TRACK 3-05 Longitudinal QC Testing of CBCT and Helical MDCT Systems with a Unified Image Quality and Dose Phantom** - M. Mahesh*, M. Fernandez, A. Uneri, J. Boone, J. Siewerdsen
- 2:35 pm **WE-D-TRACK 3-06 A Scanner-Specific Simulation Platform for Virtual Imaging Trials in Deep Si-Based Photon-Counting CT** - S. Sharma*, D. Pal, E. Abadi, P. Segars, J. Hsieh, E. Samei
- 2:42 pm **WE-D-TRACK 3-07 Accurate and Efficient Measurement of Channelized Hotelling Observer-Based Low-Contrast Detectability on the ACR Accreditation Phantom** - M. Fan*, T. Vrieze, T. Thayib, C. McCollough, L. Yu

Ultrasound Symposium

2:00 pm - 3:00 pm

-TRACK 4

WE-D-TRACK 4 Mechanical Tissue Disruption with Focused Ultrasound

Moderators: Allison Payne, University of Utah, Salt Lake City, UT and Kenneth Bader, University of Chicago, Chicago, IL

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- 2:00 pm **T. Khokhlova, University of Washington: Boiling Histotripsy for Ablation of Intrabdominal Targets**
- 2:17 pm **A. Maxwell, University of Washington: Cavitation Control in Burst Wave Lithotripsy of Kidney Stones: A Delicate Balance**
- 2:34 pm **K. Bader, University of Chicago: The Development of Metrics to Gauge Treatment Outcomes from Mechanical Ablation with Focused Ultrasound**
- 2:51 pm **Q&A**

Multi-Disciplinary Scientific Session

2:00 pm - 3:00 pm

-TRACK 6

WE-D-TRACK 6 Autosegmentation and Image Analysis in MRI-guided Radiation Therapy

Moderators: Carri Glide-Hurst, University of Wisconsin, Madison, WI and Siamak Nejad-Davarani, Ypsilanti, MI

- 2:00 pm **WE-D-TRACK 6-01 Auto-Correction of Inaccurate Auto-Segmentation for MRI-Guided Adaptive Radiotherapy** - J. Ding*, Y. Zhang, A. Amjad, J. Xu, D. Thill, X. Li
- 2:07 pm **WE-D-TRACK 6-02 Multi-Parametric Ultra-Quality 4D-MRI Synthesis Using VoxelMorph-Based Deformable Image Registration** - H. Xiao*, T. Li, R. Ni, G. Ren, W. Liu, W. Wang, Y. Zhang, H. Wu, H. Lee, A. Cheung, H. Chang, J. Cai
- 2:14 pm **WE-D-TRACK 6-03 Radial MR Fingerprinting for Accelerated High Resolution Quantitative Prostate MRI in Radiation Therapy** - V. Yu*, E. Subashi, C. Wu, P. Koken, M. Doneva, R. Otazo, O. Cohen
- 2:21 pm **WE-D-TRACK 6-04 Synthetic Magnetic Resonance Imaging from Computed Tomography Simulation Scans Using Deep-Learning Models for High-Dose-Rate Prostate Brachytherapy** - H. Kang*, M. Abuhamad, A. Solanki, J. Roeske
- 2:28 pm **WE-D-TRACK 6-05 Synthetic MRI-Aided Delineation of Organs at Risk in Head-And-Neck Radiotherapy** - X. Dai*, Y. Lei, T. Wang, J. Zhou, J. Roper, M. McDonald, J. Beitler, J. Bradley, T. Liu, X. Yang
- 2:35 pm **WE-D-TRACK 6-06 Learn from What You Drew - a Deep Learning Assisted Fast Semi-Automatic Segmentation for Complex Anatomy on MRI** - Y. Zhang*, Y. Liang, A. Amjad, E. Ahunbay, E. Paulson, W. Hall, B. Erickson, X. Li
- 2:42 pm **WE-D-TRACK 6-07 A Prior Knowledge Guided Deep Learning Model for GTV Auto-Segmentation On 4DMRI in MR-Guided Adaptive Radiotherapy of Pancreatic Cancer** - Y. Liang, Y. Zhang*, W. Hall, E. Paulson, X. Chen, B. Erickson, X. Li

Imaging Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 1

WE-IePD-TRACK 1 Imaging: CBCT Artifacts

WE-IePD-TRACK 1-01 Deep Learning Model for Scatter Correction in Dedicated Breast CT - J. Pautasso*, M. Caballo, K. Michielsen, I. Sechopoulos

WE-IePD-TRACK 1-02 Scatter Correlation and Correction for Cone-Beam CT Using Dual-Layer Flat Panel Detector - S. Gu*, B. Qi, H. Gao

WE-IePD-TRACK 1-03 Correcting Cone-Beam CT for Patient-Generated Scatter Using Bayesian Monte Carlo Extrapolation - S. Blake*, O. Dillon, R. O'Brien

WE-IePD-TRACK 1-04 Gas Bubble Motion Artifact Reduction Through Simultaneous Motion Estimation and Image Reconstruction - K. Wang*, H. Shao, Y. Zhang, J. Wang

WE-IePD-TRACK 1-05 Scatter Correction for Cone Beam CT Using Half-Beam Blocker and Local-Filtration Scatter Estimation - H. Cui*, X. Jiang, Y. Yang

WE-IePD-TRACK 1-06 Reducing Scan Time and Dose: Motion Compensated Reconstruction for Adaptive 4DCBCT - B. Lau*, O. Dillon, T. Reynolds, P. Keall, J. Sonke, S. Vinod, R. O'Brien

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WE-IePD-TRACK 1-07 A Generative Adversarial Network (GAN)-Based Technique for Synthesizing On-Board Imaging Artifacts in the Extended Cardiac-Torso (XCAT) Phantoms - Y. Chang*, Z. Zhang, Z. Jiang, Y. Lai, L. Ren

-TRACK 2

WE-IePD-TRACK 2 Imaging: MRI Image Analysis, Biomarkers, and Radiomics

WE-IePD-TRACK 2-01 High Spatial Resolution Simultaneous

Quantitative T1rho and T2 Mapping at 3T - Q. Peng*, C. Wu

WE-IePD-TRACK 2-02 Evaluating and Improving the Bloch Fitting

Method for the Analysis of AcidoCEST MRI - T. Li*, K. Jones,

A. Kotrotsou, S. Zhang, M. Pagel

WE-IePD-TRACK 2-03 3D Brain Tumor Segmentation Through

Multimodal Weighted Network in MRI - Z. Zhou*, R. Wang, J. Yang,

J. Guo

WE-IePD-TRACK 2-04 MRI Super-Resolution Via Real-World-Like

Training Set Preparation - B. Huang*, H. Xiao, T. Li, Y. Yang, Y. Yang,

J. Cai

WE-IePD-TRACK 2-05 Towards a Probabilistic Neurochemical Atlas

of the Human Cerebellum Using ZOOM MRSI - N. Farley*

WE-IePD-TRACK 2-06 Classification of Tumor Progression and

Radiation Necrosis Following Gamma Knife for Brain Metastases

Using Radiomic Features and Clinical Variables - D. Mitchell*,

S. Buszek, B. Tran, H. Liu, D. Luo, S. Ferguson, C. Chung

WE-IePD-TRACK 2-07 Prediction of PH Using AcidoCEST MRI and

Machine Learning - T. Li*, J. Cárdenas-rodríguez, M. Pagel

Multi-Disciplinary Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 3

WE-IePD-TRACK 3 Multi-Disciplinary: MR-guided Adaptive Radiation Therapy

WE-IePD-TRACK 3-01 A Framework of Utilizing Biological Models

for Iso-Toxic Adaptive Replanning in MR-Guided Radiotherapy -

P. Prior*, E. Quashie, A. Tai, X. Li

WE-IePD-TRACK 3-02 Changes in Prostate Volume and Dosimetry

with Stereotactic MR-Guided Adaptive Radiotherapy - E. Huynh*,

C. Williams, Z. Han, L. Singer, M. Huynh, R. Mak, D. Cagney, J. Leeman

WE-IePD-TRACK 3-03 Deep Learning-Based Automatic Plan

Prediction for MR-Guided Adaptive Radiotherapy - L. Buchanan,

Y. Zhang*, X. Chen, X. Li

WE-IePD-TRACK 3-04 Dose Accumulation Comparison Between

Adapt-To-Shape and Adapt-To-Position for MRL Adaptive SBRT

Prostate Patients - C. Johnstone*, T. Tadic, V. Malkov, D. Letourneau,

J. Winter

WE-IePD-TRACK 3-05 Feasibility of Dynamic Contrast Enhanced

MR Perfusion for Glioblastoma on a Low-Field MRI-Linac System -

D. Maziero*, R. Stoyanova, Y. Chang, A. Breto, J. Ford, E. Mellon

WE-IePD-TRACK 3-06 Longitudinal Evaluation of Plan Quality

Metrics During the Course of Pancreatic Online Adaptive MRI-

Guided Radiotherapy - J. Ginn*, O. Green, D. Yang, A. Curcuro,

S. Badiyan, L. Henke, H. Kim, A. Price

WE-IePD-TRACK 3-07 Super Resolution for Improving 2D Cine-

MRI Resolution During MR-Guided Radiotherapy of Pancreatic

Cancer Patients - B. Lewis*, J. Chun, J. Shin, Z. Ji, J. Park, J. Kim,

T. Kim

-TRACK 4

WE-IePD-TRACK 4 Multi-Disciplinary: Image-Guided Treatment Response Assessment

WE-IePD-TRACK 4-01 Forecasting Absolute Lymphocyte Count

Depletion During and After Radiation Therapy Using Deep Learning -

S. Ebrahimi*, G. Lim, B. Hobbs, S. Lin, R. Mohan, W. Cao

WE-IePD-TRACK 4-02 Imaging Biomarkers for Radiation-Induced

Airway Changes in a Swine Model - E. Wallat*, A. Wuschner, M. Flakus,

J. Reinhardt, G. Christensen, J. Bayouth

WE-IePD-TRACK 4-03 Overall Survival Prediction Via an

Interpretable Machine Learning Model for Patients with

Oropharyngeal Cancer - X. Pan*, T. Feng, C. Liu, X. Qi

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WE-IePD-TRACK 4-04 Predicting Pathological Complete Response

Through Automatic Belief Rule Base in Gastric Cancer - J. Wu*,

Q. Wang, Z. Wang, M. Liu, M. Ma, Z. Zhou

WE-IePD-TRACK 4-05 Prediction of Cardiotoxicity for Breast

Cancer Patients Using Light Gradient Boosting Machine - Z. Jiang*,

P. Diaio, Y. Liang, K. Dai, H. Li, H. Wang, Y. Chen, M. Lu, Y. Kuang

WE-IePD-TRACK 4-06 Ultrasound Histogram Assessment of

Radiation-Induced Breast Toxicity in Breast Cancer Radiotherapy: A

Longitudinal Study of Acute Toxicity - b. zhou*, X. Yang, J. Lin,

S. Kahn, K. Godette, M. Torres, T. Liu

WE-IePD-TRACK 4-07 Unique Changes on Functional Magnetic

Resonance Imaging Maps Following D2 Receptor and Cholinergic

Specific Knock-Out of TorsinA - H. Liu*, J. Desimone, Y. Liu

Therapy Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 5

WE-IePD-TRACK 5 Therapy: Radiation dosimetry

WE-IePD-TRACK 5-01 Development and Validation of a TOPAS

Monte Carlo Model of a Dynamic Collimation System for Pencil Beam

Scanning Proton Therapy - N. Nelson*, W. Culbertson, D. Hyer,

T. Geoghegan, K. Patwardhan, B. Smith, R. Flynn, J. Yu, S. Rana,

A. Gutierrez, P. Hill

WE-IePD-TRACK 5-02 3D Dosimetry of Lung and Cardiac Shielding

for Total Body Irradiation - M. Glenn*, K. Wallner, S. Luk, M. Phillips,

Y. Tseng, R. Ermoian, M. Kim

WE-IePD-TRACK 5-03 RayStation Photon Beam Modeling

Challenges for Small Targets Treated with VMAT and Dynamic

Conformal Arcs - J. Huang*, S. Frigo

WE-IePD-TRACK 5-04 Sensitivity of IMRT and VMAT Dose

Calculation to Changes in MLC Parameters - S. Gardner*, S. Wang,

K. Snyder, C. Smith, B. Miller, I. Chetty

WE-IePD-TRACK 5-05 The Lifetime of a Monitor Unit Ion Chamber

- A. Cetnar*, D. DiCostanzo

WE-IePD-TRACK 5-06 Dosimetric Characterization of Orthopaedic

Carbon Fiber Implants for Photon and Proton Radiotherapy -

J. Pursley*, N. Depauw, S. Lozano-calderon, C. Patel

WE-IePD-TRACK 5-07 Validation of Monte Carlo Simulated Tc-99m

Absorbed-Dose-To-Water Inside a Custom SPECT/CT Phantom Using

Active and Passive Dosimeters: A Novel Approach to Benchmarking

Monte Carlo Methods for Targeted Radionuclide Therapy Dosimetry -

A. Bertinetti*, M. Rodrigues, B. Palmer, C. Hammer, J. Hull, H. Vija,

W. Culbertson

-TRACK 6

WE-IePD-TRACK 6 Therapy: Radiobiology and modeling

WE-IePD-TRACK 6-01 Incorporating Organ Deformation in

Biological Modeling and Patient Reported Outcome Study for

Permanent Prostate Brachytherapy - S. To*, P. Mavroidis, R. Chen,

A. Wang, T. Royce, T. Zhu, J. Lian

WE-IePD-TRACK 6-02 Prediction of Radiation Pneumonitis for

NSCLC Using Crop Convolutional Neural Network Based Model -

D. Kawahara*, N. Imano, R. Nishioka, A. Saito, Y. Nagata

WE-IePD-TRACK 6-03 Development of Radioimmunotherapy for

Brain Tumors Using In-Vitro Assays - Y. Walter*, A. Hubbard,

C. Thiels, K. Djam, H. Kramer, A. Benoit, E. Yank, O. Salas,

M. Schwengler, S. McKinley, J. Lewison, A. Ekpenyong

WE-IePD-TRACK 6-04 Characterization of the Response of 9L

Orthotopic Brain Tumors to 3D Conformal Radiation Therapy Using

Contrast Enhanced MRI - G. Valadie*, S. Brown, J. Ewing, G. Divine,

N. Tavarekere, K. Farmer, G. Cabral

WE-IePD-TRACK 6-05 Comparison of Dose Escalation Strategies for

Head and Neck Cancer Patients Using a Radiobiological Model of

Reoxygenation - M. Guerrero*, E. Smith

WE-IePD-TRACK 6-06 Towards the Biological Meaning of the Site in

Microdosimetry: Relation to DNA Compactness - A. Bertolet*,

J. Ramos-Mendez, H. Paganetti, J. Schuemann

WE-IePD-TRACK 6-07 Extracting Organ-Specific Radiobiological

Model Parameters from Clinical Data for Radiation Therapy Planning

of Head and Neck Cancers - E. Quashie*, A. Tai, P. Prior, M. Awan,

C. Schultz, X. Li

Wednesday, July 28, 2021

Vendor Showcase

3:00 pm - 3:30 pm

-TRACK 8

WE-SHOWCASE-TRACK 8 Reflexion Medical

3:00 pm **WE-SHOWCASE-TRACK 8-15-01 First Clinical Experience: Overview of Commissioning the Reflexion BgRT System (Linac, kV system and Treatment Planning)** - J. Crawford*, B. Han*, M. Surucu*, N. Kovalchuk*

Break

3:00 pm - 3:30 pm

Professional Proffered

3:30 pm - 4:30 pm

-TRACK 1

WE-E-TRACK 1 Medical Physics Practice Changes in Response to the Covid-19 Pandemic

Moderator: Brent Parker, The University of Texas M.D. Anderson Cancer Center, Galveston, TX

3:30 pm **WE-E-TRACK 1-01 Microsoft Teams® as An Operational Tool for Evaluation of Machine Performance and QA Tasks** - M. Gopalakrishnan*, S. Kucuker Dogan, B. Zawislak, T. Teo, I. Das

3:40 pm **WE-E-TRACK 1-02 Successful VMAT Commissioning in Low- and Middle-Income Country (LMIC) in the Era of COVID-19 Using Remote Connectivity** - S. Wadi-Ramahi*, F. Waqqad, A. Alsharif

3:50 pm **WE-E-TRACK 1-03 Remote MRI Physics During a Pandemic: Challenges and Opportunities** - K. Vigen*, L. Henze Bancroft, J. Garrett, F. Korosec, J. Holmes

4:00 pm **WE-E-TRACK 1-04 Did the COVID-19 Pandemic Disproportionally Affect Patients Receiving Radiation Therapy at a Public Safety-Net Hospital Compared with Patients Treated at a Private Hospital in the Same Metropolitan Area?** - J. Cui*, J. Cui, W. Yang, A. Zhuang, O. Ragab, D. Hong, S. Bian, E. Chang, R. Jennelle

4:10 pm **WE-E-TRACK 1-05 Medical Physics During COVID-19: The North American Perspective | Audience Q&A** - B. Parker*

SAM Imaging Educational Course

3:30 pm - 5:30 pm

-TRACK 2

WE-EF-TRACK 2 Updates on CT Dosimetry

Moderator: Mark Supanich, Rush, Chicago, IL

3:30 pm **A. Hernandez, University of California-Davis: SSDE: Coming Soon to A Scanner Near You! Updates on Head Coefficients (AAPM Report 293) and IEC Codification**

3:56 pm **M. Bostani, University of California, Los Angeles: How Looooong Can You Go? Dose Measurements in a Long Phantom (Review of AAPM Report 200)**

4:22 pm **I. Barreto, University of Florida College of Medicine: You Spin Me Right Round: Approaches to Measuring CT Dose in Helical Modes**

4:48 pm **M. Supanich, Rush: Free Falling: Measurements of Dose in Air**

5:14 pm **Audience Q & A**

SAM Ultrasound Symposium

3:30 pm - 4:30 pm

-TRACK 3

WE-E-TRACK 3 Frontiers of Ultrasound Imaging

Moderators: Ivan Rosado-Mendez, University of Wisconsin-Madison, Madison, WI and Marie Muller, North Carolina State University, Raleigh, NC

Wednesday, July 28, 2021

3:30 pm **G. Cloutier, Université De Montreal: Unifying Concepts of Spectral and Statistical Backscatter, and In Vivo Application**

3:47 pm **J. Bamber, Institute of Cancer Research and Royal Marsden Hospital: Pressure-Wave Elastography (Sound-Speed Measurement and Imaging) and Its Biomedical Applications**

4:04 pm **M. Muller, North Carolina State University: Quantitative Lung Ultrasound, Beyond Artifact Imaging**

4:21 pm **Q&A**

Therapy Educational Course

3:30 pm - 5:30 pm

-TRACK 4

WE-EF-TRACK 4 In Memoriam of John "Jack" Cunningham

Moderators: Jacob Van Dyk, Western University, London, ON and Jerry Battista, London, ON

3:30 pm **J. Van Dyk, Western University: Jack Cunningham and Treatment Planning from the 1960s Through the 2000s**

3:50 pm **J. Battista: Conceptual Overview of Megavoltage Photon Dose Calculation Algorithms**

4:10 pm **D. Rogers, Carleton Univ: Monte Carlo Modelling for Radiation Dosimetry and Treatment Planning**

4:30 pm **A. Ahnesjö, Uppsala University: Dose and Beyond in Treatment Planning Calculations**

4:50 pm **T. Mackie, University of Wisconsin: The Future of Treatment Planning**

5:10 pm **Discussion**

SAM Therapy Scientific Symposium

3:30 pm - 4:30 pm

-TRACK 5

WE-E-TRACK 5 Cardiac Radioablation: How Medical Physicists Can Shape the Future?

Moderator: Paul Keall, University of Sydney, Camperdown, AU

3:30 pm **M. De Riva Silva, Leiden University Medical Center: Cardiac Radioablation Research and Development Needs at the Juncture of Electrophysiology and Radiation Therapy**

3:47 pm **S. Lydiard, University of Sydney: Research Opportunities from Academia: A Summary of the State-Of-The-Art Cardiac Radioablation Medical Physics Research and Future Opportunities**

4:04 pm **A. Deisher, Mayo Clinic: Open Questions in the Radiobiology of Cardiac Radioablation and the Promise of Particle Therapy**

4:21 pm **Q&A**

Therapy Scientific Session

3:30 pm - 4:30 pm

-TRACK 6

WE-E-TRACK 6 Brachytherapy

Moderators: Mariana Guerrero, University of Maryland School of Medicine, Baltimore, MD and Jessica Miller, University of Wisconsin-Madison, Madison, WI

3:30 pm **WE-E-TRACK 6-01 3D Printed Patient-Specific HDR Brachytherapy Applicator for Penile Cancer Plesiotherapy** - H. Lee*, B. Hryckushko, Z. Xiong, M. Folkert, N. Desai, A. Garant, T. Chiu

3:37 pm **WE-E-TRACK 6-02 A Fast and Accurate Analytical Dose Calculation Method for Seed-Loaded Stent** - T. Xiong*, B. Liu, J. Lu, S. Li, X. Bai, F. Zhou, Q. Wu

3:44 pm **WE-E-TRACK 6-03 Defining Dose Thresholds to the Optic Disc and Macula to Predict Vision Complications: A COMS Retrospective Study** - C. Oare*, B. Gerbi, K. Dusenbery, D. Koozekanani, S. Sun, C. Ferreira

Wednesday, July 28, 2021

- 3:51 pm **WE-E-TRACK 6-04 Determination of the RBE of the Xofig Axxent Source for Cervical Cancer Applications** - A. Walter*, K. Nickel, R. Kimple, L. DeWerd
- 3:58 pm **WE-E-TRACK 6-05 Commissioning and Clinical Implementation of a Hybrid TG-43 Technique for Shielded Brachytherapy Applicators** - E. Choi, C. Collins*, M. Rivard
- 4:05 pm **WE-E-TRACK 6-06 Adaptive Workflow for a Patient-Specific 3D-Printed Template with Direction Modulated Brachytherapy (DMBT) Tandem Applicator for HDR Cervical Interstitial Brachytherapy** - J. Sohn*, M. Polizzi, E. Fields, W. Song
- 4:12 pm **WE-E-TRACK 6-07 Commissioning of the Ring Applicator and Quantifying Dwell Position Offset with Varian Bravos HDR Remote Afterloader** - A. Baghwala*, R. Boopathy

SAM Therapy Educational Course

3:30 pm - 5:30 pm

-TRACK 7

WE-EF-TRACK 7 The Evolving Paradigm of Patient Specific QA

Moderator: Seng-Boh Lim, Memorial Sloan-Kettering Cancer Center, New York, NY

- 3:30 pm **J. Adamson, Duke University Medical Center: Moving from a Simple "Type A" Independent Dose Calculation to a "Type B" (Convolution/Superposition) Or "Type C" (Monte Carlo) Based Independent Dose Calculation Algorithm**
- 3:54 pm **S. Lim, Memorial Sloan-Kettering Cancer Center: Moving from Measurement Based Pre-Treatment QA to Trajectory File Based QA**
- 4:18 pm **B. McCurdy, CancerCare Manitoba: Advances in In-Vivo Real-Time PSQA and Dose Reconstruction**
- 4:42 pm **C. Bojchko, University of California San Diego: Patient Specific QA for New Technologies and Online Adaptive Radiotherapy**
- 5:06 pm **J. Andreozzi, Moffitt Cancer Center: Scintillator Based Patient Specific QA in the Age of MRgRT**

Vendor Showcase

4:00 pm - 4:30 pm

-TRACK 8

WE-SHOWCASE-TRACK 8 Radformation

- 4:00 pm **WE-SHOWCASE-TRACK 8-16-01 from CT to Treatment in 30 Minutes** - E. Van Wie*

Professional Symposium

4:30 pm - 5:30 pm

-TRACK 1

WE-F-TRACK 1 21 Years into the 21st Century: Modern Scientific Publishing in Medical Physics and the JACMP

Moderators: John Boone, UC Davis Medical Center, Sacramento, CA and Michael Mills, James Graham Brown Cancer Center, Louisville, KY

- 4:30 pm **M. Mills, James Graham Brown Cancer Center: JACMP: Emerging Trends in Open Access Publishing**
- 4:43 pm **A. Cetnar, The Ohio State University - James Cancer Hospital: JACMP: Taxonomy and Video Abstracts**
- 4:56 pm **J. Boone, UC Davis Medical Center: Medical Physics: The New Editorial Model**
- 5:09 pm **S. Benedict, UC Davis Cancer Center: Medical Physics: Article Categories**
- 5:22 pm **Q&A**

Ultrasound Scientific Session

4:30 pm - 5:30 pm

-TRACK 3

Wednesday, July 28, 2021

WE-F-TRACK 3 Quantitative Ultrasound and Emergent Imaging Technology (II)

Moderators: Ivan Rosado-Mendez, University of Wisconsin-Madison, Madison, WI and Marie Muller, North Carolina State University, Raleigh, NC

- 4:30 pm **WE-F-TRACK 3-01 High-Resolution Ultrasound Imaging Through Self-Supervised Learning** - X. Dai*, Y. Lei, T. Wang, M. Axente, J. Roper, D. Xu, J. Lin, J. Bradley, T. Liu, X. Yang
- 4:37 pm **WE-F-TRACK 3-02 A Novel Wireless Mechanical Oscillator for Power Doppler-Based Needle Tip Identification in Brachytherapy** - N. Orlando*, J. Snir, K. Barker, D. Hoover, A. Fenster
- 4:44 pm **WE-F-TRACK 3-03 A Novel End-To-End Deep Learning Based Beamformer for Flexible Array Ultrasound Transducer** - X. Huang*, M. Lediju Bell, K. Ding
- 4:51 pm **WE-F-TRACK 3-04 X-Ray Acoustic Computed Tomography of Linac Photon Beams: Medium Dependent Experiments** - G. Gonzalez*, S. Wang, P. Pandey, K. Prather, J. Caron, S. Ahmad, L. Xiang, Y. Chen
- 4:58 pm **WE-F-TRACK 3-05 4D MR Reconstruction Based on Real-Time 3D Ultrasound for Image-Guided Radiotherapy** - S. Jupitz*, J. Holmes, B. Bednarz
- 5:05 pm **WE-F-TRACK 3-06 An Unsupervised Ultrasound Liver Motion Tracking Using Deep Convolutional Neural Network** - Y. Lei*, X. Dai, S. Momin, J. Roper, E. Schreiber, P. Patel, J. Bradley, T. Liu, X. Yang
- 5:12 pm **WE-F-TRACK 3-07 Motion Management in Abdomen with An Integrated Ultrasound and Abdominal Pressure Plate Device** - W. Li*, Y. Huang, X. Chen, Y. Yang

SAM Therapy Scientific Symposium

4:30 pm - 5:30 pm

-TRACK 5

WE-F-TRACK 5 Brachytherapy Technology Horizon

Moderator: Bin Cai, UT Southwestern Medical Center, Dallas, TX

- 4:30 pm **X. Jia, The University of Texas Southwestern Medical Ctr: Deep Learning and Artificial Intelligence for Brachytherapy**
- 4:45 pm **W. Song, Virginia Commonwealth University: Intensity Modulated and Anisotropic Brachytherapy Sources**
- 5:00 pm **A. Carlsson Tedgren, Linköping University: Advancements in Brachytherapy Plan Optimization**
- 5:15 pm **J. Robar, Nova Scotia Health Authority: Personalized Brachytherapy with Integration of 3D Printing Technologies**

Multi-Disciplinary Scientific Session

4:30 pm - 5:30 pm

-TRACK 6

WE-F-TRACK 6 Image-Guided Treatment Response Modeling and Assessment

Moderators: Jing Wang, UT Southwestern Medical Center, Dallas, TX and Neelam Tyagi, Memorial Sloan-Kettering Cancer Center, New York, NY

- 4:30 pm **WE-F-TRACK 6-01 A Bilateral Neural Network for Loco-Regional Recurrence Prediction in Head and Neck Squamous Cell Cancer** - L. Chen*, K. Wang, C. Shen, D. Sher, J. Wang
- 4:37 pm **WE-F-TRACK 6-02 An Automated Multi-Objective Model with Hyperparameter Optimization for Treatment Outcome Prediction in Metastatic Melanoma** - Z. Zhou, M. Zhou, Z. Wang, X. Chen*
- 4:44 pm **WE-F-TRACK 6-03 Changes in Post-Treatment Cardiac PET Avidity Predict Overall Survival in Lung Cancer Patients Treated with Chemoradiation** - T. Santangelo*, F. Forghani, C. Rusthoven, R. Castillo, E. Castillo, B. Jones, T. Guerrero, Y. Vinogradskiy

Wednesday, July 28, 2021

- 4:51 pm **WE-F-TRACK 6-04 Measuring Radiation-Induced Changes in Perfusion with Dynamic Contrast-Enhanced 4DCT and Non-Contrast Lung Density Analysis in a Novel Swine Model** - A. Wuschner*, E. Wallat, M. Flakus, J. Reinhardt, G. Christensen, A. Baschnagel, J. Bayouth
- 4:58 pm **WE-F-TRACK 6-05 Quantitative Radiomics Approach to Assess Acute Radiation Dermatitis in Breast Cancer Patients** - S. Park*, J. Park, J. Kim, C. Choi, J. Kim
- 5:05 pm **WE-F-TRACK 6-06 Quantum Reinforcement and Deep Learning for Decision Support in Response-Adapted Lung Cancer Radiotherapy** - D. Niraula*, J. Jamaluddin, M. Matuszak, R. Ten Haken, I. El Naqa
- 5:12 pm **WE-F-TRACK 6-07 Computational Prediction of Symptomatic RP Based on Planning Computed Tomography Images Using Topologically Invariant Betti Numbers Prior to Stereotactic Body Radiation Therapy** - K. Ninomiya*, H. Arimura, T. Yoshitake, T. Hirose, Y. Shioyama

Vendor Showcase

5:00 pm - 5:30 pm

-TRACK 8

WE-SHOWCASE-TRACK 8 LAP Laser, LLC

- 5:00 pm **WE-SHOWCASE-TRACK 8-17-01 Patient QA Solutions in Adaptive Radiotherapy with RadCalc** - K. Carrington*, C. Bohorquez

Ultrasound Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 1

WE-IePD-TRACK 1 Ultrasound

WE-IePD-TRACK 1-01 A Hybrid Method for Prostate Segmentation in Transrectal Ultrasound Based on Redefined Closed K-Segment Principal Curve and Improved Differential Evolution-Based Artificial Neural Network - T. Peng*, J. Zhao, J. Cai

WE-IePD-TRACK 1-02 Automatic Spatial Registration System for Whole-Breast Three-Dimensional Ultrasound - C. Park*, S. Papernick, N. Orlando, M. Jonnalagadda, J. Bax, L. Gardi, K. Barker, D. Tessier, A. Fenster

WE-IePD-TRACK 1-03 Enhancement of Gene Therapy with MR-Guided Focused Ultrasound for Prostate Cancer - L. Chen*, X. Chen, D. Cvetkovic, C. Ma

WE-IePD-TRACK 1-04 Feasibility of An Automated Quality Assurance Tool for Ultrasound Shear Wave Elastography Images - D. Gomez Cardona*, S. Stekel, D. Tradup, N. Hangiandreou, Z. Long

WE-IePD-TRACK 1-05 MR to Ultrasound Image Registration with Segmentation-Based Learning for HDR Prostate Brachytherapy - Y. Chen*, L. Xing, L. Yu, W. Liu, B. Fahimian, T. Niedermayr, H. Bagshaw, M. Buyyounouski, B. Han

WE-IePD-TRACK 1-06 Quantitative Dimension Estimation and Clinical Utility of Three-Dimensional Ultrasound in Oral Cavity Tumors - C. Park*, J. Wihlidal, A. Mendez, A. Fenster

Imaging Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 2

WE-IePD-TRACK 2 Imaging: Dose and Image Quality in CT and X-ray Imaging

WE-IePD-TRACK 2-01 Evaluation of the Feasibility of Universal Daily CT QC Protocols and Limits Across Different Manufacturers and Models - T. Lin*, K. Hamacher

WE-IePD-TRACK 2-02 Local Diagnostic Reference Levels and Size-Specific Patient Dose in Computed Tomography at a Greek Hospital - D. Stasinou*, V. Zoiopoulou, J. Antonakos, S. Argentos, E. Efstathiopoulos

WE-IePD-TRACK 2-03 Local Noise and Size of Region of Interest in CT Images - G. Li*, Y. Liang

WE-IePD-TRACK 2-04 Global Noise Analysis of Single and Dual Source CT for Obese Patients - A. Thomas*, M. Ahmad, M. Jacobsen, N. Wagner-bartak, C. Jensen, R. Layman

Wednesday, July 28, 2021

WE-IePD-TRACK 2-05 Deep Learning Vs. Iterative Reconstruction in CT Dose Reduction and Image Texture Preservation: A Live Animal Study - J. Zhang, F. Raslau, H. Ganesh, E. Escott, J. Zhang*

WE-IePD-TRACK 2-06 Radiation Dose Estimation for Small Animal Pencil Beam X-Ray Luminescence Computed Tomography Imaging - I. Romero*, C. Li

WE-IePD-TRACK 2-07 Assessing the Viability of Establishing Patient Dose Tables in Pediatric Radiography by Mining Quality Control Data - D. Beaulieu*, D. Kim, D. Zhang

Multi-Disciplinary Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 3

WE-IePD-TRACK 3 Multi-Disciplinary: Novel and Emerging Imaging Technologies in Radiation Therapy

WE-IePD-TRACK 3-01 An AI-Based Watchdog Application to Screen Out COVID-19 Patients in Radiation Therapy - J. Tan*, D. Nguyen, J. Wu, P. Iyengar, F. Kay, Y. Yan, S. Jiang

WE-IePD-TRACK 3-02 Cherenkov Imaging of TSE Patients Using Cameras from Multiple Angles - T. Zhu*, Y. Ong, W. Zhong, H. Sun, P. Bruza, T. Miao, A. Dimofte, A. Maity, J. Plastaras, I. Payder, L. Dong, B. Pogue

WE-IePD-TRACK 3-03 Developing Internal Liver Vascular Models for Radiation Therapy Assessment of Dose to Circulating Lymphocytes - C. Correa Alfonso*, J. Withrow, S. Domal, S. Xing, J. Shin, C. Grassberger, H. Paganetti, W. Bolch

WE-IePD-TRACK 3-04 Preclinical Application of a Cross-Voxel Exchange Model for the Estimation of Tracer Transport and Drug Accumulation - N. Sinno*, T. Hompland, E. Taylor, M. Milosevic, D. Jaffray, C. Coolens

WE-IePD-TRACK 3-05 Understanding the Effect of CPAP On Respiration for Thoracic Radiation - S. Hegarty*, N. Hardcastle, J. Booth, A. Briggs, V. Caillet, B. Harris, R. Franich

WE-IePD-TRACK 3-06 Uptake and Retention of Radiosensitizing Nanoparticles in Key Cells of a Pancreatic Tumor Microenvironment - A. Alhussan*, D. Chithrani, W. Beckham, K. Bromma

WE-IePD-TRACK 3-07 Enabling Upright Radiotherapy Through the Deformation of Horizontally Acquired Images - P. Liu*, D. Waddington, S. Shan, B. Dong, P. Keall

Therapy Interactive ePoster Discussion

5:30 pm - 6:00 pm

-TRACK 5

WE-IePD-TRACK 5 Therapy: SBRT/SRS Treatment Planning

WE-IePD-TRACK 5-01 Impact of Machine Uncertainties on Dosimetric Robustness of Modern-Day Stereotactic Radiosurgery Techniques - T. Cui*, I. Vergalasova, H. Liu, M. Alonso-Basanta, L. Dong, J. Li, K. Nie, W. Shi, B. Teo, Y. Yu, N. Yue, J. Zou, T. Li

WE-IePD-TRACK 5-02 Fesimetric Impact of Dose Calculation Algorithms on Lung SBRT Plan for COPD Patients - S. Jang*, S. Lee, X. Zhang, K. Mak, A. Hirsch, M. Truong

WE-IePD-TRACK 5-03 Robust Optimization with Multiple-CT Sets to Account for Deep Inspiration Breath Hold Variation in Pancreatic Stereotactic Body Radiotherapy - D. Miles*, C. Hill, A. Narang, H. Li, S. Han-Oh

WE-IePD-TRACK 5-04 Feasibility of Using RayStationTM TPS MonteCarlo Algorithm for Evaluating Ocular Dose Delivered Via Dedicated Proton Eyeline - M. Mamalui*

WE-IePD-TRACK 5-05 Uncertainties in the Lung Heterogeneity Correction and Local Control for Lung SBRT - B. Erickson*, B. Ackerson, C. Kelsey, F. Yin, W. Giles, J. Adamson

WE-IePD-TRACK 5-06 Feasibility of Using 6MV-FFF Halcyon RDS for Single-Isocenter/Two-Lesion Lung SBRT - A. Webster*, J. Visak, M. Bernard, R. McGarry, M. Kudrimoti, D. Pokhrel

WE-IePD-TRACK 5-07 Impact of Deep Inspiration Breath-Hold Parameters and Gastrointestinal Gas Volume on Tumor Position Uncertainty in Stereotactic Body Radiation for Pancreatic Cancer - S. Han-Oh*, L. Hsu, C. Hill, H. Lin, A. Martin-gomez, A. Narang

Wednesday, July 28, 2021

-TRACK 6

WE-IePD-TRACK 6 Therapy: Treatment Accuracy

WE-IePD-TRACK 6-01 The Role of Surface-Guided Radiation Therapy to Improve Patient Safety - N. Viscariello*, H. Al-Hallaq, V. Batista, M. Kugele, E. Ford, J. Meyer

WE-IePD-TRACK 6-02 Leveraging a Multi-Institutional Consortium to Understand Dose Accuracy in the Near-Surface Region for Whole Breast Irradiation - A. Moncion*, M. Wilson, R. Ma, R. Marsh, J. Burmeister, D. Dryden, M. Grubb, D. Lack, A. Mayville, P. Jursinic, K. Dess, J. Kamp, K. Young, J. Dilworth, R. Jagsi, M. Mietzel, F. Vicini, L. Pierce, J. Moran

WE-IePD-TRACK 6-03 Gradient-Dose Segmented Analysis (GDSA): An Improved Method for IMRT QA Analysis Compared to the Gamma Analysis - J. Steers*, B. Fraass

WE-IePD-TRACK 6-04 Clinical Implementation of Deep Learning-Based VMAT Patient-Specific QA - X. Yang*, L. Wang, L. Dingjie, Y. Guo, Y. Li, Y. Guan, X. Wu, S. Xu, S. Zhang, M. Chan, R. Yang, L. Geng, J. Sui

WE-IePD-TRACK 6-05 Treatment Delivery Errors as a Component of IROC Phantom Dose Deviations - S. Edward*, C. Peterson, R. Howell, P. Balter, J. Pollard-Larkin, S. Kry

WE-IePD-TRACK 6-06 Streamlining Complex Multi-Isocentric VMAT Based Treatment Delivery Using a Newly Developed Software Tool - J. Teruel*, P. Galavis, K. Osterman, S. Taneja, B. Cooper, N. Gerber, C. Hitchen, D. Barbee

WE-IePD-TRACK 6-07 Double-Vertebral Segment SBRT Via Novel Ring-Mounted Halcyon Linac: Plan Quality, Delivery Efficiency and Accuracy - J. Stephen*, A. Webster, M. Bernard, D. Pokhrel

AAPM Annual Business Meeting

6:15 pm - 7:30 pm

Thursday, July 29, 2021

SAM Professional Symposium

10:30 am - 11:30 am

-TRACK 1

TH-A-TRACK 1 "Picture a Scientist": Toward Gender Equity

Moderator: Kristi Hendrickson, University of Washington, Seattle, WA

10:30 am **K. Paradis (Younge), University of Michigan: "Picture a Scientist": Toward Gender Equity and a More Diverse Medical Physics Workforce**

SAM Imaging Educational Course

10:30 am - 12:30 pm

-TRACK 2

TH-AB-TRACK 2 Breast Imaging 2: Possible Future Directions

Moderator: Da Zhang, Harvard, Boston Children's Hospital, Sharon, MA

10:30 am **J. Phillips, Beth Israel Deaconess Medical Center, Boston, MA: Future Directions for Contrast Enhanced Mammography**

10:55 am **R. Nosrati, Harvard Medical School: A New Framework to Assess Localization Accuracy of Tomosynthesis Guided and Stereotactic Breast Biopsy Units**

11:20 am **P. Ghazi, MALCOVA LLC: Dedicated Breast CT: Clinical Needs, Solutions, and Remaining Challenges**

11:45 am **K. Yang, Harvard Medical School, Massachusetts General Hospital: Noise Power Spectrum Analysis of Breast Tissue Textures Presented in Mammographic Images**

12:10 pm **Audience Q & A**

Thursday, July 29, 2021

SAM Imaging Scientific Symposium

10:30 am - 12:30 pm

-TRACK 3

TH-AB-TRACK 3 Going High or Going Low: MRI at Unconventional Field Strengths

Moderator: Andrew Fagan, Mayo Clinic, Rochester, MN

10:30 am **M. Rosen, MGH/Martinos Center for Biomedical Imaging: How Low Can You Go: Contemporary Millitesla MRI**

10:57 am **A. Campbell-Washburn, National Heart, Lung and Blood Institute: New Clinical Opportunities Using Lower Field MRI**

11:24 am **A. Fagan, Mayo Clinic: 7T MRI Part I: The Good, the Bad and the (Slightly) Ugly**

11:51 am **S. Mukundan, Brigham And Women's Hospital: 7T MRI Part II: Towards the Development of Clinical Operations**

12:18 pm **Q&A & Panel Discussion**

SAM Multi-Disciplinary Scientific Symposium

10:30 am - 12:30 pm

-TRACK 4

TH-AB-TRACK 4 Task-based Image Quality Optimization and Assessment in Diagnostic Imaging and Radiation Therapy

Moderator: Hua Li, University of Illinois at Urbana-Champaign, Urbana, IL

10:30 am **C. Abbey, University of California - Santa Barbara: Training Model Observers for Predictive Performance in Novel Tasks**

11:05 am **M. Anastasio, Washington University in St. Louis: Objective Image Quality Assessment by Use of Deep-Learning**

11:40 am **M. Kupinski, University of Arizona: The Role of Dose in Task-Based Assessment of Image Quality — Diagnostic Imaging and Radiation Therapy**

12:15 pm **Q&A**

SAM Therapy Scientific Symposium

10:30 am - 12:30 pm

-TRACK 5

TH-AB-TRACK 5 Adaptive Radiation Therapy in the Era of Big Data with Artificial Intelligence

Moderator: X. Sharon Qi, UCLA School of Medicine, Los Angeles, CA

10:30 am **X. Qi, UCLA School of Medicine: Adaptive Radiotherapy – Current Clinical Challenges and Role of AI**

10:50 am **X. Gu, UT Southwestern Medical Center: AI/DL Based Auto-Segmentation for ART: Technical Development and Clinical Translation**

11:10 am **Y. Wang, Massachusetts General Hospital: Machine Learning-Based Auto Planning and Dose Prediction for ART**

11:30 am **S. Bentzen, University of Maryland: Learning from Experience: AI and Data Mining for Outcome-Driven Radiation Treatment Planning**

11:50 am **X. Li, Medical College of Wisconsin: Treatment Response Based on Delta Radiomics for ART**

12:10 pm **I. El Naqa, Moffitt Cancer Center: Automated Adaptive Decision Making with Deep Learning Neural Network (DLNN)**

Therapy Scientific Session

10:30 am - 11:30 am

-TRACK 6

TH-A-TRACK 6 Machine QA

Moderators: Eric Ford, University of Washington, Seattle, WA and Julianne Pollard-Larkin, University of Texas MD Anderson Cancer Center, Houston, TX

Thursday, July 29, 2021

- 10:30 am **TH-A-TRACK 6-01 3D Isocenter Coincidence Measurement for MR-Linacs with Cherenkov Imaging** - D. Alexander*, R. Zhang, P. Bruza, A. Rassias, J. Andreozzi, B. Pogue, D. Gladstone
- 10:37 am **TH-A-TRACK 6-02 An Evaluation of the Use of EBT-XD Film for SRS/SBRT Commissioning of Unity MR-Linac System** - S. Lim*, N. Tyagi, E. Subashi, J. Liang, M. Chan
- 10:44 am **TH-A-TRACK 6-03 Experimental Validation of a Prototype Ion Chamber for Accurate Magnetic Resonance Image Guided Radiation Therapy (MRgRT) Output Measurements in Solid Phantoms** - B. Muir*, H. Nusrat, A. Sarfehnia, J. Renaud
- 10:51 am **TH-A-TRACK 6-04 Assessment of the Dependence of the Field Shape on Calibration Coefficients in Dose Area Product (DAP) for Small Field Sizes** - J. JURCZAK*, B. Rapp, S. Dufreneix, F. Delaunay, J. Gouriou, J. Bordy
- 10:58 am **TH-A-TRACK 6-05 Development of a Comprehensive Framework for the Validation of a Respiratory Gating System** - M. Stock*, C. Chu, K. Matthews, J. Fontenot
- 11:05 am **TH-A-TRACK 6-06 Geometric and Dosimetric Verification for a Novel Stereotactic Radiosurgery System: ZAP-X** - Y. Niu*, Y. Yuan, A. Rashid, D. Pang
- 11:12 am **TH-A-TRACK 6-07 Quality Assurance of CyberKnife Small Radiation Fields Using High-Resolution Scanning Diode Detector** - K. Yang*, S. Sharma, A. Ju

SAM Therapy Educational Course

10:30 am - 12:30 pm

-TRACK 7

TH-AB-TRACK 7 Hands-on Workshop: Simulated Error Training for the Physics Plan Review

Moderator: Perry Johnson, University of Florida Health Proton Therapy Institute, Jacksonville, FL

- 10:30 am **L. Schubert, University of Colorado Denver: Introduction to Simulated Error Training**
- 10:50 am **P. Johnson, University of Florida Health Proton Therapy Institute: Overview of the WGPE Simulation Data Sets**
- 11:10 am **G. Kim, University of California, San Diego: Hands On Session – Cases 1 & 2**
- 11:50 am **J. Faught, St. Jude Children's Research Hospital: Hands On Session – Cases 3 & 4**

SAM Professional Symposium

11:30 am - 12:30 pm

-TRACK 1

TH-B-TRACK 1 Standardization and Workflow Management in Larger Multi-site Radiation Oncology Practice: Challenges and Solutions

Moderators: Raghavendiran Boopathy, OHSU School of Medicine, Portland, OR and Malcolm Heard, Portland, OR

- 11:30 am **R. Boopathy, OHSU School of Medicine: Introduction**
- 11:35 am **J. Tanyi, Oregon Health & Science University: Standardization and Consolidation Challenges in Multi-Site Radiation Oncology Practice**
- 11:50 am **G. Niyazov, Memorial Sloan Kettering Cancer Center: Team-Based Cross-Campus Planning Workflow**
- 12:05 pm **C. Nelson, UT MD Anderson Cancer Center: Standardization of Physics QA Across Multi-Center Practice: Challenges and Lessons Learned**
- 12:20 pm **Audience Q&A**

Multi-Disciplinary Scientific Session

11:30 am - 12:30 pm

-TRACK 6

TH-B-TRACK 6 Real-time Tracking

Moderators: Ross Berbeco, Brigham and Women's Hospital, Boston, MA and Jeremy Booth, Royal North Shore Hospital, Sydney, NSW

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- 11:30 am **TH-B-TRACK 6-01 Decompose KV Projections Using Neural Network for Improved Motion Tracking in Paraspinal SBRT** - X. He*, W. Cai, F. Li, Q. Fan, P. Zhang, L. Cervino, X. Li, T. Li
- 11:37 am **TH-B-TRACK 6-02 Near Real-Time Intra-Fractional 6D Monitoring of Prostate Position Using a Scheme Based on the Skeletonization of Implanted Marker Images** - H. Kuo*, D. Lovelock, C. Della-Bianca, A. Damato, L. Happersett, S. Lin, M. Zelefsky, L. Cervino, S. Berry
- 11:44 am **TH-B-TRACK 6-03 Prediction of Lung Tumor Position Using 0.35 T Cine MRgRT in Retrospective Study** - J. Shin*, Z. Ji, Y. Huang, B. Lewis, A. Guta, S. Oh, J. Kim, T. Kim
- 11:51 am **TH-B-TRACK 6-04 Experimental and Monte Carlo Simulation Characterization of a KV Scattered X-Ray Imaging System for Real-Time Lung Tumor Motion Tracking** - Y. Huang*, Y. Zhong, T. Chiu, C. Shen, K. Yang, X. Jia
- 11:58 am **TH-B-TRACK 6-05 Evaluation of Bronchoscopically Implanted Anchored Electromagnetic Transponders for Tumor Tracking and Monitoring During Deep Inspiration Breath Hold Lung Radiotherapy** - W. Harris*, E. Yorke, H. Li, C. Czmielowski, M. Chawla, R. Lee, A. Hotca-Cho, D. Mcknight, A. Rimmer, D. Lovelock
- 12:05 pm **TH-B-TRACK 6-06 Markerless Tracking of Lung Tumor Motion Using Simulated Coded Aperture Scatter Imaging** - A. Mahl*, B. Miller, C. Altunbas, B. Kavanagh, M. Miften, B. Jones
- 12:12 pm **TH-B-TRACK 6-07 Markerless Motion Tracking with Simultaneous MV/kV Imaging in Spine SBRT Treatment** - W. Cai*, F. Li, X. He, P. Zhang, L. Cervino, X. Li, T. Li

Vendor Showcase

12:00 pm - 12:30 pm

-TRACK 8

TH-SHOWCASE-TRACK 8 LAP Laser, LLC

12:00 pm **TH-SHOWCASE-TRACK 8-18-01 Clinical Workflows Utilizing Laser Systems by LAP-** R. Schmidt*

Imaging Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 1

TH-IePD-TRACK 1 Imaging: Spectral and Dual Energy CT/CBCT

- TH-IePD-TRACK 1-01 Estimation of Effective Atomic Number and Relative Electron Density Maps from Single-Energy CT Using Deep Learning** - B. Kim*, H. Kim, S. Jung, J. Son, C. Choi, J. Kim, J. Park
- TH-IePD-TRACK 1-02 Are Spectral Modulator and Flying Focal Spot Beneficial for Fast-KV Switching Dual-Energy Cone-Beam CT ?** - H. Zhou*, Y. Deng, H. Gao
- TH-IePD-TRACK 1-03 Assessment of Cardiac Gout Identification Using Dual EnergyCT and a Dynamic Phantom** - A. Scott*, Y. Zhou, D. Zhang
- TH-IePD-TRACK 1-04 Dose Savings and Image Quality in Dual-Energy Non-Contrast CT Scans** - G. Anthony*, Y. Liang
- TH-IePD-TRACK 1-05 Evaluation of Intra-Manufacturer Dual-Energy CT Iodine Quantification Accuracy: Phantom Studies** - A. Zhao*, A. Borhani, R. Catania
- TH-IePD-TRACK 1-06 The Impact of Dual Energy CT (DECT) Protocol Settings on Image Quality** - R. Nosrati*, M. Palmer, O. Brook, D. Zhang
- TH-IePD-TRACK 1-07 Spectrally Neutral CT Calibration** - R. Jennings*

-TRACK 2

TH-IePD-TRACK 2 Imaging: MRI Quantitative Imaging and Applications

TH-IePD-TRACK 2-01 Comparison of Single Breathhold MDixon-Quant and Multi-Echo GRE Methods to Spin Echo Method for Estimating Liver Iron Concentration - J. Zhang*, D. Akselrod, J. Gonyea, S. Hipko, J. Tam, M. Bazylewicz

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TH-IePD-TRACK 2-02 Analysis of Diffusion and Microstructure Properties in Brain Tumors Using a Random Walk with Barriers Model - Y. Li*, M. Kim, T. Lawrence, T. Feiweier, Y. Cao

TH-IePD-TRACK 2-03 Leveraging Prior Knowledge to Reconstruct Quantitative MR Relaxation Maps to Investigate Glioma Tumor Heterogeneity - X. Zhao*, D. Parsons, Z. Iqbal

TH-IePD-TRACK 2-04 Obtaining New Contrasts from a Single T1-Weighted Image - Y. Wu, Y. Ma,

N. Kovalchuk, J. Du, L. Xing*

TH-IePD-TRACK 2-05 Deep Learning Based T2* Mapping from MRI Images with Different Types of Weighting - Y. Wu, Y. Ma,

N. Kovalchuk, J. Du, L. Xing*

TH-IePD-TRACK 2-06 Quantitative Inter-Vendor Evaluation of PDFF and R2* Mapping Accuracy for 3T MRI Scanners - J. Yu*, A. Panda

TH-IePD-TRACK 2-07 Automatic Stratification of Prostate Cancer Patients into Low- and High-Grade Groups Using a Support Vector Machine Model with Multiparametric Magnetic Resonance Image Features - A. Urakami*, H. Arimura, K. Ninomiya

Multi-Disciplinary Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 3

TH-IePD-TRACK 3 Multi-Disciplinary: Imaging for Motion Management

TH-IePD-TRACK 3-01 Benchmark of 4DCT Derived Motion Models with a Biomechanical Lung Model for Tumor Position Estimation - P. Sabouri*, M. Ranjbar, S. Mossahebi, A. Sawant, P. Mohindra, G. Lasio, L. Topoleski

TH-IePD-TRACK 3-02 Feasibility of Intrafraction Motion Management Using Triggered KV Imaging During Spine Stereotactic Radiosurgery - J. Koo*, L. Nardella, M. Degnan, J. Andreozzi, H. Yu, J. Penagaricano, P. Johnstone, D. Oliver, K. Ahmed, S. Rosenberg, E. Wuthrick, R. Diaz, V. Feygelman, E. Moros, G. Redler

TH-IePD-TRACK 3-03 Respiration-Induced Target Motion Prediction from a Surrogate Signal in Radiotherapy: A Bayesian Framework - C. Remy*, D. Ahumada, A. Labine, J. Côté, M. Lachaine, H. Bouchard

TH-IePD-TRACK 3-04 Verification of a System for Real-Time EPID Based Breath Hold Monitoring During DIBH Tangential Breast Cancer Radiotherapy - E. Vasina, P. Greer, D. Thwaites, J. Lehmann*

TH-IePD-TRACK 3-05 Inter-Fraction Motion Assessment and Accumulated Dose Quantification of Upper GI Organs During MR-Guided Ablative SBRT Treatment - S. Alam*, H. Veeraraghavan, K. Tringale, E. Amoteng, C. Crane, N. Tyagi

TH-IePD-TRACK 3-06 Tumor Motion Tracking in a KV Scattered X-Ray Imaging System for Lung Cancer Radiotherapy - Y. Zhong*, T. Chiu, Y. Huang, Y. Shao, C. Shen, K. Yang, X. Jia

TH-IePD-TRACK 3-07 Motion-Robust Free-Breathing Abdominal MR Fingerprinting (MRF) Using Radial Acquisition and Temporal Compressed Sensing Reconstruction: Initial Results - E. Subashi*, V. Yu, C. Wu, P. Koken, M. Doneva, R. Otazo, O. Cohen

Therapy Interactive ePoster Discussion

12:30 pm - 1:00 pm

-TRACK 5

TH-IePD-TRACK 5 Therapy: Treatment Delivery

TH-IePD-TRACK 5-01 Evaluation of a Novel Film Dosimetry System: Orthochromic OC-1 Film - S. Lim*, G. Tang

TH-IePD-TRACK 5-02 Temporal Growth of the Polymerization in Irradiated EBT3 and EBT-XD Radiochromic Films - Y. Hao*, S. Momin, J. Williamson, H. Li, R. Khan, A. Darafsheh

TH-IePD-TRACK 5-03 Uncertainty in OSLD Dose Reading Due to CBCT-Based IGRT - S. Charyyev*, J. Harms, Z. Diamond, E. Elder, B. Ghavidel, M. Axente

TH-IePD-TRACK 5-04 Design Considerations for CdTe-Based Radiation Detector for Correction-Less Dosimetry - F. Akbari*, D. Shvydka, E. Parsai

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TH-IePD-TRACK 5-05 Validation of a Full Monte-Carlo Beam Source on the Varian TrueBeam for Primary Standards Establishment in Dose Area Product (DAP) - J. JURCZAK*, B. Rapp, J. Gouriou

TH-IePD-TRACK 5-06 Dosimetric Effect of Tumor Treating Field Electrodes for Pediatric Infratentorial IMRT - J. Faught*, W. Myers, E. Bowers, M. Gargone, L. Zhao, T. Merchant, C. Tinkle

TH-IePD-TRACK 5-07 Monte Carlo Calculations of Photon Shielding Properties for Commercial Blocks - M. Kaluarachchi*, E. Klein, M. Rivard

Break

12:30 pm - 1:00 pm

SAM Professional Symposium

1:00 pm - 2:00 pm

-TRACK 1

TH-C-TRACK 1 A Penny for Your Thoughts: Survey Science for Medical Physicists

Moderators: Kristi Hendrickson, University of Washington, Seattle, WA and Jennifer Lynn Johnson, Kelsey-Seybold Clinic, Houston, TX

1:00 pm **L. Schubert, University of Colorado Denver: Start from Scratch: How to Craft Your Own Survey Questions, Methods, and Workflows**

1:18 pm **C. Buckey, Mayo Clinic Arizona: Translation and Interpretation: Adapting Established and Validated Survey Questions**

1:36 pm **R. Ivie, American Institute of Physics: Broaden the Horizons: Surveys at National and International Scale**

1:54 pm **Audience Q&A**

SAM Imaging Educational Course

1:00 pm - 2:00 pm

-TRACK 2

TH-C-TRACK 2 Effective Dose and Patient Dose

Moderator: Madan Rehani, Massachusetts General Hospital, Boston, MA

1:00 pm **M. Rehani, Massachusetts General Hospital: Effective Dose: What It Gives and What It Does Not**

1:13 pm **C. Martin, University of Glasgow: Latest from ICRP On Effective Dose**

1:26 pm **E. Samei, Duke University: What Is the Best Metric to Assess Patient Exposure**

1:39 pm **Audience Q & A**

Imaging Scientific Session

1:00 pm - 2:00 pm

-TRACK 3

TH-C-TRACK 3 MRI

Moderators: Federico Pineda, University of Chicago, Chicago, IL and Yunhong Shu, Mayo Clinic, Rochester, MN

1:00 pm **TH-C-TRACK 3-01 BEST IN PHYSICS (IMAGING): Parallel Imaging Stream for Multi-Purpose Real-Time Adaptive MRI-Guided Prostate Radiotherapy** - T. Bruijnen*, P. Borman, T. Schakel, B. Raaymakers

1:07 pm **TH-C-TRACK 3-02 Correcting Image Distortion for Brain Tumor Treatments on an MRI-Linac** - S. Shan*, D. Waddington, P. Liu, B. Dong, J. Buckley, D. Elwadia, T. Pham, G. Liney, P. Keall

1:14 pm **TH-C-TRACK 3-03 Comparing Estimated Liver Elasticity Based on the Finite Element Method to MR-Elastography for Distribution of Liver Fibrosis** - K. Fujimoto*, T. Shiinoki, Y. Yuasa, Y. Kawazoe, M. Yamane, T. Sera, H. Tanaka

1:21 pm **TH-C-TRACK 3-04 Visual Network in Primary Open Angle Glaucoma: A Functional Connectivity Analysis Based on Group Parcellation from Resting fMRI** - H. Qu, W. Lu, L. Shi, J. Qiu, W. Lu*

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- 1:28 pm **TH-C-TRACK 3-05 Novel Sampling Strategy for Improved Reproducibility in Quantitative T1rho Mapping** - C. Wu*, Q. Peng
- 1:35 pm **TH-C-TRACK 3-06 A Simulated Comparison of Local SAR Near Orthopedic Implants at 7T Relative to Lower Field Strengths** - P. Jacobs*, A. Fagan
- 1:42 pm **TH-C-TRACK 3-07 Reproducibility of Functional Modes Identified by Non-Negative Matrix Factorization of FMRI Depends on Pre-Processing Strategy** - Z. Ahmed*, D. Kang, N. Meyer, M. In, Y. Shu

SAM Multi-Disciplinary Scientific Symposium

1:00 pm - 3:00 pm

-TRACK 4

TH-CD-TRACK 4 Novel Algorithms for High-quality Diagnostic and On-board Cone-Beam CT

Moderator: Alejandro Sisniega, Johns Hopkins University, Baltimore, MD

- 1:00 pm **A. Sisniega, Johns Hopkins University: Deep-Learning-Enabled Autofocus for Image-Domain Deformable Motion Compensation in Cone Beam CT**
- 1:25 pm **M. Kachelriess, DKFZ Heidelberg, FS05: Data-Driven Methods for Image Reconstruction and Artifact Correction in Cone Beam CT**
- 1:50 pm **A. Wang, Stanford University: New Technologies for Dual Energy Cone Beam CT**
- 2:15 pm **Y. Rong, Mayo Clinic Arizona: Translating Recent Advances in CBCT to Clinical Practice**
- 2:40 pm **Q&A**

Therapy Scientific Session

1:00 pm - 2:00 pm

-TRACK 5

TH-C-TRACK 5 Novel treatment delivery and verification techniques I

Moderators: Rebecca Howell, University of Texas MD Anderson Cancer Center, Houston, TX and Shannon O'Reilly, University of Pennsylvania, Philadelphia, PA

- 1:00 pm **TH-C-TRACK 5-01 A Novel 4D Dose Accumulation Algorithm for Predicting Dose to Organs at Risk During Motion Synchronized Treatments on Radixact** - W. Ferris*, W. Culbertson, J. Bayouth, L. DeWerd
- 1:07 pm **TH-C-TRACK 5-02 A Trajectory Optimization Method for Non-Coplanar Volumetric Modulated Arc Therapy of Locally Advanced Unresectable Pancreatic Cancer** - G. Wang*, R. Yang
- 1:14 pm **TH-C-TRACK 5-03 Influence of the Freedom in Table Rotation on Plan Quality, Deliverability, Delivery Time and Robustness of Dynamic Trajectory Treatment Plans** - H. Loebner*, S. Mueller, W. Volken, G. Guyer, P. Wallimann, D. Aebbersold, M. Stampanoni, M. Fix, P. Manser
- 1:21 pm **TH-C-TRACK 5-04 Management of Larger Number of Multiple Brain Metastases Patients Via Restricted Single Isocenter Stereotactic Radiosurgery (RESIST) Method** - A. Palmiero*, W. St Clair, M. Randall, D. Pokhrel
- 1:28 pm **TH-C-TRACK 5-05 Treatment of Gynecological Cancer Patients with Extended Fields (EF) Via Dual-Isocenter Volumetric Modulated Arc Therapy (VMAT) Using 6MV-FFF O-Ring Halcyon Linac** - D. Pokhrel*, M. Randall, D. Fabian
- 1:35 pm **TH-C-TRACK 5-06 BEST IN PHYSICS (THERAPY): Color Imaging of Cherenkov Emission in Vivo During Radiotherapy Exhibits Correlation with Superficial Tissue Composition and Blood Oxygenation Changes** - P. Bruza*, D. Alexander, A. Nomezine, E. Aulwes, L. Jarvis, D. Gladstone, B. Pogue
- 1:42 pm **TH-C-TRACK 5-07 Commissioning of a Novel Compensator-Based IMRT System for Low- and Middle-Income Countries** - K. Oh*, B. Sengupta, A. Olanrewaju, R. Douglas, K. Roach, C. Cardenas, L. Court, E. Ford

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Multi-Disciplinary Scientific Session

1:00 pm - 2:00 pm

-TRACK 6

TH-C-TRACK 6 Novel and Emerging Technologies in Radiation Therapy

Moderators: Ke Sheng, UCLA School of Medicine, Los Angeles, CA and Cem Altunbas, University of Colorado School of Medicine, Aurora, CO

- 1:00 pm **TH-C-TRACK 6-01 A Deconvolution-Based Image Fusion Technique for Heterogenous Multi-Layer Portal Imagers** - I. Valencia Lozano*, M. Jacobson, M. Myronakis, T. Harris, M. Lehmann, P. Huber, R. Fueglistaller, D. Morf, R. Berbeco, C. Williams
- 1:07 pm **TH-C-TRACK 6-02 Exploiting Pair Production for Nanoparticle Imaging and for In-Vivo Beam Monitoring in Megavoltage Radiotherapy** - D. Brivio*, E. Sajo, P. Zygmanski
- 1:14 pm **TH-C-TRACK 6-03 Hypersensitivity of Cancer Cells to Photon and Proton Radiation Caused by Disruption of Cell Cycle Arrest by An ATR Inhibitor** - M. Manandhar*, S. Bright, B. Turner, D. Flint, M. Ben Kacem, D. Martinus, S. Shaitelman, G. Sawakuchi
- 1:21 pm **TH-C-TRACK 6-04 Plastic and Lead-Doped Scintillators for Ultrahigh Dose-Rate Irradiations Delivered with An X-Ray Tube** - D. Cecchi*, C. Gigeure, F. Larose, F. Theriault-Proulx, L. Beaulieu, M. Bazalova-Carter
- 1:28 pm **TH-C-TRACK 6-05 The Feasibility of Measuring In Vivo Tumor Microenvironment PH During Radiotherapy Using a Novel Cerenkov Emission Multispectral Optical Probe Based on Silicon Photomultipliers** - I. Oraiqat*, M. Konieczek, R. Clarke, A. Rehemtulla, I. El Naqa
- 1:35 pm **TH-C-TRACK 6-06 Three-Dimensional Tumor Spheroid Model as a Tool to Optimize the Nano-Bio Interface** - K. Bromma*, W. Beckham, D. Chithrani
- 1:42 pm **TH-C-TRACK 6-07 Measurement of Secondary Neutron Spectrum with He4 Fast Neutron Detector** - Y. Liang, S. Gokhale, J. Nimmagadda, E. Kryck, A. Enqvist, S. Samant*

SAM Therapy Educational Course

1:00 pm - 2:00 pm

-TRACK 7

TH-C-TRACK 7 Not for the Faint of Heart: Functional Radiosurgery

Moderator: David Schlesinger, University of Virginia Health Systems, Charlottesville, VA

- 1:00 pm **S. Braunstein, University of California San Francisco: Functional Radiosurgery: Clinical Indications and Rationale**
- 1:15 pm **G. Kim, University of California, San Diego: Functional Radiosurgery Using the Linear Accelerator**
- 1:30 pm **D. Schlesinger, University of Virginia Health Systems: Functional Radiosurgery with Gamma Knife**
- 1:45 pm **Q&A**

SAM Partners in Solutions Therapy

1:00 pm - 3:00 pm

-TRACK 8

TH-CD-TRACK 8 Therapy: Adaptive Therapy AI Software Planning Systems

Moderators: Deborah Schofield, AdventHealth Orlando, Orlando, FL and Norman Lee Brown, Memorial Hospital Gulfport, Gulfport, MS

- 1:00 pm **D. Schofield, AdventHealth Orlando: The Ghost in the Shell: Understanding How AI Can Improve Adaptive Radiation Therapy Workflows**
- 1:30 pm **N. Dwivedi, Mim Software, Inc.: Automated Adaptive Assessment Utilizing On-Board Imaging and Monte Carlo Dose Calculation**

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- 1:50 pm **A. Schulte, TheraPanacea: Background of ART-Plan™ Proposal for ART-Plan™**
- 2:10 pm **N. Dogan, University of Miami: Varian's Adaptive Planning Solution - Online or Offline**
- 2:30 pm **L. Schulte, Siris Medical: InsightRT: Automated Adaptive Therapy Decision Support and Insurance Authorization Q&A**

Professional Symposium

2:00 pm - 3:00 pm

-TRACK 1

TH-D-TRACK 1 Medical Physics Workforce Update

Moderators: Wayne Newhauser, Louisiana State University, Baton Rouge, LA and Erli Chen, Cheshire Medical Center, Keene, NH and Michael Mills, James Graham Brown Cancer Center, Louisville, KY

- 2:00 pm **Introduction**
- 2:05 pm **W. Newhauser, Louisiana State University: The Medical Physics Workforce in the United States**
- 2:20 pm **E. Chen, Cheshire Medical Center: A Special Report of 2020 AAPM Therapy Physicist Workforce Survey Results**
- 2:35 pm **D. Gress, American College of Radiology: A Special Report of 2020 AAPM Diagnostic Physicist Workforce Survey Results**
- 2:50 pm **Audience Q&A**

SAM Imaging Educational Course

2:00 pm - 3:00 pm

-TRACK 2

TH-D-TRACK 2 CT Protocol Development and Management

Moderator: Megan Jacobsen, UT MD Anderson Cancer Center, Houston, TX

- 2:00 pm **K. Little, Ohio State Univ: CT Protocol Management Pearls and Pitfalls**
- 2:15 pm **T. Szczykutowicz, University Wisconsin-Madison: CT Contrast Parameters for the Medical Physicist**
- 2:30 pm **M. Jacobsen, UT MD Anderson Cancer Center: CT Protocol Case Studies: Safety and Image Quality**
- 2:45 pm **Audience Q & A**

Imaging Scientific Session

2:00 pm - 3:00 pm

-TRACK 3

TH-D-TRACK 3 AI in Imaging

Moderators: Maryellen Giger, University of Chicago, Chicago, IL and Michael McNitt-Gray, David Geffen School of Medicine at UCLA, Los Angeles, CA

- 2:00 pm **TH-D-TRACK 3-01 An Effective Deep Learning Framework for Lung Tumor Segmentation in 4D-CT - S. Momin*, Y. Lei, Z. Tian, T. Wang, J. Roper, A. Kesarwala, K. Higgins, J. Bradley, T. Liu, X. Yang**
- 2:07 pm **TH-D-TRACK 3-02 Automated Tumor Localization and Segmentation Through Hybrid Neural Network in Head & Neck Cancer - A. Qasem*, Z. Zhou**
- 2:14 pm **TH-D-TRACK 3-03 Deep Siamese Network for False Positive Reduction in Brain Metastases Segmentation - Z. Yang*, M. Chen, R. Timmerman, T. Dan, Z. Wardak, W. Lu, X. Gu**
- 2:21 pm **TH-D-TRACK 3-04 Development of Artificial Intelligence (AI) Based Platform for Locally Advanced Rectal Cancer Prognosis - Y. Zhang*, L. Shi, X. Sun, S. Jabbour, N. Yue, K. Nie**
- 2:28 pm **TH-D-TRACK 3-05 Unsupervised COVID-19 Pneumonia Lesion Segmentation in CT Scans Using Cycle Consistent Generative Adversarial Network - Y. Liu*, C. Fang, J. Wen, Y. Yang**

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- 2:35 pm **TH-D-TRACK 3-06 BEST IN PHYSICS (IMAGING): Validation of a Deep-Learning Model Observer in a Realistic Lung-Nodule Detection Task with Convolutional Neural Network-Based CT Denoising - H. Gong*, N. Huber, C. Koo, T. Johnson, A. Inuoe, J. Marsh, J. Thorne, S. Leng, J. Fletcher, C. McCollough, L. Yu**
- 2:42 pm **TH-D-TRACK 3-07 Towards Understandable AI in Lung Nodule Detection: Using the Genetic Algorithm for Interpretable, Human-Understandable Optimization of Nodule Candidate Generation in Lung CT Imaging - M. Wahi-Anwar*, N. Emaminejad, G. Kim, M. Brown, M. McNitt-Gray**

Therapy Scientific Session

2:00 pm - 3:00 pm

-TRACK 5

TH-D-TRACK 5 Novel treatment delivery and verification techniques II

Moderators: Geoffrey Hugo, Washington University School of Medicine, St. Louis, MO and Laura Cervino, Memorial Sloan Kettering Cancer Center, New York, NY

- 2:00 pm **TH-D-TRACK 5-01 A Direct Machine-Specific Parameters Incorporated Spot-Scanning Proton Arc (SPArc) Algorithm - G. Liu*, L. Zhao, D. Yan, X. Li, X. Ding**
- 2:07 pm **TH-D-TRACK 5-02 Comparison of Robust Optimization and PTV Margins for Mixed-Beam Radiotherapy - E. Heath*, S. Mueller, G. Guyer, O. Elicin, D. Aebersold, M. Fix, P. Manser**
- 2:14 pm **TH-D-TRACK 5-03 Development of An Irradiation System for MRI-Guided Proton Therapy - Y. Fujii*, H. Ueda, T. Takayanagi, K. Umegaki, T. Matsuura**
- 2:21 pm **TH-D-TRACK 5-04 Evaluation of GRID and Spatially Fractionated Radiation Therapy: Dosimetry and Preclinical Trial - T. Johnson*, A. Bassil, C. Kent, N. Williams, G. Palmer, Y. Mowery, M. Oldham**
- 2:28 pm **TH-D-TRACK 5-05 Experimental Study of An Innovative Thermo-Brachytherapy Seed for Simultaneous Delivery of Radiation and Hyperthermia - S. Taghizadehghahremanloo*, E. Parsai, D. Shvydko, A. Shan**
- 2:35 pm **TH-D-TRACK 5-06 Effect of Incoming Particle Energy and Ionization Cluster Size On the G-Value of Hydrated Electrons - A. Bui*, A. Bui, J. Sankey, L. Childress, J. Seuntjens, S. Abbasinejad Enger, S. Abbasinejad Enger**
- 2:42 pm **TH-D-TRACK 5-07 Ionoacoustic Treatment Monitoring for Radiosensitizer-Enhanced Carbon Ion Therapy: A Feasibility Study - J. Lascaud*, M. Wuerl, P. Dash, M. Nitta, K. Parodi**

-TRACK 6

TH-D-TRACK 6 Deep learning in Treatment Planning

Moderators: Xun Jia, The University of Texas Southwestern Medical Ctr, Dallas, TX and Qing-Rong Jackie Wu, Duke University Medical Center, Durham, NC

- 2:00 pm **TH-D-TRACK 6-01 3D DenseNet for Improving Dose Prediction of Volumetric Modulated Arc Therapy in Prostate Cancer - J. Fu*, K. Singhrao, Z. Wang, D. Ruan, D. Low, J. Lewis, X. Qi**
- 2:07 pm **TH-D-TRACK 6-02 A Deep Learning-Based Framework for Dose Prediction of Pancreatic Stereotactic Body Radiation Therapy - S. Momin*, Y. Lei, T. Wang, J. Zhang, J. Roper, J. Bradley, T. Liu, P. Patel, X. Yang**
- 2:14 pm **TH-D-TRACK 6-03 Attention-Gated U-Net Implementation in Total Marrow Irradiation Plan Dose Prediction - D. Du*, K. Qing, W. Watkins, C. Han, T. Ketcherside, J. Wong, T. Williams, A. Liu**
- 2:21 pm **TH-D-TRACK 6-04 Transfer Learning for Fluence Map Prediction in Adrenal Stereotactic Body Radiation Therapy - W. Wang*, Y. Sheng, M. Palta, B. Czito, C. Willett, F. Yin, Q. Wu, Q. Wu, Y. Ge**

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- 2:28 pm **TH-D-TRACK 6-05 How Fluence-Prediction Error Impact Final Plan Quality: Insights into a Deep-Learning-Based (DL-Based) Head-And-Neck (H&N) IMRT Planning AI Agent** - X. Li*, Q. Wu, Q. Wu, C. Wang, Y. Sheng, W. Wang, H. Stephens, F. Yin, Y. Ge
- 2:35 pm **TH-D-TRACK 6-06 Feasibility Study of Cross-Modality IMRT Auto-Planning Guided by a Deep Learning Model** - G. Szalkowski*, X. Xu, S. Das, P. Yap, J. Lian
- 2:42 pm **TH-D-TRACK 6-07 A Deep-Learning-Enabled Remote Teaching Platform for Pancreas SBRT Treatment Planning: A Pilot Study in Pandemic Era** - Y. Xie*, W. Wang, Y. Chang, X. Li, K. Lu, R. Li, H. Stephens, F. Yin, Q. Wu, Y. Ge, Q. Wu, Y. Sheng

SAM Therapy Educational Course

2:00 pm - 3:00 pm

-TRACK 7

TH-D-TRACK 7 Gamma Knife QA Update with TG-178

Moderator: Nels Knutson, Washington University School of Medicine, St Louis, MO

- 2:00 pm **S. Goetsch, San Diego Medical Physics: TG-178 Recommendations**
- 2:15 pm **P. Alvarez, UT MD Anderson Cancer Center - IROC: Implementing TG -178 into a Robust Modern QA Program**
- 2:30 pm **N. Knutson, Washington University School of Medicine: Gamma Knife QA from TG 21 to TG-178**
- 2:45 pm **Q&A**

Imaging Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 1

TH-IePD-TRACK 1 Imaging: CT Image Quality, Protocol Optimization, and Dose Reduction

TH-IePD-TRACK 1-01 A Method to Estimate the Half-Value Layer in CT from Two Exposure Measurements - R. Al-Senan*, K. Brown, S. King

TH-IePD-TRACK 1-02 Half-Value Layer at Different Positions in Wide-Beam CT Scanners - N. Correa*, I. Barreto, M. Arreola

TH-IePD-TRACK 1-03 Spatial Resolution of Extremity CTA On a Wide Coverage Diagnostic CT Scanner: Effects of Focal Spot Size and Reconstruction Algorithm - Z. Qi*

TH-IePD-TRACK 1-04 Optimal Tube Voltage Selection in Coronary Artery Angiogram with Dual-Source CT - Y. Zhou*, Y. Zhou, D. Zhang, A. Scott

TH-IePD-TRACK 1-05 A New Approach for Low Dose Low KVP Coronary Artery Calcium Scoring - D. Zhang*, A. Scott, C. Lee, N. Gellada, M. Hyun, Y. Zhou

TH-IePD-TRACK 1-06 A Quantitative Approach to Patient Size Dependent Optimal Dose for Coronary Artery Calcium Scoring CT at the Standard KVP - Y. Zhou*, Y. Zhou, D. Zhang, E. Eastman, C. Lee, A. Scott

TH-IePD-TRACK 1-07 Graph-Based Low Dose Computed Tomography - Z. Zhang*, W. Liu, L. Xing

-TRACK 2

TH-IePD-TRACK 2 Imaging: MRI Physics and QC

TH-IePD-TRACK 2-01 Comparative Analysis of T2W Contrast for Clinical Prostate Protocols Using a Dedicated MR System Phantom - K. Hwang*, J. Yung, A. Venkatesan, R. Stafford

TH-IePD-TRACK 2-02 A Dynamic Susceptibility Contrast MRI Digital Reference Object for Testing Software with Leakage Correction - H. Chen*, M. Jen, P. Hou, R. Stafford, H. Liu

TH-IePD-TRACK 2-03 Development of a Quality-Assurance Program for MR-Derived PDFF Measurements - S. Fielden*, W. Triffo

TH-IePD-TRACK 2-04 Dependence of B0 Homogeneity on Field Strength and Phantom Size When Measured with Four Common Methods - T. Salzillo*, D. Jordan, D. Ragan, M. O'Shea, T. Andrews, C. Dillon, S. Fielden, M. Tressler, J. Saunders, J. Och, C. Brunnquell

Thursday, July 29, 2021

TH-IePD-TRACK 2-05 MRI Isocenter Consistency at Various Gantry Angles Using MODUS MRID3D Phantom - D. Sievert*, B. Lewis, J. Shin, E. Barberi, B. Quinn, J. Kim, T. Kim

TH-IePD-TRACK 2-06 Need for a Saturation RF Band to Mitigate Flow Artifact in 3D-MPRAGE On a Compact 3T Scanner - M. In*, N. Campeau, J. Huston, D. Kang, L. Bardwell Speltz, N. Meyer, J. Trzasko, Y. Shu, M. Bernstein

TH-IePD-TRACK 2-07 MRI Scanner 3D Field Homogeneity Evaluation for ACR Acceptance and Performance Testing - J. Wang*

Multi-Disciplinary Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 3

TH-IePD-TRACK 3 Multi-Disciplinary: Segmentation III

TH-IePD-TRACK 3-01 The Segmentation of Main Intestinal Organs Based on CT Images with Deep Learning Method - w. wu*, R. Lei, K. Niu, R. Yang, Z. He

TH-IePD-TRACK 3-02 Investigation of Clinical Target Volume Segmentation for Whole Breast Irradiation Using 3D Convolutional Neural Network and the Shape Regularization Model Without the Prior Information of the Target-Side Breast - M. Oya*, S. Sugimoto

TH-IePD-TRACK 3-03 Attention Guided Network for Vestibular Schwannoma Growth Prediction - K. Wang*, L. Chen, N. George-jones, J. Hunter, J. Wang

TH-IePD-TRACK 3-04 Segmentation by Individualized Registration (SIR) for CBCT-Based Adaptive Radiation Therapy - X. Liang*, J. Chun, H. Morgan, T. Bai, D. Nguyen, J. Park, S. Jiang

TH-IePD-TRACK 3-05 Intentional Deep Overfit Learning (IDOL): An Application to CT Segmentation-Based Daily Adaptive Radiotherapy - B. Choi*, J. Chun, I. Park, S. Olberg, J. Kim, Y. Park, M. Lin, B. Cai, S. Jiang, J. Park

TH-IePD-TRACK 3-06 Deep Learning Neural Network for Automatic Delineation of Para-Aortic Clinical Target Volume - W. Lu*, P. D'cunha, W. Chi, M. Chen, L. Ma, M. Kazemimoghadam, Z. Yang, X. Gu, K. Albuquerque

TH-IePD-TRACK 3-07 Auto-Segmentation of Important Centers of Growth in the Pediatric Skeleton to Consider During Radiation Therapy Based on Deep Learning - W. Qiu*, W. Zhang, X. Ma, Q. Zhou, J. Zhu

Therapy Interactive ePoster Discussion

3:00 pm - 3:30 pm

-TRACK 5

TH-IePD-TRACK 5 Therapy: Treatment Verification

TH-IePD-TRACK 5-01 Development and Deployment of a Real-Time Transit EPID Dose Verification System - J. Baeza Ortega*, C. Cassell, D. Lee, N. Kong, P. Greer

TH-IePD-TRACK 5-02 Evidence-Based Evaluation of Skin Flash for Prone Breast Treatments by Using Edge Detection on Daily Exit Dosimetry Images - W. Gu*, S. Yoon, E. Hubley, A. Haertter, G. Freedman, N. Taunk, J. Zou, B. Teo, C. Kennedy, L. Dong, T. Li

TH-IePD-TRACK 5-03 A Cross Institution Study of Anatomy Changes in Head-And-Neck Cancer Patients Using In-Vivo Electronic Portal Imaging Device (EPID) Transit Images - C. Trauernicht, J. Steers, C. Bojchko*

TH-IePD-TRACK 5-04 Impact of Delivery and Measurement Uncertainties on the Calculation of Pixel Sensitivity Maps for MV Portal Imagers - M. Ahmed*, H. Nourzadeh, J. Siebers

TH-IePD-TRACK 5-05 Evaluation of Dynamic Tumour Tracking (DTT) uncertainty for a Fiducial-Based Stereotactic Ablative Radiotherapy (SABR) Treatment of the Liver Using EPID Images - M. Rostamzadeh*, A. Bergman, K. Luchka

TH-IePD-TRACK 5-06 Theoretical Derivation and Experimental Verification of Beam and Tissue Factors Affecting the Reemitted Cherenkov Signal During External Beam Irradiation - S. Decker*, D. Alexander, R. Hachadorian, R. Zhang, D. Gladstone, P. Bruza, B. Pogue

TH-IePD-TRACK 5-07 In Situ Radiochromic Film Dosimetry Using Portable Spectrophotometer - S. Jung*, J. Cho, J. Han, J. Kim, J. Park, C. Choi, J. Son, J. Kim

Thursday, July 29, 2021

Break

3:00 pm - 3:30 pm

SAM Professional Symposium

3:30 pm - 4:30 pm

-TRACK 1

TH-E-TRACK 1 Professional Letters of Reference: Advice for Those Who Need Them and Those Who Need to Write Them

Moderators: Chelsea Page-Robertson, Banner MD Anderson Cancer Center, Greeley, CO and Robin Miller, Northwest Medical Physics Center, Seattle, WA

3:30 pm An Introduction to Professional Letters of Reference

3:35 pm R. Miller, Northwest Medical Physics Center: Reference Letter Etiquette: How to Ask for a Letter of Reference

3:55 pm T. Pawlicki, UC San Diego: How to Write a Great Letter of Reference

4:15 pm Audience Q&A

Multi-Disciplinary Scientific Symposium

3:30 pm - 5:30 pm

-TRACK 2

TH-EF-TRACK 2 Principal Investigator Scientific Highlights

Moderators: Carri Glide-Hurst, University of Wisconsin, Madison, WI and Lei Ren, University of Maryland, Baltimore, MD

3:30 pm C. Glide-Hurst, University of Wisconsin: The Funding Landscape for AAPM Members

3:39 pm G. Pratz, Stanford University: NIH R01, New Tools for Tracking Single Cells In Vivo

3:48 pm H. Li, University of Illinois at Urbana-Champaign: NIH R01, Multimodal Biomarkers for Oropharyngeal Cancer

3:57 pm K. Lafata, Duke University: DOD, Multi-Scale Characterization of Radiation Resistance in Head and Neck Squamous Cell Carcinoma

4:06 pm L. Ren, University of Maryland: NIH R01, Hybrid Virtual-MRI/CBCT: A New Paradigm for Image Guidance in Liver SBRT

4:15 pm W. Yang, Keck School of Medicine of USC: NIH R21, Novel Four Dimensional Magnetic Resonance Imaging to Monitor Pancreatic Tumor Infiltrating Blood Vessels and Tumor Response to Chemoradiation Therapy

4:24 pm N. Wen, Henry Ford Health System: ACS, Physiological Adaptive Radiotherapy for Prostate Cancer Treatment

4:33 pm K. Brock, UT MD Anderson Cancer Center: NIH R01s, Anatomical Modeling to Improve the Precision of Image Guided Liver Ablation and Optimization and Evaluation of Anatomical Models of Liver Radiation Response

4:42 pm C. Hruska, Mayo Clinic: NIH R01, Density MATTERS Clinical Trial

4:51 pm E. Samei, Duke University: NIH P41, Center for Virtual Imaging Trials

5:00 pm H. Paganetti, Physics Division, Department of Radiation Oncology, Massachusetts General Hospital and Harvard Medical School: NIH R01s, Fast Individualized Delivery Adaptation in Proton Therapy and Developing Whole-Body Computational Phantoms for Blood Dosimetry to Model the Impact of Radiation on the Immune System

5:09 pm Panel Discussion

Imaging Scientific Session

3:30 pm - 4:30 pm

-TRACK 3

TH-E-TRACK 3 Dual Energy and Spectral CT and CBCT

Moderators: Eric Gingold, Thomas Jefferson University, Philadelphia, PA and Taly Schmidt, Marquette University, Milwaukee, WI

Thursday, July 29, 2021

3:30 pm TH-E-TRACK 3-01 Characterization and Optimization of Quantitative Greyscale Images from Photon Counting CT - D. Byrd*, M. Wu, P. Edic, P. Kinahan

3:37 pm TH-E-TRACK 3-02 Development of a Prototype C-Arm Photon Counting Detector CT System for Interventional Imaging: First in Vivo Animal Results - X. Ji, S. Periyasamy, M. Feng, G. Chen, P. Laeseke, K. Li*

3:44 pm TH-E-TRACK 3-03 Dual Energy CT Using Flying Focal Spot and An Anti-Scatter Grid as a Filter - S. Hsieh*, N. Bennett, A. Wang

3:51 pm TH-E-TRACK 3-04 Quantitative Dual-Energy Imaging of Bone Composition on Multisource Cone-Beam CT with Model-Based Artifact Corrections - S. Liu*, G. Shi, G. Osgood, J. Siewersden, J. Stayman, W. Zbijewski

3:58 pm TH-E-TRACK 3-05 Spectrum Optimization for Photon-Counting CT with a Silicon Detector - T. Schmidt*, F. Gronberg, J. Fan

4:05 pm TH-E-TRACK 3-06 Characterization of a Bench-Top Photon-Counting CT System - D. Richtsmeier*, J. O'Connell, A. Hart, P. Rodesch, T. Calheiros, A. Frencken, K. Iniewski, M. Bazalova-Carter

4:12 pm TH-E-TRACK 3-07 Iodine Quantification in a Full Field-Of-View Photon-Counting-Detector CT - K. Rajendran*, J. Marsh, J. Thorne, E. Shanblatt, J. Fletcher, C. McCollough, S. Leng

Multi-Disciplinary Scientific Session

3:30 pm - 4:30 pm

-TRACK 4

TH-E-TRACK 4 AI Applications in Image Guided Adaptive Radiation Therapy

Moderators: Xiaofeng Yang, Emory University, Atlanta, GA and Wensha Yang, Keck School of Medicine of USC, Los Angeles, CA

3:30 pm TH-E-TRACK 4-01 Few Shot Meta Learner for Post-Operative Prostate CTV Style Adaptation - A. Balagopal*, D. Nguyen, T. Bai, H. Morgan, M. Dohopolski, N. Desai, A. Garant, R. Hannan, S. Jiang

3:37 pm TH-E-TRACK 4-02 Multi-Year Clinical Experience with In-House Developed AI Auto-Segmentation for Radiotherapy Planning - S. Elguindi*, J. Jiang, A. Apte, A. Iyer, E. LoCastro, Y. Hu, E. Cha, E. Gillespie, I. Onochie, D. Gorovets, M. Zelefsky, S. Berry, M. Thor, J. Deasy, L. Cervino, H. Veeraraghavan

3:44 pm TH-E-TRACK 4-03 Physician Evaluation of Deep Learning-Based Dose Predictions for Head and Neck Radiotherapy - M. Gronberg*, S. Gay, B. Beadle, A. Olanrewaju, C. Cardenas, R. Howell, C. Peterson, C. Fuller, A. Jhingran, T. Netherton, D. Rhee, L. Court

3:51 pm TH-E-TRACK 4-04 Scale-Adaptive Convolutional Neural Network for Deformable Image Registration of Lung 4DCT - Y. Sang*, D. Ruan

3:58 pm TH-E-TRACK 4-05 Small Convolutional Neural Networks for Efficient 3D Medical Image Segmentation - A. Celaya, J. Actor, R. Muthusivarajan, E. Gates*, C. Chung, D. Schellingerhout, B. Riviere, D. Fuentes

4:05 pm TH-E-TRACK 4-06 CBCT-Based Prostate and Organs-At-Risk Segmentation Using Deep Attention Network - Y. Fu*, Y. Lei, T. Wang, S. Tian, J. Roper, P. Patel, A. Jani, J. Bradley, T. Liu, X. Yang

4:12 pm TH-E-TRACK 4-07 Automatic CT-Only Multi-Organ Segmentation for CT-On-Rails-Based Prostate Adaptive Radiotherapy - Y. Liu*, Y. Lei, T. Wang, Y. Fu, P. Patel, A. Jani, J. Bradley, T. Liu, X. Yang

Therapy Scientific Session

3:30 pm - 4:30 pm

-TRACK 5

Thursday, July 29, 2021

TH-E-TRACK 5 Radiation Dose Calculation Algorithms

Moderators: Austin Faught, St. Jude Children's Research Hospital, Memphis, TN and Zhen Tian, Emory University, Decatur, GA

- 3:30 pm **TH-E-TRACK 5-01 A Feasibility Study for Deep Learning-Based Efficient Monte Carlo Dose Calculation Method in Radiotherapy** - X. Lu*, Y. Li, Q. Mengke, L. Zhou, T. Song
- 3:37 pm **TH-E-TRACK 5-02 A Generative Adversarial Network (GAN) Based Monte Carlo Model for a Biology-Guided Radiation Therapy Machine** - M. Shi*, S. Cui, D. Zaks, B. Han
- 3:44 pm **TH-E-TRACK 5-03 Development of a Virtual Source Model for Monte Carlo Based Independent Dose Calculation for Varian Linac** - J. Castle*, X. Feng, Q. Chen
- 3:51 pm **TH-E-TRACK 5-04 Microdosimetry of Radionuclides Using Geant4 Simulation Considering the Auger Electron Contribution** - O. Kwon*, D. Adam, B. Bednarz
- 3:58 pm **TH-E-TRACK 5-05 Clinical Transition from AAA to Acuro XB: A Comprehensive and Treatment Site-Specific Report for Dose Comparison, Plan Analysis and Strategic Deployment** - X. Zhong*, Y. Park, Y. Zhang, Z. Trivedi, J. Wu, L. Chen, S. Kazemifar, A. Godley, S. Jiang, M. Lin
- 4:05 pm **TH-E-TRACK 5-06 Dosimetric Comparison of HDR Surface Applicator Brachytherapy Between TG-43 and TG-186 for Angiosarcoma of the Scalp and Face** - T. Harris*, D. O'Farrell, M. Lam, E. Baldini, P. Devlin, I. Buzurovic
- 4:12 pm **TH-E-TRACK 5-07 Generation of 3D Dosimetric Reference Datasets Using Model-Based Dose Calculations for COMS Eye Plaque Brachytherapy** - E. Fletcher*, F. Ballester, L. Beaulieu, Y. Ma, H. Morrison, M. Rivard, R. Sloboda, J. Vijande, R. Thomson

-TRACK 6

TH-E-TRACK 6 SRS/SBRT: Segmentation, Dose Calculation, and Treatment Planning

Moderators: Arezoo Modiri, University of Maryland in Baltimore, Baltimore, MD and Patrick Hill, University of Wisconsin, Madison, WI

- 3:30 pm **TH-E-TRACK 6-01 Cardiac Radio-Ablation Target Delineation On 3D Electro-Anatomical Maps** - M. Boeck*, C. Wei, R. Mak, U. Tedrow, P. Zei, H. Cochet, M. Juhoor, S. Friesen, F. Hacker, J. Bredfeldt
- 3:37 pm **TH-E-TRACK 6-02 Dose Kernel Decomposition for GammaKnife and GammaPod Treatment Planning** - M. Chen*, Z. Yang, Z. Wardak, X. Gu, W. Lu
- 3:44 pm **TH-E-TRACK 6-03 Evaluation of Dose Calculation Accuracy of Intermediate-To-Low Dose Spillage in Single-Isocenter Multitarget Radiosurgery Using 3D Dosimetry** - Y. Wang*, P. Fan, A. Xu, J. Choi, T. Wang, J. Adamovics, C. Wu
- 3:51 pm **TH-E-TRACK 6-04 Which Metric Quantifies Dose Fall-Off for SRS Treatments of Brain Lesions?** - T. Nano*, D. Capaldi, C. Chuang, L. Wang, S. Soltys, L. Boretta, S. Braunstein, L. Ma
- 3:58 pm **TH-E-TRACK 6-05 Demonstrating the Practical Limitation of a Previously Validated Knowledge-Based Planning Model for SIB Lung SBRT of Large (> 5 Cm) Tumors** - J. Visak*, A. Webster, M. Kudrimoti, R. McGarry, M. Randall, D. Pokhrel
- 4:05 pm **TH-E-TRACK 6-06 Radiobiological Analysis of Isotoxic SBRT Simultaneous Integrated Boost of Multi-Parametric MR Defined Dominant Intraprostatic Lesions** - M. Dumas*, M. Leney, J. Kim, E. Mohamed, N. Wen
- 4:12 pm **TH-E-TRACK 6-07 Using Deep Learning Framework (pytorch) for Circular Cone Treatment Planning of CyberKnife System** - B. Liang*, R. Wei, Y. Li, B. Liu, S. Xu, F. Zhou, Q. Wu, J. Dai

SAM Therapy Educational Course

3:30 pm - 4:30 pm

-TRACK 7

Thursday, July 29, 2021

TH-E-TRACK 7 Advances in Tomotherapy Treatment and QA - New Guidelines from TG 306

Moderators: Quan Chen, University of Kentucky, Lexington, KY and Yi Rong, Mayo Clinic Arizona, Phoenix, AZ

- 3:30 pm **J. Smilowitz, University of Wisconsin: Updates to Tomotherapy Delivery Platform Since TG 148**
- 3:40 pm **Q. Chen, University of Kentucky: Update of Tolerance Limits, Frequencies and QA Methodology for Machine QA**
- 4:00 pm **X. Qi, UCLA School of Medicine: Update on Imaging, Treatment Planning and Patient Specific QA**
- 4:20 pm **J. Burmeister, Wayne State University, Karmanos Cancer Center: Risk Based Assessment for Tomotherapy Delivery (FMEA Analysis)**

SAM Partners in Solutions Imaging

3:30 pm - 5:30 pm

-TRACK 8

TH-EF-TRACK 8 Imaging: Artificial intelligence in Medical Imaging

Moderators: Yu Liu, Medical College of Wisconsin, Milwaukee, WI and Troy Crawford, Milwaukee, WI

- 3:30 pm **Y. Liu, Medical College of Wisconsin: Artificial intelligence in Medical Imaging**
- 4:00 pm **T. Crawford: Artificial intelligence in Medical Imaging**
- 4:00 pm **B. Rasolzadeh, Arterys: The Journey from Code to Clinic: The Challenges of Bringing AI into Medical Practice**
- 4:25 pm **R. Jones, Imagen Technologies: Deep-Learning Systems for Fracture Detection in Musculoskeletal Radiographs**
- 4:50 pm **B. Nett, GE Healthcare Technologies: Deep Learning Image Reconstruction for CT: Principles, Performance and Clinical Applications**
- 5:15 pm **Q&A**

SAM Professional Symposium

4:30 pm - 5:30 pm

-TRACK 1

TH-F-TRACK 1 Expanding the Scope of the Medical Physics Profession: Developing and Examining Patient-Facing Roles and Responsibilities

Moderator: Todd Atwood, UC San Diego, La Jolla, CA

- 4:30 pm **T. Atwood, UC San Diego: Developing Patient-Facing Roles for Medical Physicists to Advance Patient Care**
- 4:42 pm **J. Burmeister, Wayne State University, Karmanos Cancer Center: The Physicist's Role in Patient-Centered Communication**
- 4:54 pm **S. Geneser, University of Washington: Implementing Patient Physics Consults: The University of Washington Experience**
- 5:06 pm **D. Brown, University of California, San Diego: A Clinical Communication Skills Development Program for Medical Physicists**
- 5:18 pm **Audience Q&A**

Therapy Scientific Session

4:30 pm - 5:30 pm

-TRACK 3

TH-F-TRACK 3 Radiation Dose Evaluation and Verification

Moderators: Liangzhong Xiang and Clemens Grassberger, Massachusetts General Hospital, Cambridge, MA

- 4:30 pm **TH-F-TRACK 3-01 A Dosimetric Evaluation of ²²³Ra-Dichloride Using a Realistic Model of the Metastatic Castrate-Resistant Prostate Cancer Microenvironment and Whole-Body Pharmacokinetics** - A. Strunets*, D. Adam, J. Jeffery, B. Bednarz

Thursday, July 29, 2021

- 4:37 pm **TH-F-TRACK 3-02 Fetal and Maternal Atomic Bomb Survivor Dosimetry Using Kneeling and Lying Survivor Postures of J45 Pregnant Female Phantoms** - W. Bolch, C. Correa Alfonso, C. Paulbeck, K. Griffin, T. Sato, S. Funamoto, H. Cullings, S. Egbert, A. Endo, N. Hertel, C. Lee, S. Domal*
- 4:44 pm **TH-F-TRACK 3-03 New Dosimetric Standard for Radiotherapy: Bounded Dose Volumetric Histogram Derived from Gamma Criteria** - P. Olcott*, Y. Voronenko, A. Da Silva, O. Oderinde
- 4:51 pm **TH-F-TRACK 3-04 In Vivo Relative Dosimetry with XACT Imaging: A Feasibility Study** - K. Prather*, G. Gonzalez, P. Pandey, S. Wang, L. Xiang, Y. Chen
- 4:58 pm **TH-F-TRACK 3-05 Model Based Reconstruction Algorithm for Transperineal XACT Imaging** - L. Sun*, P. Pandey, Y. Chen, S. Ahmad, L. Xiang
- 5:05 pm **TH-F-TRACK 3-06 Investigation into the Relationship Patient Setup Accuracy and In-Vivo Transit Dosimetry for Image-Guided Volumetrically Modulated Total Body Irradiation (TBI)** - S. Taneja*, J. Teruel, M. Malin, P. Galavis, A. McCarthy, S. Ayyalasomayajula, C. Hitchen, N. Gerber, Y. Yuan, D. Barbee
- 5:12 pm **TH-F-TRACK 3-07 Small-Cavity Detector Perturbation and Quality Correction Factors in Magnetic Resonance Imaging-Guided Radiotherapy Small Photon Beams** - Y. Cervantes-Espinosa*, J. Duchaine, I. Billas, S. Duane, H. Bouchard

Multi-Disciplinary Scientific Session

4:30 pm - 5:30 pm

-TRACK 4

TH-F-TRACK 4 Novel Strategies Using Existing Imaging Technology for Planning, Delivery and Toxicity Analyses

Moderators: Issam El Naqa, Moffitt Cancer Center, Tampa, FL and Deanna Pafundi, Mayo Clinic, Jacksonville, FL

- 4:30 pm **TH-F-TRACK 4-01 A Non-Parametric Analysis to Identify High-Risk Vs. Low-Risk Anatomic Regions Associated with Reduced Overall Survival in the RTOG 0617 Clinical Trial Data** - J. Zhu*, M. Thor, A. Apte, J. Oh, A. Rimner, J. Deasy, A. Tannenbaum
- 4:37 pm **TH-F-TRACK 4-02 Blood Dose Calculation in Radiotherapy** - A. Hammi*, S. Tattenberg, F. Hueso-gonzalez
- 4:44 pm **TH-F-TRACK 4-03 Enabling Few-View 3D Tomographic Image Reconstruction by Geometry-Informed Deep Learning** - L. Shen*, W. Zhao, D. Capaldi, J. Pauly, L. Xing
- 4:51 pm **TH-F-TRACK 4-04 Head-And-Neck IMRT Auto-Planning Through Fluence Map Prediction Using Progressive Growing of Generative Adversarial Networks** - X. Li*, Q. Wu, Q. Wu, C. Wang, Y. Sheng, W. Wang, H. Stephens, F. Yin, Y. Ge
- 4:58 pm **TH-F-TRACK 4-05 Improvements in Beam's Eye View Fiducial Tracking Using A Novel Multilayer Imager** - T. Harris*, J. Seco, D. Ferguson, M. Jacobson, M. Myronakis, I. Valencia Lozano, M. Lehmann, P. Huber, R. Fueglistaller, D. Morf, H. Mamon, J. Mancias, N. Martin, R. Berbeco
- 5:05 pm **TH-F-TRACK 4-06 Quantifying Radiation-Induced Lung Injury as a Function of Regional Radiation Therapy Dose Using Hyperpolarized-129Xe MRI** - L. Rankine*, Z. Wang, E. Bier, C. Kelsey, S. Das, L. Marks, B. Driehuys
- 5:12 pm **TH-F-TRACK 4-07 Predicting Locoregional Recurrence Through Multi-Modality and Multi-View Deep Learning for in Head & Neck Cancer** - J. Guo*, R. Wang, Z. Zhou, K. Wang, R. Xu, J. Wang

-TRACK 5

TH-F-TRACK 5 Translational Technologies and Techniques

Moderators: Fang-Fang Yin, Duke University, Chapel Hill, NC and Tess Reynolds, University of Sydney, Eveleigh, AU

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- 4:30 pm **TH-F-TRACK 5-01 A Development of An In-House Software for Motion Monitoring During the Stereotactic Paraspinal Treatment** - Q. Fan*, H. Pham, P. Zhang, X. Li, T. Li
- 4:37 pm **TH-F-TRACK 5-02 A Real-Time Surveillance System to Improve the Safety of MRI in Radiation Oncology** - G. Tang*, P. Medin, A. Pompos, S. Jiang, Y. Yan
- 4:44 pm **TH-F-TRACK 5-03 An International Validation of Knowledge-Based Planning** - A. Babier*, R. Mahmood, B. Zhang, V. Leandro Alves, A. Barragan Montero, J. Beaudry, C. Cardenas, Y. Chang, Z. Chen, J. Chun, J. David, H. Erasos, E. Faustmann, S. Gaj, S. Gay, M. Gronberg, J. He, G. Heilemann, S. Hira, Y. Huang, F. Ji, D. Jiang, J. Jimenez Giraldo, H. Lee, J. Lian, K. Liu, S. Liu, K. Marixa, J. Marrugo, K. Miki, T. Netherton, D. Nguyen, A. Osman, Z. Peng, J. Quinto Muñoz, H. Nourzadeh, C. Ramsd, D. Rhee, H. Shan, J. Siebers, M. Soomro, K. Sun, A. Usuga Hoyos, C. Valderrama, R. Verbeek, E. Wang, S. Willems, Q. Wu, X. Xu, S. Yang, L. Yuan, S. Zhu, L. Zimmermann, K. Moore, T. Purdie, A. McNiven, T. Chan
- 4:51 pm **TH-F-TRACK 5-04 Development of a Novel Dual-Modality Balloon Implant for Simultaneous HDR Brachytherapy and Magnetic Nanoparticle Hyperthermia of Brain Tumor Resection Cavities** - S. Wan*, D. Rodrigues, P. Stauffer, Y. Yu, J. Kwiatkowski, K. Judy, O. Khanna, M. Bloem, R. Goldstein, M. Hurwitz, W. Shi
- 4:58 pm **TH-F-TRACK 5-05 Prescription Tradeoff Decision Support for Pancreas SBRT: from Templates to Artificial Intelligence Models** - Y. Xie*, R. Li, W. Wang, M. Hito, L. Zhang, W. Giles, H. Stephens, Q. Wu, F. Yin, Y. Ge, Q. Wu, Y. Sheng
- 5:05 pm **TH-F-TRACK 5-06 Understanding Physician's Preference in Treatment Planning of Stereotactic Body Radiation Therapy of Prostate Cancer** - Y. Gao*, C. Shen, Y. Gonzalez, X. Jia
- 5:12 pm **TH-F-TRACK 5-07 Use of CBCT for Reducing QA CT Frequency in Intensity Modulated Proton Therapy: Head and Neck** - W. Yao*, B. Zhang, D. Han, J. Polf, S. Vedam, G. Lasio, B. Yi

Therapy Scientific Session

4:30 pm - 5:30 pm

-TRACK 6

TH-F-TRACK 6 SRS/SBRT: Treatment Delivery and Verification

Moderators: Zacariah Labby, University of Wisconsin, Madison, WI and Elizabeth Covington, University of Alabama-Birmingham, Birmingham, AL

- 4:30 pm **TH-F-TRACK 6-01 Development and Evaluation of a Bi-Polar Gated Respiratory Motion Management Strategy for Lung SBRT** - Z. Li*, L. Zhang, J. Qiu, S. Zhang, X. Zheng, Q. Wu
- 4:37 pm **TH-F-TRACK 6-02 Predicting the Efficacy of Spacer Placement for Pancreatic Cancer Using a Novel Patient-Specific Virtual Spacer** - H. Hooshangnejad*, K. Ding
- 4:44 pm **TH-F-TRACK 6-03 Stereotactic Arrhythmia Radioablation for Treating Refractory Ventricular Tachycardia** - S. Oh*, E. Liu, M. Trombetta, G. Shaw, A. Thosani, J. Sohn
- 4:51 pm **TH-F-TRACK 6-04 Single-Isocenter/Multi-Target (SIMT) SRS to Multiple Brain Lesions Via Dynamic Conformal Arcs (DCA)-Based VMAT with MLC Aperture Shape Controller** - S. Land*, A. Palmiero, M. Bernard, D. Pokhrel
- 4:58 pm **TH-F-TRACK 6-05 Comparison Between the HYPERSCINT RP200 Scintillation Detector and Other Small Field Detectors for 10MV FFF SRS Beam Modelling on a VersaHD Linear Accelerator** - J. Morin, J. Cabana, M. Goulet*, D. Thériault
- 5:05 pm **TH-F-TRACK 6-06 Assessment of the Dosimetric Impact of Rogue Leaf Pair Openings in Modulated Stereotactic Radiosurgery Plans** - K. Jones*, A. Templeton, Y. Liao, J. Van Schelt, Z. Grelewicz, J. Turian

Thursday, July 29, 2021

5:12 pm **TH-F-TRACK 6-07 Modeling Dosimetric Impact of Treatment Delivery Errors in Robotic Radiosurgery: Experimental Validation and Applications** - M. Liu*, J. Cygler, E. Vandervoort

SAM Therapy Educational Course

4:30 pm - 5:30 pm

-TRACK 7

TH-F-TRACK 7 Using Automation to Improve Linac-based VMAT for Total Body Irradiation (TBI)

Moderator: Ping Xia, The Cleveland Clinic Foundation, Cleveland, OH

4:30 pm **B. Guo, Cleveland Clinic Foundation: Cleveland Clinic VMAT TBI Experience: Automation in Treatment Volume Divisions for Adult and Pediatric Patients**

4:50 pm **N. Kovalchuk, Stanford University Cancer Center: Stanford VMAT TBI Experience: Automation in Treatment Planning**

5:10 pm **X. Gu, UT Southwestern Medical Center: UT South Western VMAT TBI Experience: Automation in Treatment Planning and Delivery**

General ePosters

Education General ePoster Viewing

PO-GePV-E Education General ePoster Viewing

PO-GePV-E-01 A Chatbot for the Staff in Radiotherapy Using Artificial Intelligence and Machine Learning - K. Li, J. Chow*

PO-GePV-E-02 Clinical Diagnostic Reference Levels in Interventional Neuroradiology in Qatar - H. Al Naemi*, V. Tsapaki, A. Mohamed, A. Own, S. Patro, A. Aly, M. Kharita

PO-GePV-E-03 Brachytherapy Quality: An Innovative Approach to Addressing Institution and Practitioner Proficiency - M. Roumeliotis*, T. Meyer, S. Quirk

PO-GePV-E-04 Development of Diagnostic X-Ray Sources – A Multi-Vendor Overview - R. Behling*

PO-GePV-E-05 Enhancing Medical Physics Teaching With Image Repositories and Shared Resources - P. Sprawls*

PO-GePV-E-06 A Simulation-Based Mastery Learning Program for Ultrasound-Guided Interstitial Prostate Brachytherapy Using a Low-Cost 3D Printed Phantom - Z. Xiong*, Y. Zhong, M. Joo, S. Eraj, B. Gannavarapu, H. Morgan, S. All, B. Hrycushko, X. Jia, M. Folkert, P. Medin, T. Chiu

PO-GePV-E-07 Introduction of Mind Mapping Technique to Enhance Medical Physics Graduate Studies - I. Wang*, F. West

PO-GePV-E-08 To Investigate the Effectiveness of Supervised Multisensory Instruction and Flipped Instruction in Physics Resident Education - J. Dise*, J. Zoberi, O. Green, N. Knutson, G. Hugo

PO-GePV-E-09 Dosimetrist Knowledge Transfer Using Intelligent Agents - R. McBeth*, M. Mashayekhi, Z. Trivedi, D. Nguyen, S. Jiang, M. Lin

PO-GePV-E-10 The Experience of Writing a Medical Physics Article to Young Readers/Reviewers - Z. Ouyang*, T. Arsenaault, K. Lyons

PO-GePV-E-11 Development of a Flipped-Classroom Style Medical Physics Course for Radiation Therapist Students - M. Hyun*, A. Besemer, S. Wisnoskie, Y. Lei, S. Li, D. Schott, S. Wang, D. Zheng, J. Koth, L. Bartenhagen

PO-GePV-E-12 Development of Visual Learning of AAPM Task Group Reports - M. Chan*, J. Wu, J. Wu, D. Wang

PO-GePV-E-13 Incorporating Statistical Learning and Artificial Intelligence Education to Medical Physics Graduate Training - C. Cardenas*, L. Court

PO-GePV-E-14 Implementation of Ra-223 Radiopharmaceutical Program in Radiation Oncology at a Small Community Cancer Center - S. Lee*, G. Lasio, M. Guerrero, H. Xu, S. Chen, Y. Kwok

PO-GePV-E-15 VICTORIA: Online Monte Carlo and DICOM Data Viewer - E. Badun*, F. Tessier, R. Townson, M. Bazalova-Carter

PO-GePV-E-16 A Practical Way to Strengthen Radiation Safety Culture in Healthcare - D. Gilley*, O. Holmberg

General ePosters

PO-GePV-E-17 Brain Functional Connectivity Reveals RTMS Effectiveness Pain Reduction in Non-Specific Chronic Low Back Pain Patients - M. Masoumbeigi*, N. Riyahi-Alam, R. Kordi, M. Rostami, A. Jafari, A. Rahimiforoushani, H. Hashemi

PO-GePV-E-18 Effective Resident Training in the Medical Physics 3.0 Era - C. Buckley*, J. Gagneur, D. Robertson, M. Fatyga, S. Chungbin, E. Clouser, M. Foster, G. Penoncello, D. Harrington, J. Ashman, Y. Rong

PO-GePV-E-19 Design and Implementation of An Interactive Virtual Reality Interface for Experimental Medical Physics Education - J. Jing*, H. Lin, J. Chow

PO-GePV-E-20 SSGAN: Unpaired MR-To-CT Image Synthesis with Spatial Sequence GAN - L. Kong*, W. Jiang, D. Huang, Q. Zhou, Z. Chen, W. Zhang, H. Sheng, C. Yang, B. Qu

PO-GePV-E-21 Fork-Net: Synthesis-Based Unsupervised Multi-Modality Image Registration - L. Kong*, Z. Li, Q. Zhou, D. Huang, Y. Yin

PO-GePV-E-22 A Novel Leaf Sequencing Optimization Method with Deep Reinforcement Learning - W. Zhang*, L. Kong, Q. Zhou, S. Xu

PO-GePV-E-23 Enriching a Fully Remote Medical Physics Lab Culture: A Self-Assessment - S. Hernandez*, R. Mumme, A. Olanrewaju, B. Marquez, C. Nguyen, C. Sjogreen, C. Cardenas, C. Yu, M. El Basha, D. Mann, D. Rhee, H. Ziyadeh, J. Yang, K. Huang, K. Nealon, K. Oh, L. Gomes, R. Douglas, S. Gay, T. Netherton, W. Cao, Y. Xiao, Y. Zhao, L. Court, M. Gronberg

Professional General ePoster Viewing

PO-GePV-P Professional General ePoster Viewing

PO-GePV-P-01 IROC Houston Performance Impacted by Covid-19 - S. Cheng*, T. Nguyen, N. Hernandez, B. Lewis, N. Pajot, L. Acuna Scafati, A. Molineu, S. Kry

PO-GePV-P-02 Quality Assurance for Small-Field VMAT SRS AndConventional-Field IMRT Using the Exradin W1 Scintillator - Z. Huang*, X. Han, C. Yang, J. Wang, W. Hu

PO-GePV-P-03 An Automated, Vendor-Neutral Method for CT Protocols Documentation - E. Eastman*, D. Zhang, Y. Zhou

PO-GePV-P-04 An Automatic CT Quality Assurance Program - E. Eastman*, D. Zhang, Y. Zhou

PO-GePV-P-05 Connecting Tableau to An Oncology Informatics System to Identify Treatment Planning Workflow Delays - A. Witztum*, P. Sharma, E. Hirata

PO-GePV-P-06 Implementation, Utilization, and Time Analysis of An Optional Physics Pre-Planning Check - B. Juneja*, L. Kim

PO-GePV-P-07 Automatic Parameter Extraction from Scanners to Wiki for CT Protocol Management - L. Qin*, K. McCall, P. DiPiro

PO-GePV-P-08 Scripting Occupational Badge Dosimetry Analysis for a Large Number of Clinics Using MATLAB - K. Woods*, C. Douglas, N. Busse

PO-GePV-P-09 Value of Peer Review: An Outreach Facility Perspective - D. Christ, A. Fogle, G. Graeper, N. Gupta, K. Hintenlang*, M. Meineke, J. Pichler, S. Walston, M. Weldon

PO-GePV-P-10 Comparison of Estimated Radiation Dose Indices for Abdominal Pediatric Computed Tomography Examinations - Patient Chronological Age Versus Patient Water Equivalent Diameter - W. O'Connell*, E. Silvestrini Hernandez

PO-GePV-P-11 Optimizing Quality Assurance with Total QA® Implementation - R. Sullivan*, D. Bridges, X. Zhao, Y. Yuan, S. Shen, R. Popple

PO-GePV-P-12 An Integrated, Automated Framework for Review and Approval of Policies and Procedures - J. Neylon*, D. Low, N. Agazaryan

PO-GePV-P-13 In-House Incident Learning System for Failure Modes and Effects Analysis Utilizing Microsoft Sharepoints and Powerapps - D. Soutan*, T. Thompson, S. Vieux, M. Bragg, A. Hoover

PO-GePV-P-14 Proton Radiosurgery: Small PBS Field Dosimetry Validation - M. Bussiere*, J. Daartz, J. Verburg, N. Depauw, H. Kooy, J. Loeffler, P. Chapman, H. Shih

PO-GePV-P-15 Pre-ESD Evaluation in Early Gastric Cancer - y. Gao, R. Zhang, W. Bai, W. Zhang*

PO-GePV-P-16 Risk Factors of Early Gastric Cancer Identified by Screening Endoscopy - y. Gao *, W. Zhang

General ePosters

PO-GePV-P-17 Influencing Factors of Daily Activities in Patients with Early Gastric Cancer After Endoscopic Treatment - y. Gao, W. Zhang, R. Zhang*, W. Bai

PO-GePV-P-18 The Diagnostic Rate and Analysis of the Clinical Pathological Features of Early Gastric Cancer - W. Zhang, y. Gao *

PO-GePV-P-19 Regional Workshops as a Method to Facilitate the Implementation of Task Group Recommendations: The Experience of AAPM Task Group 275 - S. Parker*, L. Fong de los Santos, A. Greener, G. Kim, D. Schofield, K. Smith, M. Wells, E. Yorke, E. Ford

PO-GePV-P-20 Syed Template for Interstitial HDR_ A 3D Printed Alternative - S. George*, A. Gomez, T. Romaguera, R. Tolakanahalli, A. Gutierrez, J. Contreras

PO-GePV-P-21 A Decentralized and Autonomous Blockchain-Based Medical Physics Education Platform: Toward a New Paradigm - B. Zhang*, S. Becker, J. Zhou, S. Chen, B. Yi

PO-GePV-P-22 Recommendations for Treatment Planning Dose Indices for Single-Isocenter Single Target VMAT Brain Stereotactic Radiosurgery/Radiotherapy; A Retrospective Analysis - D. Pearson, D. Newell*, K. Joseph

PO-GePV-P-23 Volumetric Study for Hearing Preservation Using Fractionated Radiosurgery - A. Rashid*, Y. Niu, D. Pang

PO-GePV-P-24 Dosimetric Benefits of Target-Tracking-Optimization Based Partial-Arc VMAT Technique for Mono-Isocenter Multiple Pulmonary Metastases ABC-SBRT - C. Gong*, X. Xiang, J. Xiong, H. Wu, T. Zhang, H. Yin

PO-GePV-P-25 Dosimetric Evaluation of Aperture-Based and Beamlet-Based Optimization for Conventional IMRT/VMAT and SBRT - D. Wu*, A. Eldib, Q. Jiang, L. Chen, C. Ma

PO-GePV-P-26 First Quality Assurance Implementation of Treatment Planning System for Pencil Beam Scanning Proton Radiotherapy - W. Xiong*, G. Yu, M. Kang, S. Huang, H. Lin

PO-GePV-P-27 Evaluation of Varian Identify SGRT System for Localization of Cranial Targets - V. Stakhursky*, W. Chang, M. Sewell, I. Stakhurska, S. Kriminski

PO-GePV-P-28 Multichannel Vaginal Cylinder with Intrauterine Tube Applicators for Treating Vaginal, Cervical and Endometrial Cancer - K. Dou*

PO-GePV-P-29 Daily KV Image Protocol of Prostate Patient Setup with Minimal CBCT - J. Zhou*, Y. Zhang, W. Feng, N. Yue

PO-GePV-P-30 Comparison of Physical and EQD2 Plan Parameters Between Two Kinds of Hybrid Plans for Stage III NSCLC - h. wang*, Y. Zhou, Z. Xu

PO-GePV-P-31 Using Edge Detectors for Field Output Factor Measurements - V. Stakhursky*, M. Sewell, S. Kriminski, I. Stakhurska

PO-GePV-P-32 Design and Implementation of Internal Shielding to Reduce Electron Back Scattering - M. Xu*, R. Foster, S. Mihalcik

PO-GePV-P-33 Comparison of Intracranial Stereotactic Radiotherapy (SRS/SRT) Plan Quality Using CyberKnife, Eclipse MLC and Cone Techniques - X. Zhang*, S. Jang, S. Lee, A. Hirsch, K. Mak, M. Dyer, M. Truong

PO-GePV-P-34 IAEA Guidance on the Certification of Clinically Qualified Medical Physicists - G. Loreti*, D. van der Merwe

PO-GePV-P-35 Application of Intensity Modulated Arc Therapy (IMAT) with Multi-ISO Planning Method to Sparing of Organs at Risk - W. Bai, y. Gao, W. Zhang, Z. Dong, D. Zhao, H. Yang, R. Zhang*

PO-GePV-P-36 CyberKnife 0-View (xSight Spine) Tracking for Lung Tumors: Is It Safe at Distances Greater Than 5cm? - M. Curry*, C. Busselberg, M. White, J. Conlon

PO-GePV-P-37 Retrospective MR Image Review of Stereotactic Radiosurgery for Up to 7 Metastases - K. Dou*

PO-GePV-P-38 A New General Maximum Intensity Projection Technology Via the Hybrid of U-Net and Radial Basis Function Neural Network - Z. Chao*

PO-GePV-P-39 Imaging QA On CyberKnife According to TG-135_ a Practical Approach - S. George*, S. Davis, R. Tolakanahalli, V. Mishra, A. Gutierrez

PO-GePV-P-40 Inter-Fractional Dosimetric Variation Due to Daily Patient Position Variations in the Accelerated Partial Breast Irradiation with High Dose Rate Brachytherapy (HDR) Using the Multichannel SAVI Applicator with the 3 Fractionation Schema - U. Robins*, T. Romaguera, R. Tolakanahalli, M. Rodrigues

General ePosters

PO-GePV-P-41 Clinical Experience of Pre-Selection Criterion of Patients with Left Breast Cancer for Free Breathing Vs Deep Inspiration Breath-Hold Radiotherapy Technique - T. Reynolds*, M. Ozer

PO-GePV-P-42 Dosimetric Evaluation of Sub-Millimeter Robotic Corrections for Multiple Metastases Single Isocenter Plans - L. Muller*, H. Tillery

PO-GePV-P-43 Comparison of Intrafractional Motion Monitoring During Spine Stereotactic Body Radiation Therapy Using Multiple Immobilization Systems - S. Krafft*, E. Han, T. Briere

PO-GePV-P-44 Validation of the Varian Machine Performance Check Enhanced Couch Accuracy - J. Donaghue*, S. Gajdos

PO-GePV-P-45 Machine Off-Isocenter Winston-Lutz Test in Single-Iso Multi-Mets Intracranial Stereotactic Radiosurgery - D. Hu*, C. Ruan, D. Cail, J. Bredfeldt

PO-GePV-P-46 Phantom Validation of a CT-Based Navigation System Adapted for Interstitial Liver Procedures - T. Banks*, T. Chiu, Z. Xiong, M. Folkert

PO-GePV-P-47 Clinical Evaluation of Portal Dosimetry Ion Chamber Array and Mobius 3D for FiF Breast IMRT QA - S. Gill*, R. Wynn, M. Huq, S. Wang

PO-GePV-P-48 Effect of Gantry Angle on Portal Dosimetry Vs Ion Chamber Array of Linac Based IMRT QA - S. Gill*, R. Wynn, M. Huq, S. Wang

PO-GePV-P-49 Report of Image Distortion Based on Five Consecutive Years of Annual QA On Six MRI Scanners Used for Radiation Therapy - L. Lu*, X. Yang, B. Raterman, X. Jiang, M. Meineke, D. Hintenlang, N. Gupta

PO-GePV-P-50 An Implementation Strategy for Introducing Automated Treatment Planning into the Clinic - J. Jackson*, H. Kang, J. Steber, J. Roeske

Imaging General ePoster Viewing

PO-GePV-I Imaging General ePoster Viewing

PO-GePV-I-01 Dosimetric Evaluation of O-Arm Cone Beam Computed Tomography (CBCT) Scan Modes for Pediatric Head Scans - A. Shankar*, E. Olguin, F. Bova, M. Arreola

PO-GePV-I-02 Evaluation of the Displayed Average Glandular Dose of Hologic Digital Breast Tomosynthesis (DBT) Systems - O. Osunbayo*, J. Feng

PO-GePV-I-03 Contrast-Enhanced Dual-Energy Digital Breast Tomosynthesis (CE-DE-DBT) Imaging: Iodine Concentration Estimation - B. Chen, Z. Zhang, D. Xia, E. Sidky, X. Pan*

PO-GePV-I-04 Design of a Display Test Pattern to Assess Ambient Light Levels in a Radiologists' Reading Environment - C. Guo*, A. Sanchez, Z. Lu, E. Marshall, J. Chung, I. Reiser

PO-GePV-I-05 Design of Nested Halbach Rings for Portable MRI Scanners - M. Ergor, N. Dogan, A. Bingolbali*

PO-GePV-I-06 An Easy-To-Use Tool for Annual MRI Performance Evaluation Using the ACR Large Phantom - J. Storrs*, H. Khosravi, A. Fatemi

PO-GePV-I-07 Developing and Validating a Radiomics Classification Model for Glioma Grading Using Multiplanar Reconstructive Magnetic Resonance T1-Weighted Imaging: A Reliable Multi-Institutional Study - J. Ding*, Q. Qiu, p. cong, J. Chen, J. Duan, x. cao, Y. Yin

PO-GePV-I-08 Fast T1 Mapping Optimization: A Phantom Study - Z. Razi*, Z. Zhang, Z. Mullaghy, A. Lloyd, H. Liu, M. Arreola

PO-GePV-I-09 Commissioning of Commercial Quantitative R2* Mapping Software for Clinical Use - B. Taylor*, H. Chen, H. Liu, J. Yung, P. Hou, K. Brock, R. Stafford

PO-GePV-I-10 Differential Diagnosis of Hepatocellular Carcinoma and Cirrhotic Nodules Via Radiomics Models Based on Magnetic Resonance Images - C. Ma*, Y. Wang

PO-GePV-I-11 3D Computational Approach to Morphological Brain Abnormalities in Autism - S. Brindle*, C. Saben, R. Makkia

PO-GePV-I-12 CT-Based Radiomic Signature and Clinic Information Predicts Brain Metastasis in Lung Adenocarcinoma - C. Ma*, J. Dong

General ePosters

PO-GePV-I-13 Evaluation of Coronary CTA On the Anomalies Origin of Coronary Artery: Location, Types, and Hemodynamic Variation - H. Zhao*, W. Jiao, Q. Liu, J. Qiu

PO-GePV-I-14 Residual Convolutional Neural Network for Noise Reduction in Megavoltage Computed Tomography (MVCT) - Z. Zhao*, Y. Zhang, J. Zhang, Y. Wang, J. Dong, J. Zhu

PO-GePV-I-15 Evaluating Motion Correction in a Commercial Subtraction CT Registration Algorithm - A. Heshmat*, I. Barreto, L. Rill, M. Arreola

PO-GePV-I-16 Improvement of A Tissue Equivalent Material for Multi-Modality Imaging - H. Zhang*, J. Qiu

PO-GePV-I-17 Beam-Shaping Filter and Dosimetric Characterization of the Airo Mobile CT Scanner - A. Siddique*, Q. Chen, J. Zhang

PO-GePV-I-18 CT Image Standardization for Radiomic Feature Enhancement in Non-Small Cell Lung Cancer - M. Selim*, J. Chen, B. Fei, G. Zhang, J. Zhang

PO-GePV-I-19 Evaluation of Spatial Resolution Variability in Whole Body Bone Scans - K. Brown, R. Al-Senan*

PO-GePV-I-20 TOPAS for Imaging: A Monte Carlo Simulation Tool for PET/SPECT/CBCT Imaging - J. Feld*, C. Zhang, G. Cojocaru, S. Longawa, H. Paganetti, J. Schuemann

PO-GePV-I-21 Sparse-View CT Reconstruction Via Generative Adversarial Network (GAN) Using Fully Convolutional DenseNet (FC-DenseNet) - I. Park*, J. Chun, B. Choi, S. Yoo, J. Kim, H. Kim

PO-GePV-I-22 Study of Cariporide Effect on Tumor Intracellular pH (pHi) Using Chemical Exchange Saturation Transfer (CEST) MRI - M. Mozaffari*, N. Nyström, A. Li, M. Bellyou, T. Scholl, R. Bartha

PO-GePV-I-23 Conformance Analysis Between Positive Beam Limitation Quality Control Methods in Digital Roentgen-Ray Imaging - R. Perez Franco*, M. Fadhel, D. Vergara, A. Mustafa, I. Bercha

PO-GePV-I-24 Direct Measurement of the Surface Dose Using a Plane-Parallel Ionization Chamber for Interventional Radiology - C. Nakatake*, F. Araki, T. Ohno, S. Tochiara, D. Sakabe, T. Sakamoto, Y. Yano, M. Fukamatsu, K. Nishimura

PO-GePV-I-25 Optimisation of Radiation Dose and Image Quality for Six Different Flat Panel Detectors Using a Semi-Anatomical Chest Phantom - B. Pearlin*, R. Livingstone

PO-GePV-I-26 1D and 2D MTF Measurement for a Dual-Detector Image Receptor Using the Noise Response (NR) Method Compared with Using the Standard Edge Method - A. Jain*, X. Wu, S. Setlur, Nagesh, A. Shields, N. Artz, D. Bednarek, S. Rudin

Multi-Disciplinary General ePoster Viewing

PO-GePV-M Multi-Disciplinary General ePoster Viewing

PO-GePV-M-01 Clinical Evaluation of Deep Learning Based Auto-Contouring Software for Prostate Radiotherapy - M. Kirk*, B. Anderson, H. Prichard, L. Ryan, X. Zhang, Y. Wang

PO-GePV-M-02 Comparison of Deep Learning Based Auto-Contouring Software to Expert Inter-Observer Variability in Prostate Radiotherapy - M. Kirk*, B. Anderson, H. Prichard, L. Ryan, X. Zhang, Y. Wang

PO-GePV-M-03 A 2D-3D Hybrid Convolutional Neural Network for Lung Lobe Auto-Segmentation on Standard Slice Thickness CT of Patients Receiving Radiotherapy - H. Gu*, H. Gu, Z. Xu

PO-GePV-M-04 Automatic Contouring QA Approach Using a Deep-Learning-Based Auto-Contouring System - D. Rhee*, C. Anakwenze, B. Rigaud, A. Jhingran, C. Cardenas, L. Zhang, S. Prajapati, S. Kry, K. Brock, B. Beadle, W. Shaw, D. O'Reilly, J. Parkes, H. Burger, N. Fakie, C. Trauernicht, H. Simonds, L. Court

PO-GePV-M-05 Radiation Induced Lung Damage Tissue Segmentation and Classification Framework - A. Szmul*, E. Chandy, C. Veiga, A. Stavropoulou, J. Jacob, D. Landau, C. Hiley, J. McClelland

PO-GePV-M-06 Hybrid Approach of Auto-Segmentation Based on Pixel Level Edge Detection - D. Tewatia*, R. Tolakanahalli, R. Pyzalski

PO-GePV-M-07 Performance of a Convolutional Neural Network-Based Algorithm for Automatic Segmentation of the Whole Heart in Non-Contrast Radiotherapy Planning CTs with Image Artifacts - D. Mehta*, B. Park, J. Jung, M. Mille, B. Ky, W. Kenworthy, C. Lee, Y. Yeom, W. Bosch, S. MacDonald, O. Cahlon, J. Bekelman, C. Lee

General ePosters

PO-GePV-M-08 A 3D Multi-Modality Lung Tumor Segmentation Method Based on Deep Learning - S. Wang*, L. Yuan, E. Weiss, R. Mahon

PO-GePV-M-09 A High-Throughput, High-Availability Automated Planning Tool for Radiotherapy Clinics in Low-Resource Settings - B. Marquez*, S. Gay, R. Douglas, L. Zhang, K. Huang, M. El Basha, C. Cardenas, L. Court

PO-GePV-M-10 Development of Gell: A GPU-Powered Ultra-Large-Scale Cell-Based Simulator - J. Du*, Y. Zhou, L. Jin, K. Sheng

PO-GePV-M-11 Radiomic Analysis of Limited-Sized Data Using Unsupervised Methods: Prediction of HPV Status in Head and Neck Cancer - J. Oh*, A. Apte, A. Iyer, A. Tannenbaum, J. Deasy

PO-GePV-M-12 The IAEA Directory of Radiotherapy Centres (DIRAC): Current Figures and New Developments - P. Kazantsev*, M. Carrara, E. Titovich, Y. Pynda, D. van der Merwe

PO-GePV-M-13 Treatment Management Selection of HPV-Positive Oropharynx Cancer Patients Using Artificial Intelligence on Electronic Medical Records and Radiomics - T. Bejarano*, M. Samuels, I. Mihaylov

PO-GePV-M-14 Hyperpolarized Gas MRI Ventilation Synthesis from CT: Comparison of Conventional and Deep Learning Methods - J. Astley*, A. Biancardi, M. Walker, P. Hughes, H. Marshall, G. Collier, M. Hutton, J. Wild, B. Tahir

PO-GePV-M-15 Limitations of the Structural Similarity Index in Medical Image Synthesis Evaluation - D. Gourdeau*, S. Duchesne, L. Archambault

PO-GePV-M-16 Predicting Successful Clinical Candidates for Marker-Less Lung Tumor Tracking with a Deep Learning Classification Model - M. Laffreniere*, G. Valdes, M. Descovich

PO-GePV-M-17 Prediction of WEPL Image in Proton Radiography Using Deep Learning - A. B. G*, E. Bentefour, D. Samuel

PO-GePV-M-18 Using CNNs to Extract Standard Structure Names While Learning Radiomic Features - W. Sleeman*, P. Bose, P. Ghosh, J. Palta, R. Kapoor

PO-GePV-M-19 CNN-Based Clinical-Dose to Low-Dose CT Simulator - S. Tunissen*, J. Teuwen, I. Sechopoulos

PO-GePV-M-20 Liver Cancer Risk Quantification Through An Artificial Neural Network Based On Personal Health Data - A. Ataci*, J. Deng, W. Muhammad

PO-GePV-M-21 Deep Transfer Learning for the Multi-Label Classification of COVID-19 Presentation on Thoracic CT Scans - D. Tada*, J. Fuhrman, F. Li, M. Giger

PO-GePV-M-22 Deep Learning-based COVID-19 Pneumonia Classification Using Chest CT Images: Model Generalizability - D. Nguyen*, F. Kay, J. Tan, Y. Yan, Y. Ng, P. Iyengar, R. Peshock, S. Jiang

PO-GePV-M-23 Toward AI-Driven Proton Dose Calculation: Development and Evaluation of 3D and 2D Sequential Neural Network Designs - A. Neishabouri*, P. Salome, S. Mein, A. Mairani

PO-GePV-M-24 Feasibility Study of Deep Learning Based Radiosensitivity Binary Classification Model Using Gene Expression Profiling - E. Kim*, Y. Chung

PO-GePV-M-25 Intentional Deep Overfit Learning (IDOL): Leveraging Patient-Specific Overfitting in the Synthetic CT Generation Task - S. Olberg*, J. Chun, X. Liang, D. Nguyen, J. Kim, S. Jiang, J. Park

PO-GePV-M-26 A Multiple Modality Comparison of Radiomic Features for Prostate Cancer - R. Delgadillo*, B. Spieler, J. Ford, D. Kwon, F. Yang, M. Studenski, K. Padgett, M. Abramowitz, A. Dal Pra, N. Dogan

PO-GePV-M-27 Group-Lasso Regularized Artificial Neural Network for Embedded Feature Selection in Radiomics Study on Pediatric Patients with Craniopharyngioma Treated with Proton Therapy - W. Yang*, C. Hua, T. Davis, J. Uh, T. Merchant

PO-GePV-M-28 Technical Artifact Detection in CBCT Imaging by Binary Image Classification - M. Bach*, G. Spira

PO-GePV-M-29 Classification of Attention-Deficit/Hyperactivity Disorder Using Multisite Resting-State Functional MRI: A Radiomics Features Analysis - G. Liu*, L. Shi, J. Qiu

PO-GePV-M-30 Low-Dose CT Images Denoising Integrating Machine Learning and Optimization - Q. Xu*, Q. Lyu, K. Sheng

General ePosters

PO-GePV-M-31 Can Clinical Data Uncover Physician's Decision Making Criteria On Patient's Prescription in Radiotherapy? - Q. Li*, J. Wright, T. McNutt

PO-GePV-M-32 Intrafractional Tumor Motion Prediction Using Surrogates on Pancreatic Cine MRgRT - A. Guta*, J. Shin, B. Lewis, Z. Ji, J. Kim, T. Kim

PO-GePV-M-33 Three-Dimensional Dose Prediction Methodology for Gamma Knife - B. Zhang*, A. Babier, T. Chan, M. Ruschin

PO-GePV-M-34 Novel Paired Intensity-Pattern Recognition Technique Based on Perfect Intensity-Geometry (PIG) - A. Chu*, Q. Peng, M. Garg, W. Tomé

PO-GePV-M-35 Machine Learning Models to Predict the Delivered Positions of Elekta Multileaf Collimator Leaves for Volumetric Modulated Arc Therapy - S. Sivabaskar*, N. Papanikolaou, N. Kirby, R. Li, A. Roy

PO-GePV-M-36 Probabilistic Feature Extraction, Dose Statistic Prediction and Dose Mimicking for Automated Radiation Therapy Treatment Planning - T. Zhang*, R. Bokrantz, J. Olsson

PO-GePV-M-37 The Neurosubtyping of Autism Spectrum Disorders Based on Structural MRI Data - G. Liu*, W. Lu, J. Qiu

PO-GePV-M-38 What's Behind Auto-Segmentation Models: An Interpretability Analysis of Calculation Logic of Segmentation Model for Brain Tumor - H. Chen*, D. Ban, X. Qi

PO-GePV-M-39 Outcome Prediction of Prostate Cancer Patients After Radiotherapy Using Machine Learning Models Developed with Extrapolation Data - K. Oguma*, T. Magome, M. Someya, T. Hasegawa, K. Sakata

PO-GePV-M-40 Radiomics Analysis Improves Machine Learning Models Assessing Chronic Obstructive Pulmonary Disease - R. Au*, K. Makimoto, W. Tan, J. Bourbeau, J. Hogg, M. Kirby

PO-GePV-M-41 Automatic Lung Field Segmentation on Chest Radiographs of COVID-19 Patients to Improve Diagnostic Deep Learning - G. Schlafly*, Q. Hu, F. Li, K. Drukker, J. Fuhrman, M. Giger

PO-GePV-M-42 A Machine Learning Classifier for Predicting Recurrence in Oropharyngeal Cancer - T. Chinnery*, P. Lang, A. Nichols, S. Mattonen

PO-GePV-M-43 CERRx: The Extended CERR Platform Integrated with Open Source Image Informatics Ecosystem - A. Apte*, A. Iyer, E. LoCastro, J. Deasy

PO-GePV-M-44 Classification of Anatomic Structures by CT-Based Radiomics for Head-Neck Radiotherapy - Y. Watanabe*, N. Gopishankar, A. Biswas, K. Rangarajan, G. Rath

PO-GePV-M-45 Prediction of HPV Status in the Head and Neck Cancer Patient Using CT Derived Radiomic Features: The Impact of CT Scanner - R. Reiazi*, C. Arrowsmith, M. Welch, F. Abbas-aghahabazadeh, C. Eles, T. Tadic, A. Hope, S. Bratman, B. Haibe-kains

PO-GePV-M-46 Repeatability and Reproducibility of Radiomics in Magnetic Resonance Fingerprinting of the Brain - R. Delgadillo*, B. Rich, Y. Yang, F. Yang

PO-GePV-M-47 Robustness and Performance of Radiomic Features in Diagnosing Cystic Renal Masses - A. Konik*, N. Miskin, Y. Guo, A. Shinagare, L. Qin

PO-GePV-M-48 Understanding Robustness of Deep Neural Network: A Comprehensive Robustness Analysis for a Deep Learning-Based Lung-Nodule Classification Model of CT Images with Respect to Image Noise - X. Jia*, C. Shen

PO-GePV-M-49 The Impact of the COVID-19 Pandemic on Cancer Care in Radiation Oncology - S. Utkarsh*, S. Andrea, M. Gray, D. Wazer, K. Leonard, R. Munbodb

PO-GePV-M-50 Predicting Overall Survival of Patients with Glioma Via A Novel Framework Consisting of Two-Phase Feature Selection and Fused Regression Forest - H. Chen*, Y. Liu, X. Qi

PO-GePV-M-51 A Multichannel Feature-Based Approach for Longitudinal Lung CT Registration in the Presence of Radiation Induced Lung Damage - A. Stavropoulou*, A. Szmul, E. Chanday, C. Veiga, D. Landau, J. McClelland

PO-GePV-M-52 Explore Potential Predictive Value of Microbiota for the Efficacy of Breast Cancer Radiotherapy - A. Hu*, H. Song

PO-GePV-M-53 Multi-Modality (PET/CT) Radiomics Based Recurrence Prediction in Head and Neck Cancers Prior to Radiotherapy - M. Schelin*, R. Sheu, R. Bakst, J. Junn, Y. Yuan

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PO-GePV-M-55 Assessment of Magneto-Plasmonic Nanoparticles as a Theragnostic for MRI-Based Photothermal Therapy: A Numerical 3-D Modeling Study in Mice - Z. Tavangari, Z. Tavangari*

PO-GePV-M-56 Mixed Reality Visualization of Radiation Dose in Interventional Radiology - J. Kotoku*, T. Takata, S. Nakabayashi, H. Kondo, M. Yamamoto, S. Furui, K. Shiraishi, T. Kobayashi, H. Oba

PO-GePV-M-57 Use of Crowd Innovation to Toward Development of An Artificial Intelligence Based Solution for Pancreatic Tumor Management - K. Bush*, D. Toesca, R. Baclay, R. Li, M. Surucu, R. Sergeev, B. Godeny, A. Lamora, N. Brougher, D. Chang

PO-GePV-M-58 A Navigation System for Real-Time Monitoring PDT Delivery - H. Sun*, M. Kim, T. Zhu

PO-GePV-M-59 A Clinical Evaluation of An Open-Source Toolkit for TG-142 Based Monthly Imaging Quality Assurance Via Comparison with Commercial Software - S. Jayarathna*, S. Howard, D. Johnson

PO-GePV-M-60 The Impact of the CT Calibration Curve in Robust Proton Treatment Planning - I. Rinaldi*, J. Gajewski, A. Rucinski, A. Schiavi, N. Krah

PO-GePV-M-61 Range Modulated Proton Radiography Using High Energy Therapeutic Proton Scanning Pencil Beams - C. Pelas*, N. Alsoub, S. Ahmad, I. Ali

PO-GePV-M-62 Image Artifacts from High-Z Materials in Proton Radiography Using High Energy 250 MeV Therapeutic Proton Beam - I. Ali*, S. Ahmad, N. Alsoub

PO-GePV-M-63 The Effects of Compton Camera Data Acquisition Timing and Readout on Prompt Gamma Images Acquired at Clinical Proton Beam Dose Rates - J. Polf*, P. Maggi, R. Panthi, D. Mackin, S. Peterson, S. Beddar

PO-GePV-M-64 A Novel Lung-Avoidance Planning Strategy Based On 4DCT-Ventilation Imaging and CT Density Characteristics for Stage III Non-Small-Cell Lung Cancer Patients - A. Feng*, A. Feng, Z. Xu

PO-GePV-M-65 A First In-Phantom Quantitative Concept Validation for a Prospective Respiratory Signal-Guided 4D CT Protocol - A. Boschini*, M. Fusella, S. Sapignoli, M. Pausco

PO-GePV-M-66 Impact of 4DCT Artifacts on Local Control for Lung SBRT - L. Rakotondravohitra*, J. Adamson

PO-GePV-M-67 Fiducial Registration-Error Analysis of PCA Lung Model for DVf Assessment - O. Trejo*, S. Samant, M. Garrido, B. Lu, C. Rapp, C. Liu, K. Hitchcock, G. Yan, J. Wu

PO-GePV-M-68 Impact of Flattening-Filter-Free Field on Online Adaptive Radiotherapy Using Virtual Couch Shift (VCS) Technique - Q. Liu, J. Liang*, D. Yan

PO-GePV-M-69 Adaptive Radiation Therapy with Deformable Image Registration and 4D Dose Calculation - I. Ali*, N. Alsoub, S. Ahmad

PO-GePV-M-70 Respiratory Motion Detection and Tracking of Mobile Phantoms with a Microwave Imaging System - N. Alsoub*, S. Ahmad, I. Ali

PO-GePV-M-71 Testing Different Materials for a Quality Assurance Phantom for Proton Radiography Using the MEVION Proton Therapy System - C. Pelas*, N. Alsoub, S. Ahmad, I. Ali

PO-GePV-M-72 Four-Dimensional Dosimeter and Quality Assurance Phantom for Adaptive Radiation Therapy - T. Meyers*, N. Alsoub, S. Ahmad, I. Ali

PO-GePV-M-73 Evaluation of Longitudinal Variation and Impact of Dose Calculation Algorithms Within a CBCT-Based Online Adaptive Workflow - G. Seymore*, S. Martinez, A. Dare, I. Hajizadeh, A. Harpley, K. Homann, M. Price, M. Morales Paliza

PO-GePV-M-74 A Simple Adaptive Planning Workflow for MR-Guided Radiotherapy of Prostate Cancer - X. Chen*, E. Paulson, E. Ahunbay, E. Omari, W. Hall, C. Lawton, M. Straza, X. Li

PO-GePV-M-75 Importance of Incorporating Rotational Setup Differences for QACT Dosimetric Evaluations - S. Davis*, V. Chaswal, R. Tolakanahalli

PO-GePV-M-76 Initial Experience with Online CT-Based Adaptive Radiotherapy in the Abdomen - A. Price*, E. Laugeman, B. Cai, T. Kim, Y. Hao, O. Green, H. Gay, P. Samson, H. Kim, M. Spraker, G. Hugo, L. Henke

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PO-GePV-M-78 Dose Accumulation of Daily Adaptive Plans Using MiM and RayStation for Elekta Unity MR-Linac - D. Lee*, S. Oh, D. Pavord, A. Colonias, R. Fuhrer, J. Sohn

PO-GePV-M-79 Comparison of the Efficacy of CT On Rails Versus In-Room CBCT for Online Daily Adaptive Proton Therapy - K. Nesteruk*, M. Bobic, A. Lalonde, H. Lee, G. Sharp, J. Verburg, B. Winey, A. Lomax, H. Paganetti

PO-GePV-M-80 Sun Nuclear DoseCHECK Vs Varian Mobius: Commissioning and Characterisation for Ethos Adaptive Independent Dose Calculations - R. Brown*, R. Bromley, C. Stanton, B. Zwan, J. Booth, A. Briggs

PO-GePV-M-81 CBCT-Based Plan Adaptation for Chest Wall Intensity Modulated Proton Therapy - W. Smith*, Y. Hao, B. Sun, A. Darafsheh, T. Mazur, T. Zhang, S. Perkins, T. Zhao

PO-GePV-M-82 Evaluation of AI-Driven Adaptive Workflow for High Quality Palliative Radiotherapy - A. Kejda*, S. Wong, S. Roderick, J. Booth, T. Eade

PO-GePV-M-83 Performance Characterization of a Real-Time Dose Reconstruction Algorithm for Prostate Stereotactic Radiotherapy Treatment - C. Sengupta*, S. Skouboe, D. Nguyen, T. Ravkilde, P. Poulsen, T. Moodie, P. Keall

PO-GePV-M-84 A Dilated Convolution Neural Network to Predict Three-Dimensional Dose Distribution in IMRT Treatment of Cervical Carcinoma - Z. Yuan*, Y. Yang

PO-GePV-M-85 Plan Quality and Feasibility of Adaptive CBCT-Guided Prostate and Nodal Volume SBRT - E. Laugeman*, A. Price, M. Prusator, L. Henke, B. Baumann

PO-GePV-M-86 Comparison of Online Adaptation and Offline Re-Planning for Head and Neck Intensity-Modulated Proton Therapy - M. Bobic*, A. Lalonde, K. Nesteruk, H. Lee, J. Verburg, G. Sharp, B. Winey, A. Lomax, H. Paganetti

PO-GePV-M-87 Comparison of Target Coverage Between Adapted and Non-Adapted Treatment Plans for Prostate Radiation Therapy - I. Gallagher*, J. Riess, C. Coughlin, I. Chetty, A. Kretzler, S. Vance, B. Movsas

PO-GePV-M-88 Developing On-Table ART with Conventional LINACS - TrueBeam - T. Kim*, E. Laugeman, F. Reynoso, N. Knutson, P. Szentivanyi, M. Schmidt

PO-GePV-M-89 A Dosimetric Comparison of Stereotactic Body Radiation Therapy Delivery Techniques for Lung Cancer: Adaptive Versus Conventional - C. Ding*, A. Godley, K. Westover, R. Timmerman, J. Park

PO-GePV-M-90 Impact of Dynamic Intrafraction Air Cavity Changes During MR-Guided Adaptive Radiation Therapy for Abdominal Tumors - X. Chen*, E. Paulson, E. Ahunbay, E. Omari, W. Hall, B. Erickson, X. Li

PO-GePV-M-91 Utilization of the QUART Phantom to Evaluate Imaging Stability of a CBCT-Based Online Adaptive Workflow - A. Dare*, K. Homann, M. Morales Paliza

PO-GePV-M-92 Evaluation of Online Planning Strategies for CBCT-Based Adaptive Radiotherapy for Locally Advanced Lung Cancer - J. Kim*, W. Mao, I. Gallagher, J. Riess, S. Vance, B. Movsas, I. Chetty, A. Kretzler

PO-GePV-M-93 Necessity of Plan Adaptation in Stereotactic MR-Guided Online Adaptive Radiotherapy - C. Williams*, Z. Han, M. Huynh, J. Leeman, L. Singer, D. Cagney, R. Mak, E. Huynh

PO-GePV-M-94 AI-Based Online Adaptive Radiation Therapy for Lung Cancer Treatment - W. Mao*, J. Riess, J. Kim, S. Vance, P. Parikh, H. Li, B. Zhao, B. Movsas, I. Chetty, A. Kretzler

PO-GePV-M-95 Intentional Deep Overfit Learning (IDOL): An Application to CBCT-Based Auto-Contouring - J. Chun*, X. Liang, M. Lin, D. Nguyen, Y. Zhang, J. Wang, S. Jiang, J. Kim, J. Park

PO-GePV-M-96 Development of a Quality Assurance Process for Dose Accumulation in a CT-Guided Online Adaptive Radiotherapy System - B. Maraghechi*, D. Lam, T. Mazur, G. Hugo, B. Cai

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PO-GePV-M-98 Clinical Assessment of Patient Variations Between Treatment and Simulation in Breast Deep-Inhalation Breath Hold (DIBH) Using Optical Surface Imaging and On-Board 2D Radiography - I. Yan, G. Li*

PO-GePV-M-99 Comparison of Three Setup Methods of Skin Marker Alignment Using Diamond-Shaped Light Field for Prone Breast EBRT - H. Xu*, S. Cheston, A. Gopal, S. Chen, B. Zhang, S. Lee, S. Dudley

PO-GePV-M-100 Evaluating Impact of Target Location on Intrafraction Target Motion for Lung SBRT - D. Lack*, D. To, J. Liang, M. Liu, I. Xhaferllari, C. Stevens, I. Grills, T. Guerrero, D. Yan

PO-GePV-M-101 Respiratory Traces Analysis in Left-Breast Irradiation with Deep Inspiration Breath Hold - M. Langsen*, M. Jermoumi

PO-GePV-M-102 Integrating Temporal Physical and Biological Dose Distribution Analysis in Imaged-Guided Hypofractionated Radiosurgery of High-Risk Brain Lesions - B. Ziemer*, M. Lafreniere, L. Boreta, S. Braunstein, L. Ma

PO-GePV-M-103 Development a Portable Body Surface Monitoring System Using Depth Camera - R. Oshika*, S. Mori, A. Nomoto, Y. Tachibana, K. Yasui, M. Ichihara, S. Kurata, N. Hayashi

PO-GePV-M-104 Management of Urgent Sim-And-Treat Palliative Cases Via Halcyon KV-ICBCT Images - M. Gei*, M. Randall, D. Pokhrel

PO-GePV-M-105 A Non-Image Based Mechanism to Detect Significant Patient Motion for a Frame-Based Radiosurgery Treatment Platform - J. Brindle*, J. Patrick, Z. Saleh

PO-GePV-M-106 A Case-Study Investigation of the Feasibility of PTV Expansion Reduction for Dose Escalation for Anal Cancer - A. Yorke*, V. Williams, E. Kim, S. Geneser

PO-GePV-M-107 Target Motion Tracking with LLE-Based Features Using Surface Imaging Model - J. Weng*, S. Samant, J. Wu, S. Bhupathiraju, T. Samant

PO-GePV-M-108 Fusion of Multi-Scale Feature Maps Improves Anisotropic Structure Detection from CT Images - Y. Xie*, G. Sharp, D. Gierga, T. Hong, T. Bortfeld, K. Kang

PO-GePV-M-109 X-Ray Imaging Practices in Radiation Therapy in the United States - S. Gros*, W. Small, C. Martin

PO-GePV-M-110 Dosimetric Impact in Radiation Therapy When Using Dual-Energy CT Reconstructed Virtual Monoenergetic Images in Combination With Clinical Monoenergetic CT-Density Curves - B. Broekhoven, W. Godwin*, J. Peng, D. McDonald, M. Maynard, K. Fallon, G. Owen, A. Rapchak

PO-GePV-M-111 Liver Tumor Motion During SBRT with Different Motion Management and IGRT Strategies: A Systematic Review on Inter, Intra-Fraction and CT-Sim Motion - T. Nano*, M. Akkati, M. Feng, M. Milano, O. Morin, M. Sharma

PO-GePV-M-112 Evaluation of Larynx Displacements in Pre-Treatment CBCT Scans for a Population of Laryngeal Cancer Patients - A. Antolak*, T. Gray, N. Woody, S. Koyfman, P. Xia

PO-GePV-M-113 Dosimetric Validation of Surface Guided Patient Set-Up for Breast Radiotherapy - A. Gopal*, G. Lasio, B. Zhang, H. Xu, S. Chen, S. Mcavoy, C. Decesaris

PO-GePV-M-114 Contrast Enhancement in Primary Oropharyngeal Tumors Through the Use of Split-Filter Dual Energy CT - M. Lawless*, P. Harari, A. Burr, R. Kimple, J. Shah, J. Miller

PO-GePV-M-115 An Evaluation of Translational Set-Up Errors to Define An Institutional Protocol for Set-Up Margins in the Treatment of Cancer Cervix Using Image Guided Radiotherapy (IGRT) - G. Rani, H. Kaur*, J. Ninan, P. Chandrasenan, M. ABDUSSAMEEH P

PO-GePV-M-116 Head-To-Head Performance Comparison of Two Deep Learning Segmentation Algorithms for Radiotherapy Planning: A Study in Prostate - H. Martinez*, B. Rich, L. Young, F. Yang

PO-GePV-M-117 Data-Driven Generation of CBCT-To-CT HU Mapping for Adaptive Radiotherapy in H&N Cancer - H. Wang*, A. Rea, J. Xue, K. Spuhler, T. Qu, T. Chen, D. Barbee, K. Hu

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PO-GePV-M-118 Quantitative Analysis of the Accuracy of CT to CBCT Deformable Image Registration for Contour Mapping for Prostate Cancer - R. Schmidt*, N. Dogan, J. Ford, M. Studenski, M. Abramowitz, K. Padgett, B. Spieler, Y. Xu, R. Delgadillo
PO-GePV-M-119 Improvement of MVCT Image Quality for Adaptive Helical Tomotherapy Using CycleGAN-Based Image Synthesis with Small Datasets - D. Lee*, H. Cho, Y. Han
PO-GePV-M-120 Potential for Using Extracellular Volume Fraction Derived from Dual-Source DECT for Pancreatic Tumor Delineation - G. Godfrey*, G. Noid, J. Shah, W. Hall, B. Erickson, X. Li
PO-GePV-M-121 Deep-Learning Based Auto-Classification of Anatomical Regions for IGRT Applications: Implementation and Explainability - J. Cruz Bastida*, S. Li, E. Pearson, H. Al-Hallaq
PO-GePV-M-122 Comparison of KV-CBCT Dose Measurement Techniques for Annual Linac QA - B. Rudek, K. Osterman*, J. Xue
PO-GePV-M-123 Abdominal 4DCT Image Quality/Visibility Between Iterative Model Reconstruction (IMR) and Iterative Reconstruction (iDose4) - S. Shen*, R. Sullivan, C. Schneider, R. Popple, R. Jacob
PO-GePV-M-124 Comparison of CBCT Image Enhancement Using Patch-Based U-Net and GAN - Q. Dou*, Q. Chen, Y. Rong, X. Feng
PO-GePV-M-125 Characterization of Imaging Performance Of a Novel Helical KVCT System for Use in Image-Guided and Adaptive Radiotherapy - R. Tegtmeyer*, W. Ferris, J. Bayouth, W. Culbertson
PO-GePV-M-126 Estimation of Conversion Factors for CTDIw Calculation in MVCBCT Acquisitions - M. Myronakis*, M. Jacobson, T. Harris, I. Valencia Lozano, C. Williams, M. Lehmann, R. Fueglistaller, P. Huber, D. Morf, R. Berbeco
PO-GePV-M-127 DeepDoseNet: A Deep Learning-Based Approach for 3D Dose Prediction - M. Soomro*, V. Leandro Alves, H. Nourzadeh, J. Siebers
PO-GePV-M-128 A Case Study of the Effects of Bladder Filling for Treating Prostate and Nodes Using Online Adaptive Radiotherapy on Ethos - Y. Hao*, B. Baumann, L. Henke, E. Laugeman, A. Price, D. Yang
PO-GePV-M-129 Estimating Inconsistency in Deformable Image Registration-Based Dose Accumulation - K. Kainz*, J. Garcia Alvarez, H. Zhong, A. Tai, E. Ahunbay, C. Lawton, X. Li
PO-GePV-M-130 Accuracy of Pelvic CT-MR Deformable Image Registration: Comparison of Open-Source and Commercial Software - T. Ishida*, N. Kadoya, S. Tanabe, H. Ohashi, H. Nemoto, S. Dobashi, K. Takeda, K. Jingu
PO-GePV-M-131 Estimation of Uncertainty in Deformable Image Registration Based Daily Dose Accumulation for Head and Neck Cancer - J. Garcia Alvarez*, K. Kainz, H. Zhong, C. Schultz, X. Li
PO-GePV-M-132 Improving Deformable Image Registration with Three Metrics for Postoperative Radiotherapy of Breast Cancer Patients - X. Xie*, H. Yan, J. Dai
PO-GePV-M-133 Evaluation of Deformable Image Registration Accuracy for Liver Patients Using Contrast and Non-Contrast CT Images - C. Allen*, A. Yeo, N. Hardcastle, R. Franich
PO-GePV-M-134 Evaluation of Various Deformable Image Registration Algorithms for Abdomen Images with Biomechanically Modelled Deformations - Y. Liu*, P. Zhang, J. Hong, G. Mageras, W. Lu, S. Alam, J. Deasy, L. Cervino
PO-GePV-M-135 Evaluation of Synthetic CT Images Generated by Deformable Image Registration of Outdated Planning CT to CBCT of Treatment Day - J. Yoon*, I. Yeo
PO-GePV-M-136 Feasibility of Diagnostic Dose Fast-Helical Free Breathing CT Scan Protocol for Ventilation Measurement - M. Lauria*, B. Stiehl, L. Naumann, A. Santhanam, D. O'Connell, K. Singhrao, J. Goldin, I. Barjaktarevic, D. Low
PO-GePV-M-137 Usefulness of 4DCT-Based Elasticity Map for Function Preserving Liver Radiotherapy Treatment Planning - T. Sera*, T. Shiinoki, K. Fujimoto, Y. Yuasa, Y. Kawazoe, H. Tanaka
PO-GePV-M-138 4DCT Based Ventilation Imaging Correlation to Pulmonary Function Test for SBRT Lung Patients - T. Lin*, S. Kumar, A. Dayal, C. Ma
PO-GePV-M-139 Multimodality Image Registration for Application in Brachytherapy Based on Automated Organ Segmentation - K. Qing*, X. Feng, S. Glaser, W. Watkins, D. Du, Y. Chen, C. Han, J. Liang, J. Liu, B. Liu, Q. Chen, A. Liu

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PO-GePV-M-140 A Study of 2D/3D with 3D/3D Registration Using KV/kV, KV/2.5X/6X - S. Lin*, D. Lovelock, S. Lim, J. Sillanpaa, D. Wang, C. Della-Biancia, S. Berry, D. Shasha, H. Kuo
PO-GePV-M-141 Using Previously Registered CBCT Image to Facilitate Online HCT to CBCT Image Registration in Lung Stereotactic Body Radiation Therapy - J. Liang*, D. Yan, J. Wloch, J. Sliwinski, I. Grills, C. Stevens, T. Guerrero, Q. Liu
PO-GePV-M-142 Comparing Dose Summation Techniques for External Beam and LDR Brachytherapy for Combined Modality Prostate Cancer Treatment - A. Cooney*, S. To, D. Guest, A. Riegel
PO-GePV-M-143 Evaluation of the Displacement of the Target Position Caused by Residual Setup Errors in Stereotactic Radiosurgery with Single-Isocenter Volumetric Modulated Arc Therapy for Multiple Brain Metastases - Y. Tsuruta*, M. Nakamura, M. Nakata, H. Hirashima, D. Zhou, T. Fujimoto, K. Takehana, M. Uto, T. Mizowaki
PO-GePV-M-144 A Quantitative Analysis of Lung Registration Error in a Clinically Used Deformable Image Registration Implementation Using Manually Identifiable Features in Fast Helical Free-Breathing CT Scans - L. Naumann*, B. Stiehl, M. Lauria, K. Singhrao, A. Santhanam, D. Low
PO-GePV-M-145 A Method to Consider Dose Distribution and Dose Gradient in Evaluating Image Registration for Dose Accumulation - X. Wu*, J. Williamson, H. Gach, H. Li, D. Yang
PO-GePV-M-146 High-Resolution Spine Digital Reconstructed Radiograph (DRR) for Motion Tracking in Paraspinal Treatment - W. Cai*, F. Li, X. He, P. Zhang, X. Li, T. Li
PO-GePV-M-147 Automated Detection of IGRT Shift Errors Due to Mis-Registration - D. Pittock*, A. Kruzer, D. Faught, A. Nelson, E. Paulson
PO-GePV-M-148 Intentional Deep Overfit Learning (IDOL): An Application to Deep Learning Based MRI Super-Resolution - I. Park*, J. Chun, B. Choi, S. Olberg, T. Kim, B. Cai, A. Godley, A. Pompos, P. Medin, J. Kim, S. Jiang, J. Park
PO-GePV-M-149 Left Ventricle Avoidance in Non-Small Cell Lung Cancer Radiotherapy: A Planning Comparison Study - O. Chau*, S. Gaede
PO-GePV-M-150 Comparison of a Commercial Calculation-Based and Offline Measurement-Based Systems for Online Adaptive Radiotherapy - A. Quinn*, A. Briggs, B. Zwan, J. Booth
PO-GePV-M-151 Evaluation of Dosimetric Impact of Organ Variation on Daily Basis Using MIM Image Registration Software - R. He*, H. Soysal, M. King, S. Vijayakumar, C. Yang
PO-GePV-M-152 Deep Learning Markerless Spine Tracking Using Intrafraction Motion Management (IMR) Images: A Feasibility Study for Paraspinal SBRT Motion Management - F. Li*, W. Cai, X. He, P. Zhang, L. Cervino, X. Li, T. Li
PO-GePV-M-153 Analysis of a Surface Imaging System Using a Six Degree of Freedom Couch - X. Zhao*, E. Covington, A. Alexandrian, R. Popple
PO-GePV-M-154 Impact of Various Noise Reduction Techniques on Markerless Tumor Tracking in Dual Energy Imaging - M. Kaur*, P. Wagstaff, H. Mostafavi, M. Lehmann, D. Morf, L. Cortesi, L. Zhu, H. Kang, M. Harkenrider, J. Roeske
PO-GePV-M-155 Feasibility Study of An InBore Real-Time Surface Monitoring System - G. Kim*
PO-GePV-M-156 An IOS Surface Audiovisual Biofeedback Smartphone Application for Respiratory Monitoring in Radiation Oncology - T. Nano, E. Hirata, E. Blomain, L. Skinner, N. Prionas, B. Loo, D. Capaldi*
PO-GePV-M-157 Towards Real-Time Markerless Prostate IGRT During VMAT Treatment - A. Mylonas*, M. Mueller, P. Keall, J. Booth, D. Nguyen
PO-GePV-M-158 Enhancing Cherenkov Photon Yield by Gold Implants - K. Okazaki*, E. Brost, Y. Watanabe
PO-GePV-M-159 Towards Faster and More Accurate Target Localization on Intrafraction X-Ray Fluoroscopy for Lung Radiotherapy Using Modified YoloV3 Detector - L. Deng*, Z. Dai, X. Liang, Y. Xie
PO-GePV-M-160 Quantitative Interpretation of Data Acquired During Intrafraction Motion Review Imaging - G. Graeper*, A. Cetnar, A. Ayan, M. Weldon

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PO-GePV-M-161 Clinical Performance of a New Commercial Surface Imaging System for Frameless Stereotactic Radiosurgery - E. Covington*, D. Stanley, J. Fiveash, R. Popple

PO-GePV-M-162 Comparing Patient Setup Techniques Between Optical Surface Guidance and Conventional Tattoo/Laser Alignment Using Cherenkov Image Consistency Metrics - R. Hachadorian*, D. Alexander, E. Chen, D. Gladstone, M. Jermyn, G. Gill, R. Zhang, P. Bruza, L. Jarvis, B. Pogue

PO-GePV-M-163 Clinical Detectability of MR Suitable Prostate Fiducial Markers Utilizing the TrueBeam Advanced Imaging Package During VMAT Prostate Treatment in Phantom - M. Klem*, K. Jones, J. Turian

PO-GePV-M-164 Auto-Segmentation of Organs at Risk for CT Thoracic Cases: A Single Institution's Experience - D. Darkow*, B. Lee, J. Seger-Paisley, R. Woods, U. Duong, A. Houser, J. Paisley, M. Butler, A. Kruzer, A. Nelson

PO-GePV-M-165 Deep Learning-Based Auto-Segmentation of Glioblastoma in Brain Cancer Radiotherapy - S. Sadeghi*, S. Gholami

PO-GePV-M-166 Clinical Evaluation of Deep Learning Based Auto Segmentation (DLAS) of Organs at Risk in the Head and Neck Region - S. Huang*, C. Ackerman, C. Johnson, P. Tsai, L. Hu, W. Xiong, C. Apinorasetkul, G. Yu, h. Zhai, R. Press, H. Lin

PO-GePV-M-167 PTV Auto Contouring for Prostate and Nodes Utilizing Deep Learning Artificial Intelligence - H. Yao*, J. Chang, J. Baker

PO-GePV-M-168 Synthetic Lung MRI for Auto-Segmentation Using Unet Training: Supervised Cross-Domain Adaptation from CT to MRI - Y. Liu*, J. Jiang, N. Tyagi, H. Veeraraghavan, G. Li, J. Deasy, L. Cervino

PO-GePV-M-169 Prior Information Guided Auto-Contouring of Breast Tumor Bed for Post-Operative Breast Cancer Radiotherapy - X. Xie*, H. Yan, J. Dai

PO-GePV-M-170 The Physics of Cellular Self-Assembly to Investigate Cancer Migration in Interface with Healthy Tissues - A. Shafiee*, J. Kassis, E. Ghadiri

PO-GePV-M-171 Apparent Diffusion Coefficient Calculation On a 0.35T MR-Linac System - B. Lewis*, J. Shin, J. Kim, H. Gach, T. Kim

PO-GePV-M-172 Automated Analysis of QA Images Acquired with Low-Field MRgRT - R. Moskwa*, B. Paliwal, I. Tanumihardjo, P. Yadav

PO-GePV-M-173 Investigation of Unity MR-Linac Adaptive Planning on Prostate SBRT Plan Quality - J. St-Aubin*, J. Snyder, D. Dunkerley, S. Yaddanapudi, D. Hyer

PO-GePV-M-174 The Dosimetric Impact of Magnetic Field on Lung Cancer Treatment When Using MR-Linac - C. Ding*, A. Godley, K. Westover, R. Timmerman, J. Park

PO-GePV-M-175 Dosimetric Evaluation for MR-Linac Online Adaptive Planning Approaches: A Case Study of Recurrent Adrenocortical Carcinoma - J. Niedzielski*, A. Koong, A. Sobremonte, P. Castillo, B. Lee, J. Yang

PO-GePV-M-176 Urethra Inter-Fractional Geometric Variations of Prostate Cancer Patients: A Study Using An On-Board MRI - J. Pham*, R. Savjani, S. Yoon, Y. Gao, M. Cao, P. Hu, K. Sheng, D. Low, M. Steinberg, A. Kishan, Y. Yang

PO-GePV-M-177 Feasibility of Adapt-To-Position Treatment of Prostate Patients Undergoing Ultra-Hypofractionated MR-Guided Adaptive Radiotherapy - S. Burleson*, V. Brennan, M. Zelefsky, N. Tyagi

PO-GePV-M-178 Dosimetric Effects of Air Cavities for MRI-Guided Online Adaptive Radiation Therapy (MRgART) of Prostate Bed After Radical Prostatectomy - J. Pham*, M. Cao, A. Kishan, Y. Yang

PO-GePV-M-179 Assessment of Dose Accuracy of Bulk Synthetic CT in MR-Guided Online Adaptive Radiotherapy for Nasopharyngeal Carcinoma - S. Ding*, H. Liu, B. Wang, Y. Li, B. Liu, X. HUANG

PO-GePV-M-180 Superparamagnetic Iron Oxide Enhanced MRI for Elekta Unity MR-Linac: A Pre-Clinical Phantom Study - D. Lee*, P. Klepchick, H. Lee, D. Pavord, S. Oh, J. Sohn, A. Kirichenko

PO-GePV-M-181 Evaluation of Cranial FSRT Plan Quality on a Magnetic Resonance Image Guided Linear Accelerator - K. Snyder*, J. Kim, J. Dolan, Y. Huang, A. Doemer, N. Wen, I. Chetty, P. Parikh, M. Shah, S. Siddiqui

PO-GePV-M-182 Synthetic CT Generation from MRI for Stereotactic Radiosurgery - S. Hsu*, D. Mynampati, W. Tomé

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PO-GePV-M-183 CINE Viewer in Eclipse for Tumor Motion Evaluation in MRgRT - T. Kim*, Y. Wu, N. Knutson, M. Schmidt

PO-GePV-M-184 Evaluate the Jointly Model-Based Reconstruction Method to Correct MRI Images Geometrical Distortion for Precise MRI-Based Brain Stereotactic Radiosurgery Planning: Using Pari QC Head Phantom - M. Hosseini*, S. Aghamiri, A. Fatemi, S. Bagherimofidi

PO-GePV-M-185 Application of Super-Resolution Reconstruction to Prostate 0.35T MRI Scans - J. Charters*, A. Kishan, J. Lamb

PO-GePV-M-186 Automated Detection of Freiburg Flap Applicator Catheters for Surface Brachytherapy on PETRA MR Images - E. Kaza*, C. Lee, R. Cormack, P. Devlin, I. Buzurovic

PO-GePV-M-187 MRI-Based Prostate SBRT Treatment Planning Using Synthetic CT - J. Scholey*, T. Nano, X. Miao, P. Larson, M. Descovich

PO-GePV-M-188 Geometric Accuracy of Spiral FLAIR for Treatment Planning in Stereotactic Radiosurgery: A Preliminary Study - Z. Li*, S. Srivastava, J. Karis

PO-GePV-M-189 Feasibility of Lung Stereotactic Body Radiation Therapy (SBRT) Treatment with MR-Image Guided Linear Accelerator (MRI-Linac) - S. Hoffman*, T. Refaat, B. Lee, J. Roeske, A. Sethi

PO-GePV-M-190 Dosimetric Evaluation of Compressed Sensing Respiratory Gating in MRI-Guided Radiotherapy - J. Charters, Y. Abdulkadir, D. O'Connell, Y. Yang, J. Lamb*

PO-GePV-M-191 Evaluating a Daily QA RT to MRI Isocentricity Test for An MR-Guided Linear Accelerator - M. Mistro*, J. Belardo, A. Copeland, T. Tyson, A. Kubli, K. Mooney, C. Ainsley

PO-GePV-M-192 Dosimetric Evaluation of Irradiation Geometry and Potential Air-Gaps in An Acrylic Minipanthom Used for External Audit of Absolute Dose Calibration for a Hybrid 1.5T MR-Linac (MRL) System - N. Tyagi*, E. Subashi, D. Lovelock, S. Lim

PO-GePV-M-193 Assessment of Inter- and Intrafraction Organs Motion with Online MRI for Cervical Cancer Patients Treated On a 1.5T MR-Linac - S. Ding*, H. Liu, B. Wang, Y. Li, B. Liu, Y. Ouyang, X. HUANG

PO-GePV-M-194 Optimizing the Accuracy and Training Speed of An Artificial Neural Network for Three-Dimensional Tumour Trajectory Prediction in Linac-MR Image-Guided Radiation Therapy - N. Johnson*, B. Fallone, J. Yun

PO-GePV-M-195 Implementation of a 3D Printing Program in a Radiation Oncology Clinic: A Case for Simple Custom Breast Bolus Fabrication - M. Lafreniere*, J. Cunha, M. Descovich, C. Park, N. Prionas, M. Sharma

PO-GePV-M-196 X-Ray Imaging Properties of Tissue Equivalent Materials - R. Gao, D. Ma*, M. Li, J. Qiu

PO-GePV-M-197 Evaluation of 3D Filaments for Creating Patient-Specific Radiotherapeutic Phantoms - J. Adamovics*, F. Li, O. Dona, Y. Wang, A. Adamovics, C. Wu

PO-GePV-M-198 Development and Performance Evaluation of a Portable Respiratory Self-Training System Using Patch Type Magnetic Sensor - H. Kang*, J. Kim, D. Kim

PO-GePV-M-199 Developing and Testing a Real-Time Collision Avoidance System for Couch and Gantry of a Linear Accelerator (LINAC) - Z. Saleh*, J. Patrick, E. Klein

PO-GePV-M-200 The Feasibility Study of In-Vivo Detection of Retained Gadolinium in Brain and Bone Using Magnetic Resonance Imaging (MRI) and K X-Ray Fluorescence (K-XRF) Systems - F. Mostafaei*, A. Arbab, J. Barrett, H. Nie, A. Maghsoodpour, A. Bosomtvi, A. Al-Basheer

PO-GePV-M-201 An Indoor Real-Time Location System (RTLs) to Improve Patient Safety and Clinical Workflow of Radiation Therapy - Y. Yan*, G. Tang, E. Chambers, J. Gillespie, C. Wallace, T. Chiu, A. Pompos, A. Godley, D. Sher, K. Westover, H. Choy, R. Timmerman, S. Jiang

PO-GePV-M-202 Total-Body Potassium in Rats Determined by Compact in Vivo Neutron Activation Analysis Assembly - S. Tabbassum*, C. Pinjing, F. Yanko, R. Balachandran, M. Aschner, A. Bowman, H. Nie

PO-GePV-M-203 Correlation Analysis Between the Kyoto Gastritis Classification and Early Gastric Cancer - y. Gao *, R. Zhang, W. Zhang, W. Bai

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PO-GePV-M-204 Detection of Cell Apoptosis with Gaussian Markov Random Field Algorithm - J. Feng*, Y. Sa

PO-GePV-M-205 Carbon Nanotubes Role in KV X-Rays: Enhancement Or Diminution? - S. Ashmeg*, R. Lalonde

PO-GePV-M-206 Virtual Collision Checks with a Laser Scanning and Depth Sensing Camera - B. Posehn*, H. Clark

PO-GePV-M-207 Introduction of Automation in Radiation Treatment Plan Assignment and Daily Monitoring - J. Beaudry, E. Pinto, C. Czmielewski, N. Stein, B. Leong, S. Shen, C. Della-Biancia, G. Niyazov, L. Cervino, A. Damato*

PO-GePV-M-208 A Supplementary Management System for Personalized Ultra-Fractionated Stereotactic Adaptive Radiotherapy (PULSAR) - J. Lin*, A. Godley, R. Timmerman, D. Sher, J. Wu, G. Tang, Y. Yan

PO-GePV-M-209 Analysis of the Dose Enhancement Factor in the Presence of Gold Nanoparticles in Clinical Radiotherapy Beams - P. Monteiro*, A. Quevedo, H. Trombini, T. Pianoschi

PO-GePV-M-210 Measuring Distribution of An I-125 Labeled Elastin-Like Polypeptide (ELP) Nanoparticle Within Mice Tumors for Consideration as a Novel Technique of Delivering Brachytherapy - H. Song*, J. Milligan, K. Lafata, G. Kelly, A. Chilkoti, J. Cai, F. Yin

PO-GePV-M-211 Generating Voxel-Based Dose from Activity Distribution for Radionuclide Therapy by Deep Learning Method - H. Lin, J. Jing*, L. Xu

PO-GePV-M-212 Prediction of Dose Discrepancies Using Differences in Plan Normalization Values of Head-And-Neck VMAT Plans - M. Sasaki*, H. Ikushima, S. Kobuchi, K. Kuwahara, A. Kajino, D. Sato, W. Sugimoto, M. Oita

PO-GePV-M-213 Effect of VMAT Improvement Before and After Referring to Radiation Therapy Planning QA Software - M. Sasaki*, Y. Nakaguchi, T. Kamomae, S. Kobuchi, K. Kuwahara, A. Kajino, D. Sato, H. Ikushima

PO-GePV-M-214 Geometric and Dosimetric Impact of 3D Generative Adversarial Network-Based Metal Artifact Reduction Algorithm on VMAT and IMPT for the Head and Neck Region - M. Nakamura*, M. Nakao, K. Imanishi, H. Hirashima, Y. Tsuruta

PO-GePV-M-215 Physical and Dosimetric Characteristic Properties of BeO OSL for Clinical Dosimetric Measurements - E. Kara*, a. hiesonmez

PO-GePV-M-216 Head and Neck Multi-Organ Segmentation on Dual-Energy CT Using Dual Pyramid Convolutional Neural Networks - T. Wang*, Y. Lei, J. Roper, B. Ghavidel, J. Beitler, M. McDonald, J. Bradley, T. Liu, X. Yang

PO-GePV-M-217 Foreign Bodies Detection in Pediatrics with Low Dose CT - M. Aljallad*

PO-GePV-M-218 Magnetic Particle Spectrometer for Diagnosis of Magnetic Nanoparticles - M. Irfan, N. Dogan, A. Bingolbali*

PO-GePV-M-219 An Multi-Stage Explainable System for Lobe Injury Diagnosis - d. qian*, S. Xu, S. Wu, R. Wang

PO-GePV-M-220 Develop a Rotational Robust Optimized Spot-Scanning Proton Arc (SPArc) Algorithm - S. Chang*, G. Liu, L. Zhao, W. Zheng, A. Qin, D. Yan, X. Li, X. Ding

PO-GePV-M-221 Inverse Shielding for Super High-Frequency (SHF) Microwaves to Ensure Contemporary PET Imaging Quality - K. Wang*, M. Huq

PO-GePV-M-222 Direct Proton Dosimetry for Fractionated Radiotherapy: Dose Invariance Features and Mono-Endpoints - K. Wang*, R. Beatty

PO-GePV-M-223 Respiratory Motion Management from MD Consultation to Radiotherapy - Z. Ji, M. Schmidt, N. Knutson, T. Kim*

PO-GePV-M-224 Dosimetric Properties of An HDR Ir-192 Source - X. Cui, X. Cui*

PO-GePV-M-225 An Incremental-Based Model for Organ at Risk in Multi-Scene Cervical Cancer Radiotherapy - Z. Zhang, R. Zhou, S. Wu*, d. qian, R. Wang, S. Wang, Z. Yang

PO-GePV-M-226 Determination of the Phantom Surface Dose Using a Diode Detector for Diagnostic X-Ray Beams - R. Tanabe*

PO-GePV-M-227 A New Intracavitary Applicator Design: Dosimetric Characterization of Shielded Multichannel Applicator for High Dose Rate 60Co Brachytherapy Gynecological Cancer Treatment - h. aloraibi*, S. Gholami, M. Ghorbani, H. Nashi

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PO-GePV-M-228 Quantification of Spinal Bone Marrow Fat Fraction Using Three-Material Decomposition Technique on Dual-Energy CT: A Feasibility Study - B. Li*, N. Hua, J. Li, V. Andreu-arasa, C. Lebedis, S. Anderson

PO-GePV-M-229 The First Investigation of Spot-Scanning Proton Arc (SPArc) Delivery Time and Accuracy with Different Delivery Tolerance Window Settings - G. Liu*, L. Zhao, D. Yan, G. Janssens, X. Li, X. Ding

PO-GePV-M-230 MRI Characterization of 3D Printed Anatomic Models Using a Dual-Echo Ultrashort TE (UTE) Sequence - N. Wake*, Q. Peng

PO-GePV-M-231 Feasibility of Federated Learning for Head and Neck (HN) Tumor Segmentation in PET/CT - Y. Yuan*, S. Adabi, Y. Lo, J. Junn, R. Bakst

PO-GePV-M-232 Clinical Evaluation Study of Image Guided Radiotherapy (IGRT) for Prostate Cancer Comparing Kv Imaging of Fiducial Markers and Cone Beam Computed Tomography (CBCT) Using SpaceOAR-View as a Matching Structure - R. Mghari*, I. Pataki, K. Keene

PO-GePV-M-233 A Knowledge-Based Automatic Lung IMRT Planning Method for Partial Heart Sparing - L. Yuan*, J. Sohn, R. Singh, E. Weiss, S. Kim

PO-GePV-M-234 Real-Time Volumetric Image Guidance Via Deep Learning - X. Liang*, L. Xing

PO-GePV-M-235 A Site Agnostic 3D Dose Distribution Prediction Model for Radiation Therapy with Deep Neural Networks - M. Mashayekhi*, A. Balagopal, I. Tapia, X. Zhong, S. Jiang, D. Nguyen

PO-GePV-M-236 Optimization of a FLASH Proton Beam Using a Track-Repeating Algorithm - Q. Wang*, U. Titt, R. Mohan, F. Guan, P. Yepes

PO-GePV-M-237 Interpretable Artificial Intelligence-Based Extracapsular Extension Prediction in Head and Neck Cancer Analysis - Y. Wang, W. Duggar*, T. Thomas, P. Roberts, R. Gatewood, L. Bian, H. Wang

PO-GePV-M-238 Using Deep Learning Auto-Planning for Evaluating the Dosimetric Impact of Deep Learning Auto-Segmentation Without Human Intervention Over Multiple Dose Escalation Schemes for Lung SBRT Treatment Planning - M. Holmström*, E. Samuelsson, Y. Wang

PO-GePV-M-239 Validation of a Track-Repeating Monte Carlo Method for Isotopes Calculation - Q. Wang*, Y. Li, Z. Shen, M. Moyers, C. Zhu, D. Yu, X. Bai, A. Adair, H. Chen, J. Li, J. Lin, P. Yepes

PO-GePV-M-240 Dual-Energy Subtraction Efficiency: Development of An Objective Quality Metric for Tissue-Subtraction Radiography - S. Lopez Maurino*, K. Karim

PO-GePV-M-241 A Multi-Modal Deep Learning-Based Decision Support System for Individualized Radiotherapy of Non-Small Cell Lung Cancer - A. Niecikowski*, S. Gupta, G. Suarez, H. Chen, F. Guo, J. Kim, J. Deng

PO-GePV-M-242 Decreasing NTCP Toxicity in Lung Cancer RT by Reducing PTV Margins Using a Combined Deep Learning Auto-Segmentation and Automated Treatment Planning Approach - M. Thor*, H. Veeraraghavan, J. Jiang, M. Zarepisheh, A. Rimner, J. Deasy

PO-GePV-M-243 Multi-Scale Deep Learning CT Liver and Spleen Segmentation Network for Radiation-Induced Toxicity Outcomes Analysis - R. Haq*, I. Onochie, A. Apte, M. Thor, J. Deasy

PO-GePV-M-244 Performance Evaluation and Validation of Knowledge-Based Treatment Planning of VMAT for Post-Mastectomy Loco-Regional Radiotherapy Involving Internal Mammary Chain - R. Phurailatpam*, M. Sah, J. Jain, T. Wadasadawala, K. Joshi, J. Swamidas

PO-GePV-M-245 Benchmarking of Three Spatial Fractionated Radiation Therapy Techniques For Multiple Treatment Sites - J. Zavala Bojorquez*

PO-GePV-M-246 A Motion Phantom Study on RefleXion X1: The Dosimetric Impacts of Stereotactic Radiation Therapy Delivery Technique and Motion - D. Capaldi*, E. Simiele, M. Owens, B. Han, M. Surucu, L. Xing, L. Vitzthum, D. Chang, N. Kovalchuk

PO-GePV-M-247 Tattooless Patient Setup with 3D Optical Surface Imaging For Paraspinal Radiation Therapy - W. Ko, Y. Song, H. Hsu*, B. Mueller, D. Guttman, L. Pike, P. Tamas, M. Zhang, J. Yamada

PO-GePV-M-248 A Medical Image Challenge Infrastructure - K. Farahani*, J. Kalpathy-Cramer, B. Bearce, U. Wagner, K. Farahani

General ePosters

- PO-GePV-M-249 Automatic Segmentation of Head and Neck Tumors During Treatment: Can We Remove the Mask Yet?** - M. Gardner*, A. Mylonas, M. Mueller, Y. Ben Bouchta, J. Sykes, P. Keall, D. Nguyen
- PO-GePV-M-250 Efficient and Stable Evaluation of Image Registration Using Deep Learning** - B. Yang*, X. Chen, J. Zhu, K. Men, J. Dai
- PO-GePV-M-251 A Generalizable Target Contour Validation Method Using Radiomics Based Regression Analysis** - Z. Lin*, C. Chen, Z. Fei, Q. Zhou, z. li
- PO-GePV-M-252 Monte Carlo Simulation of Varian Linac Using PRIMO** - Y. Li*, X. Sun, C. Liu
- PO-GePV-M-253 Translating Predictive Models into Treatment Planning Guidelines for Use in Clinical Practice: The Example of the Cardiopulmonary Dose Model for Overall Survival in RTOG 0617** - M. Thor*, L. Sun, P. Patel, C. Lee, A. Apte, L. Santanam, N. Shaverdian, A. Shepherd, A. Rimmer, J. Deasy
- PO-GePV-M-254 Image Quality Assessment of Low CT Dose for Foreign Bodies Detection** - M. Aljallad*
- PO-GePV-M-255 Ventilation Measurements from Free-Breathing CT** - D. Low*, D. O'Connell, M. Lauria, B. Stiehl, L. Naumann, P. Lee, J. Hegde, I. Barjaktarevic, J. Goldin, A. Santhanam
- PO-GePV-M-256 Investigation of Light-Transparent Bolus for Potential Breast SGR T Applications** - Y. Song, H. Hsu*, W. Ko, P. Tamas, M. Zhang, B. Mueller, D. Guttmann, L. Braunstein
- PO-GePV-M-257 A Deep Learning-Based Physician-Specific OAR Segmentation Framework for Radiotherapy Treatment Planning** - Y. Chen*, L. Xing, L. Yu, N. Panjwani, J. Obeid, M. Gensheimer, H. Bagshaw, M. Buyyounouski, N. Kovalchuk, B. Han
- PO-GePV-M-258 Decision On SBRT, regular Or Less Fractions RT with a Simple TCP and EQD2 Calculation** - S. Li*, B. Wang, T. Giaddui, B. Micaily, C. Miyamoto
- PO-GePV-M-259 Penalized Entropy Loss Function with High Quality Uncertainty Estimation for Pneumonia Diagnosis in Pediatric Patients** - D. Feng, X. Chen*, K. Wang, Z. Zhou
- PO-GePV-M-260 LiteUnet: A Lightweight 2DUnet Combine GRU for Cardiac Substructures Segmentation** - J. Jiang, R. Zhou, Z. Zhang, d. qian, S. Wu*, Y. Lu
- PO-GePV-M-261 Predicting Lymph Node Metastasis Through Automated and Reliable Multi-Objective Model in Head & Neck Cancer** - Z. Zhou*, L. Chen, M. Dohopolski, D. Sher, J. Wang
- PO-GePV-M-262 Development of Markerless Pancreatic Tumor Tracking Realized by Deep Learning** - D. Zhou*, M. Nakamura, N. Mukumoto, M. Yoshimura, T. Mizowaki
- PO-GePV-M-263 Using New Feature Extraction Framework to Predict Heart Toxicity in Breast Cancer** - B. Choi*, S. Yoo, J. Kim, H. Kim
- PO-GePV-M-264 Local Temperature as a Surrogate of Inflammatory State Induced by Skin Irritant** - R. Culcasi*, M. Snyder

Therapy General ePoster Viewing

PO-GePV-T Therapy General ePoster Viewing

- PO-GePV-T-01 A Nomogram to Estimate Required Ci-S in Prostate HDR Brachytherapy** - J. Nasehi Tehrani*, G. Lasio, B. Libby, N. Lamichhane, K. Jiang, M. MacFarlane, M. Guerrero
- PO-GePV-T-02 Independent Determination of Absorbed Dose to Water Depth-Dose Curves for Ru-106 Ophthalmic Plaques Traceable to the Primary Standards of External Beam Radiotherapy** - V. Kaveckyte*, S. Dahlander, Å. Carlsson Tedgren
- PO-GePV-T-03 HDR Ring Applicator Commissioning: Eliminating the Need for Film-Processors to Generate Autoradiographs** - J. Kilian-Meneghin*, S. Thompson, J. Khan, B. Liu, N. Yue, L. Hathout, I. Vergalasova
- PO-GePV-T-04 Quantifying Risk Associated with Physics Errors in HDR Prostate Brachytherapy Using Automated Simulations** - M. Trager, J. Beaudry, D. Aramburu Núñez, G. Cohen, L. Dauer, D. Gorovets, N. Hassan Rezaeian, M. Kollmeier, B. Leong, P. McCann, M. Williamson, M. Zelefsky, A. Damato*
- PO-GePV-T-05 Error Detection in HDR Prostate Brachytherapy with Plan-Specific Optimization of In-Vivo Dosimetry (IVD) Parameters** - D. Aramburu Núñez, M. Collier, J. Beaudry, G. Cohen, A. Damato*

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- PO-GePV-T-06 Performance Evaluation of a Novel Quality Assurance Device for High Dose-Rate Brachytherapy** - L. Sensoy*, N. Bassiri, P. De Jean, S. Benedict
- PO-GePV-T-07 Commissioning of Lumen Markers for Needle Visualization on MRI Scans in HDR-Gyn Brachytherapy** - V. Chaswal*, R. Tolakanahalli, J. Contreras
- PO-GePV-T-08 Determination of Changes in Dosimetric Parameters with Co-60 and Ir-192 Source in High Dose Rate Brachytherapy of Cervical Carcinoma** - S. Srivastava*, N. Moirangthem, N. Singh
- PO-GePV-T-09 MRI-Based Organ Segmentation of Pelvis Using Deep Learning for Brachytherapy Treatments** - N. Demez*, A. Hoover, D. Soultan, R. Badkul
- PO-GePV-T-10 Dose Optimization of Vaginal Cylinder: A New Planning Method for Patients with Endometrial Adenocarcinoma** - X. Wu*, A. Mcdonald, S. Shen, S. Marcrom, R. Kim
- PO-GePV-T-11 Uncertainties in MR-To-MR Image Registration for HDR Cervical Brachytherapy** - B. Shen*, Z. Chang, C. Wang, S. Meltsner, J. Chino, O. Craciunescu
- PO-GePV-T-12 Dosimetric Evaluation of Rectal Hydrogel Spacer in Prostate HDR Treatments** - I. Veltchev*, T. Lin, X. Chen, C. Lee, T. Dougherty, J. Wong, M. Hallman, E. Horwitz, R. Price, C. Ma
- PO-GePV-T-13 Commissioning of High Dose Rate Brachytherapy Surface Applicator System** - B. Wichman*, D. Francom, T. Howard, A. Wilkinson, R. Posey
- PO-GePV-T-14 A Retrospective Dose Analysis of High-Dose Rate (HDR) Tandem and Ovoid and Interstitial Needle Cervical Brachytherapy Cases with a Model-Based Dose Calculation Algorithm (MBDCA)** - B. Radcliffe*, S. Meltsner, Z. Chang, J. Chino, M. Huang, O. Craciunescu
- PO-GePV-T-15 HDR Brachytherapy as An Alternative to SBRT for Treating Selective Lung Cancer Patients** - K. Lyons*, T. Biswas, C. Towe, N. Azar, M. Yao, C. Langmack, T. Podder
- PO-GePV-T-16 Comparison of Dose Distribution in Different Types of Cylindrical Applicators Using High Dose Rate Cobalt-60 Source Brachytherapy in Gynecological Cancer** - m. abtahi*, S. Gholami, A. Maddah-safaei
- PO-GePV-T-17 Evaluation of Post-Implant Dosimetry in LDR Permanent Interstitial Brachytherapy for Prostate Cancer** - Y. Khourj*, T. Harris, D. O'Farrell, E. Neubauer Sugar, P. Nguyen, P. Orio, M. King, I. Buzurovic
- PO-GePV-T-18 Dosimetric Differences of Line-Source Versus Point-Source Approximation for Prostate Seed Implant** - K. Lyons*, E. Fredman, G. Guo, R. Ove, T. Podder
- PO-GePV-T-19 MRI-Based Virtual Volume Study for Permanent Prostate Brachytherapy (PPB)** - Y. Le*, S. Ng, Y. Yue, G. Guo, J. Holmes
- PO-GePV-T-20 Evaluation of Dosimetric Parameters of Two Brachytherapy Ophthalmic Sources Using Monte Carlo Simulation** - P. Ramon*, A. Quevedo, T. Pianoschi
- PO-GePV-T-21 A Comparison of Surgical Bed Biologically Effective Dose from Permanently Implanted Collagen Tile Embedded Cs-131 Brachytherapy Vs Stereotactic Radiosurgery in Patients with Resected Brain Tumors** - A. Turner*, M. Choi, D. Brachman
- PO-GePV-T-22 A Comprehensive Dosimetric Evaluation of Circular Collaborative Ocular Melanoma Study (COMS) Plaques and Eye Physics Plaques on a Standard Eye Model** - E. Quan*, B. Teh, A. Scheffler, R. Pino
- PO-GePV-T-23 Dosimetric Impact of Atlas Generated Contours for Post-Prostate Seed Implant Evaluation** - A. Antolak*, J. Ciezki, M. Kolar
- PO-GePV-T-24 Dosimetric Analysis of Real-Time Intra-Operative Planning and Post Implant Planning for the Prostate Permanent Brachytherapy Implants** - R. Badkul*, H. Jiang, S. Awan, X. Shen, N. Demez, R. Chen
- PO-GePV-T-25 Evaluation of Dose Distribution from An Ophthalmic Brachytherapy Through the TOPAS Code** - I. Knoll*, L. de Souza, A. Quevedo, M. Alva
- PO-GePV-T-26 Evaluation of MIM Symphony Treatment Planning System for Post Prostate Seed Implant (PPSI) Planning** - H. Zhao*, F. Su, X. Li, J. Kunz, G. Nelson, P. Rassiah-Szegedi, K. Hopfensperger, G. Stinnett, Y. Huang

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PO-GePV-T-27 Automating Brachytherapy Treatment Plan Document Generation by Using Eclipse Scripting API (v15.6) - R. Sheu*, N. Vassell, C. Teng, Y. Lo

PO-GePV-T-28 Evaluation of Eclipse Smart Segmentation for Liver Yttrium-90 Selective Internal Radiation Therapy - J. Li*, R. Anne

PO-GePV-T-29 Validation of ACE: Advanced Collapsed Cone Engine Heterogeneity-Corrected Brachytherapy Dose Calculation with Gafchromic EBT3 Film - D. McIlrath*, E. Schnell

PO-GePV-T-30 Investigation of Impact of Systematic Errors in Applicator Reconstruction on Doses of Organs at Risk and Target Volumes in Intracavitary Brachytherapy - G. Singh*, A. Mourya, B. SINGH, D. Thaper, R. Kamal, A. Oinam, V. Kumar, B. Rai

PO-GePV-T-31 Focal-Boost Dose Escalation in High-Dose-Rate Brachytherapy - C. Guthrie*, T. Harris, M. King, I. Buzurovic, R. Cormack

PO-GePV-T-32 Recommendations for Previous Treatment Assessment of Non-CT Based IVRT Brachytherapy - D. Aramburu Núñez, V. Brennan, M. Kollmeier, K. Alektiar, A. Damato*, G. Cohen

PO-GePV-T-33 Role of Planning Ring Structure in Volume Optimization for High-Dose-Rate Prostate Brachytherapy - Z. Shen*, O. Ragab, W. Yang, S. Balik, A. Zhuang, J. Cui, A. Shiu, E. Chang

PO-GePV-T-34 Interfractional Dosimetric Variations of the Target and OARs for HDR GYN Brachytherapy - B. Washington*, M. Randall, D. Fabian, W. Luo

PO-GePV-T-35 Calculation of Stopping-Power Ratios for Electron Beams Used in Total Skin Electron Therapy - G. Ding*

PO-GePV-T-36 Variability of Bremsstrahlung Among Modern Detectors in Total Skin Electron Treatment - S. Kucuker Dogan*, M. Gopalakrishnan, I. Das

PO-GePV-T-37 Verification of Electron Beam Energy Stability - J. Foy*, S. Kucuker Dogan, M. Gopalakrishnan, I. Das

PO-GePV-T-38 An Investigation of Dosimetric Effects from Handlebars During Total Skin Electron Therapy - N. Brovold*, E. Dziemianowicz, K. Verdecchia

PO-GePV-T-39 Real-Time in Vivo Dosimetry for Electron Beam Therapy Using Amorphous Silicon Based Flexible Thin Film Combined with Scintillating Powder - S. Jeong*, Y. Kwon, S. Park, D. Shin, Y. Lim, J. Jeong, H. Kim, W. Cheon, S. Lee

PO-GePV-T-40 Evaluating a Commercial Electron Monte Carlo Algorithm Using Oblique Incidence and Irregular Surfaces Present on Custom Wax Phantoms - E. Cichewicz*, E. Salari, E. Parsai

PO-GePV-T-41 Development of a Software Tool for FLASH Dose and Dose Rate Optimization for IntraOp Mobetron - A. Ayan*, D. Blakaj, A. Chakravarti, N. Gupta, J. Woollard

PO-GePV-T-42 EFLASH Dosimetry on a Conventional Linac Using Pulse-Gated Delivery - C. Duzenli*, C. Mendez, M. Petric, J. Sweeney, D. Ta, T. Karan

PO-GePV-T-43 Analog FLASH Pulse Integration Using an External Diode Circuit - J. Vadas*, R. Halford, G. Wilson, D. Yan, M. Snyder

PO-GePV-T-44 Bremsstrahlung Dose of the Electron Beam at Extended Distances Used in Total Skin Electron Therapy - G. Ding*, S. Kucuker Dogan, I. Das

PO-GePV-T-45 Creation and Validation of An Interactive Electron Cutout Library in a Clinical Environment - M. Keohane*, K. Crotteau, A. Riegel

PO-GePV-T-46 A Thorough Validation of Electron Monte-Carlo Dose Calculation Algorithm and Generation of Correction Factors for Independent Monitor Units Hand Calculations in Clinic - A. Skinner*, S. Sour, J. Baker, E. Sudentas, G. Gill

PO-GePV-T-47 A Monte Carlo Study of Patient Dose Distributions Between Stanford Six-Field and Rotational Techniques in Total Skin Electron Therapy - G. Ding*, Z. Chen, W. Zhong, T. Zhu

PO-GePV-T-48 A Clinical Workflow for Creating 3D Printed Bolus with Isocenter and Orientation Labels for Placement - L. KUO*, S. Hellman, M. Trager, C. Huang, M. Aristophanous, C. Barker, G. Li

PO-GePV-T-49 Quality Assurance and Acceptance of Eyeshields for Use in Electron Radiotherapy - H. Kadji*, B. Lewis, R. Teboh Forbang

PO-GePV-T-50 A Practical Approach for Commissioning a Total Skin Electron Treatment Program - I. Alecu*, T. Martin, D. Saenz, P. Myers, K. Rasmussen, S. Stathakis, N. Papanikolaou, N. Kirby

PO-GePV-T-51 Development and Validation of ESAPI Script Based Electron Cutout Digitizer - T. Chen*, H. Wang, J. Teruel, D. Barbee

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PO-GePV-T-52 Comparison of Electron Beam Characteristics According to Applicator Type in Small Field - S. Han*, M. Park, J. Kim, M. Han, D. Kim, C. Hong, H. Kim, J. Kim, K. Park

PO-GePV-T-53 A Comparative Study of Different Collimation Methods for Quantification of Required Skin Margin During Electron Treatment - N. Shrestha*, M. Brenner, G. Narayanasamy, S. Morrill, Z. Su, G. Lewis, F. Kalantari

PO-GePV-T-54 Dosimetric Effects of a Commercial Breast Board Patient Support System - D. Pearson, E. Schodowski*, A. Wilkinson

PO-GePV-T-55 Initial Characterization and Validation of a Commercial Head and Neck Immobilization System for MR-Guided Radiotherapy - J. McCulloch*, A. Gutierrez, T. Romaguera, D. Alvarez, K. Mittauer

PO-GePV-T-56 Accuracy and Precision of Surface Tracking on Bra-Fitted Breast Radiation Treatment - T. Lin*, C. Ma

PO-GePV-T-57 Clinical Implementation of An Abdominal Compression Belt on a Double Scattering Proton Machine - X. Wang*, Y. Zhang, J. Zhu, K. Qing, K. Nie, T. Cui, N. Yue, B. Liu

PO-GePV-T-58 Comparison of Three Cushion Types for Gamma Knife Icon Mask Treatment - D. Luo*, T. Briere, E. Han, M. McAleer

PO-GePV-T-59 Risk Mitigation Strategies for Custom Software in the Clinic - R. Cardan*, E. Covington, R. Popple

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PO-GePV-T-61 Recommendations for a Medical Physics Pre-Simulation Breath Hold Consultation: Medical Physics 3.0 in Practice - E. Cichewicz*, C. Windsor, J. Seekamp, D. Pearson

PO-GePV-T-62 Comparison Between Two Treatment Planning Systems on IMRT Planning: UIH Versus Monaco - Y. Yang*, Y. Fang, J. Wang, j. zhao, W. Hu

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PO-GePV-T-64 Impact on Patient Reported Quality of Life from Reducing Prostate Margins in Patients Who Underwent Radiotherapy: A Prospective Clinical Trial - A. Kumarasiri*, S. Brown, E. Mohamed, I. Chetty, B. Movsas

PO-GePV-T-65 NTCP Modeling of Patient Reported Dysphagia Using the EAT10 Scoring System 12 Months After Radiotherapy for Oropharyngeal Cancer - B. Chera*, A. Tzikas, E. Lavdas, R. Amdur, W. Mendenhall, N. Sheets, R. Green, L. Marks, S. Das, P. Mavroidis

PO-GePV-T-66 Investigating the Time and Organ Dependency of NTCP Modeling of Patient Reported Sticky Saliva After HPV Associated Oropharyngeal Cancer - B. Chera*, A. Tzikas, E. Lavdas, R. Amdur, W. Mendenhall, N. Sheets, R. Green, L. Marks, S. Das, P. Mavroidis

PO-GePV-T-67 NTCP Modeling and Dose-Volume Correlations of Significant Blood Count Drops 3 Months After Prostate Radiation Therapy - P. Papanikolaou*, G. Swanson, S. Stathakis, P. Mavroidis

PO-GePV-T-68 A Framework for Exploring the Correlation Between Radiation-Induced Toxicities and Dosimetric Quantities - A. Abdel-Rehim*, H. Wan Chan Tseung

PO-GePV-T-69 4D Treatment Planning for Lung Proton Therapy: Treatment Design and Evaluation - V. Taasti*, D. Hattu, F. Vaassen, R. Canters, M. Velders, J. Mannens, J. Van Loon, I. Rinaldi, M. Unipan, W. Van Elmpt

PO-GePV-T-70 Dose Enhancement Effects of High-Z Nanoparticles in Proton Therapy - K. Duke*, S. Ahmad, A. Lau

PO-GePV-T-71 Radiobiological Evaluation of Physical Metrics in IMPT and VMAT Planning for Prostate Cancer Patient with Metal Hip Prostheses - W. Hsi*, T. Lee

PO-GePV-T-72 Developing a Workflow Using Supercomputer Accelerated Monte Carlo Simulation Based on Machine Log-Files for Patient Specific Quality Assurance of the Mevion S250i Proton Therapy System - B. Chiang*, Y. Chen, S. Ahmad

PO-GePV-T-73 Analysis of the Difference in Calculation of Physical Dose for Each Patient Site of SECT and DECT Using TOPAS - E. Yoon*, S. Jung, J. Son, B. Kim, C. Choi, J. Kim, J. Park

PO-GePV-T-74 A Fast Deterministic Method for Calculating Doses and Fluence Spectra for Proton Beam Therapy - O. Vassiliev*, S. Kry, C. Peterson, D. Grosshans, R. Mohan

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PO-GePV-T-76 Open Source TPS for Bragg Peak Proton FLASH Treatment Plans - L. Hotoiu*, A. Pin, S. Deffet, E. Sterpin, R. Labarbe

PO-GePV-T-77 Virtual Particle Monte Carlo (VPMC), a New Concept to Avoid Simulating Secondary Particles in Proton Therapy Dose Calculation - J. Shan*, M. Fatyga, W. Liu

PO-GePV-T-78 Experimental Validation of Clinical Proton Dose Calculation Algorithms for Breast Prostheses and Tissue Expanders - C. Chen*, P. Tsai, S. Huang, I. Choi, H. Lin

PO-GePV-T-79 Development of a Fast and Memory-Efficient Monte Carlo Code for Proton Dose Calculation - H. Lee*, J. Shin, J. Verbarg, H. Paganetti

PO-GePV-T-80 Three-Dimensional Dose and LETd Prediction in Proton Therapy Using Artificial Neural Networks - F. Pirlepsov*, V. Moskvina, L. Wilson, A. Breuer, T. Merchant, A. Faught

PO-GePV-T-81 Systematic Analysis of the Neutron Equivalent Dose in a Mevion S250 Proton Therapy Machine Using Geant4 Monte Carlo Simulation - N. Tatari*, M. BaradaranGhahfarokhi, B. Roeder, T. Zhao, R. Khan, L. Sobotka, A. Darafsheh

PO-GePV-T-82 Determination of Plan Deliverability and Treatment Time Estimation for Proton Pencil Beam Therapy Using a Machine Emulator Script - S. Mossahebi*, E. Makdsay Hana, J. Williams, B. Algawwam, A. Meijers, B. Yi

PO-GePV-T-83 Characterizing the Entrance Dose Induced by a Dynamic Collimation System for Pencil Beam Scanning Proton Therapy Using a Commercial Multilayer Ionization Chamber - N. Nelson*, W. Culberson, B. Smith, R. Flynn, D. Hyer, P. Hill

PO-GePV-T-84 Log File-Based Patient Specific Quality Assurance: 5 Years of Experience in Pencil Beam Scanning Pediatric Proton Therapy - O. Ates*, F. Pirlepsov, C. Hua, T. Merchant, L. Zhao

PO-GePV-T-85 Feasibility of Delivering Exchanged PBS Treatment Plans in Two Gantries of Multiroom Proton Therapy System - C. Fang, Y. Huang*, Y. Tao, L. Cao, G. Zhang, B. Qu, Z. Wang, Y. Zhang, S. Xu

PO-GePV-T-86 Quantitative & Statistical Analyses of Monthly OBI QA on Varian ProBeams - Z. Diamond*, A. Stanforth, R. Slopsma, K. Langen

PO-GePV-T-87 Radiation Therapy Interference with Cardiovascular Implantable Electronic Devices; Comparison of Proton Beam Therapy Versus Intensity-Modulated Radiation Therapy - A. Anvari*, T. Alfonzetti, A. Butala, M. Carpenter, A. Kassaei, I. Paydar, J. Jones, D. Mihailidis

PO-GePV-T-88 Output Estimation by Analytical and Machine Learning Models in a Double Scattering Proton System - J. Zhu*, T. Cui, Y. Zhang, Y. Zhang, C. Ma, B. Liu, K. Nie, N. Yue, X. Wang

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PO-GePV-T-90 Influence of Beam Quality Correction Factors on Measurement Depth in Scanning Proton Beams Using Monte Carlo Calculation - M. Ichihara*, K. Yasui, C. Omachi, T. Toshito, J. Nagata, R. Oshika, S. Kurata, N. Hayashi

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PO-GePV-T-92 Evaluation of the PRESAGE Dosimeters for Spot-Scanning Proton Therapy - A. Xu*, H. Lin, C. Chen, Y. Wang, J. Adamovics, C. Wu

PO-GePV-T-93 Can an Ionization-Chamber Array Be Used for QA of Proton SBRT Beams? - A. Stanforth*, Z. Diamond, P. Sabouri, M. Zhu, J. Zhou, R. Slopsma

PO-GePV-T-94 Novel Collimator for High-Throughput Proton FLASH-RT Murine Hemithorax Irradiations - S. Mossahebi, Y. Poirier*, A. Gerry, C. Repetto, Z. Vujaskovic, I. Jackson, A. Sawant

PO-GePV-T-95 Design, Fabrication, and Characterization of Range Modulators for SOBP Proton FLASH Beams - A. Darafsheh*, X. Zhao, Y. Hao, T. Mazur, T. Zwart, M. Wagner, T. Evans, F. Reynoso, T. Zhao

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PO-GePV-T-98 Achievable Flash Dose-Rate by Cyclotron Based Proton Therapy Systems - S. Mossahebi, A. Sawant, J. Polf, E. Bentefour*

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PO-GePV-T-102 Practical Implementation and Dosimetric Implications of a Novel Dose Painting Delivery Strategy: Minimal Energy Modification (MEM) During Proton Therapy of Thoracic and Abdominal Tumors - S. Vedam*, B. Zhang, S. Mossahebi, W. Yao, M. Zakhary, B. Yi

PO-GePV-T-103 Dosimetric Comparison of Intensity Modulated Radiation Therapy (IMRT), 3D Conformal Proton Therapy and Intensity Modulated Proton Therapy (IMPT) for Metastatic Brain Cancer - M. Sullivan*, S. Ahmad, H. Jin

PO-GePV-T-104 Dosimetric Comparison of Volumetric Modulated Arc Therapy (VMAT), 3D Conformal Proton Therapy and Intensity Modulated Proton Therapy (IMPT) for Lung Cancer - M. Sullivan*, S. Ahmad, H. Jin

PO-GePV-T-105 Dose-Averaged LET Evaluation in Head and Neck Adenoid Cystic Carcinoma Patients for Carbon-Ion Radiotherapy - R. Kohno*, S. Lee, A. Yamamoto, K. Yamaoka, M. Suga, M. Koto

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PO-GePV-T-107 Dosimetric Comparison for Unfavorable Early Stage Lung Cancer: Intensity Modulated Proton Therapy Versus Volumetric Arc Photon Therapy - S. O'Reilly*, P. Singh, B. Hartl, E. Diffenderfer, K. Cengel, W. Levin, A. Berman, S. Feigenberg

PO-GePV-T-108 Effective Treatment Plan Integrity Verification for Passive Scattering and Pencil Beam Scanning Proton Therapy - Y. Zhang*, M. Ho, C. Liu, X. Liang, P. Johnson, J. Park, M. Artz

PO-GePV-T-109 Dosimetric Comparison of Pencil Beam Scanning Proton Plans with Different Aperture Modes - Y. Yuan*, D. Deblois, Y. Chen, C. Frame, D. Pang

PO-GePV-T-110 Systematic Study of Penumbra Reduction with Adaptive Aperture for Hyperscan Spot Scanning Proton Beams - Y. Chen, C. Frame*, Y. Yuan, T. Ma, D. Pang

PO-GePV-T-111 Reducing Beam Delivery Time for Proton PBS Treatment with Breath-Hold Motion Management Technique - M. Zhu*, A. Stanforth, Z. Diamond, Y. Lin, K. Langen

PO-GePV-T-112 A Novel Worst-Case Robust Optimization Method That Combines Geometric and Target Volume Definition Uncertainties - G. Buti*, K. Souris, A. Barragan Montero, J. Lee, E. Sterpin

PO-GePV-T-113 Monte Carlo Modeling of a Proton Portal Imaging System Using in Vivo Generated Neutrons - S. Thompson*, S. Samant, J. Nimmagadda, L. Maloney, E. Kryck

PO-GePV-T-114 Initial Experience with a Head and Neck RapidPlan Model for Pencil Beam Scanning Proton Therapy - K. McConnell*, J. Snider, J. Nemec, R. Cardan

PO-GePV-T-115 Should We Be Considering Biological Robustness in Proton Therapy? - A. Faught*, L. Wilson, M. Gargone, F. Pirlepsov, V. Moskvina, C. Hua

PO-GePV-T-116 Assessment of A Knowledge-Based Planning for Robustly-Optimized Intensity Modulated Proton Therapy for Head and Neck Cancer - Y. Xu*, M. De Ornelas, J. Cyriac, E. Bossart, K. Padgett, M. Butkus, T. Diwanji, M. Samuels, N. Dogan

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PO-GePV-T-118 Assess the Interplay Effect Based on the Cyclotron Accelerator Proton Therapy System Machine-Specific Delivery Sequence Model - L. Zhao*, G. Liu, J. Shen, A. Lee, D. Yan, R. Deraniyagala, C. Stevens, W. Zheng, X. Li, S. Tang, X. Ding

PO-GePV-T-119 Determination of Virtual Source Points for Mevion S250i Pencil Beam Scanning Proton System - Y. Chen*, C. Frame, T. Ma, Y. Yuan, D. Pang

PO-GePV-T-120 Effects of the Activated Dental Metal Induced by Proton Beam Irradiation for Head and Neck Cancer: A Phantom Study - R. Kato, T. Kato, T. Sagara, Y. Narita, K. Takayama, M. Murakami

PO-GePV-T-121 Tuning, Calibration and Testing of a Dynamic Collimation System Controller for Pencil Beam Scanning Proton Therapy - K. Patwardhan*, T. Geoghegan, B. Smith, R. Flynn, D. Hyer

PO-GePV-T-122 Dosimetric Investigation of Inverse-Optimized Proton GRID and Lattice Treatment Plans with a Clinical Pencil Beam Scanning System - M. Zhu*, H. Chen, J. Snider, W. Regine, J. Bradley, M. McDonald, P. Patel, P. Sabouri, K. Langen

PO-GePV-T-123 Evaluation of Distorted Lateral Beam Profiles in MRI-Guided Proton Therapy - H. Ueda*, Y. Fujii, K. Umegaki, T. Matsuura

PO-GePV-T-124 Feasibility of Treating Large Mobile Targets Using a Breath-Hold Technique with a New Adaptive Collimation Leaf Sequencing Algorithm for Intensity Modulated Proton Therapy - M. Prusator*, J. Cooley, J. Wang, M. Watts, C. Tohtz, B. Sun, T. Zhang, T. Mazur, T. Zhao

PO-GePV-T-125 Monte Carlo Evaluation of Neutron Dose Equivalent Topatients Treated with Vertex Beams in IMPT and PSPT - U. Titt*, D. Grosshans, N. Sahoo, X. Zhu, R. Mohan

PO-GePV-T-126 Novel Dynamic Apertures for Reducing Spot Sizes in Proton Therapy - J. Holmes*, S. Patel, W. Wong, R. Foote, W. Liu

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PO-GePV-T-128 Dynamically Collimated Spatially Fractionated (GRID) Pencil Beam Scanning Proton Therapy - B. Smith*, B. Allen, D. Hyer

PO-GePV-T-129 Impact of Noise Level on the Analysis of Proton Exposed Targets - F. Saheli*, N. Vosoughi, Z. Riazi, H. Shahabinejad, F. Rasouli

PO-GePV-T-130 A Preliminary Study of DECT- and Kernel-Based Dose Calculation Algorithm for Carbon Beam Therapy - W. Shin*, E. Yoon, B. Kim, S. Jung, J. Son, J. Park, J. Kim, C. Choi

PO-GePV-T-131 Assessment of Metal Artifact Reduction in Dual-Layer Dual-Energy Computed Tomography for Carbon Ion Radiotherapy - S. Jung*, B. Kim, E. Yoon, J. Park, J. Kim, J. Son, C. Choi

PO-GePV-T-132 Preliminary Investigation of the Dosimetric Impact of Common Dental Restorative Materials on Proton Beams - A. Gomez*, M. Leyva, L. Coutinho, E. Rosen, N. Kalman, M. Hobson

PO-GePV-T-133 Wireless Device for Adaptive Planning Based Upon Thermoacoustic Range Estimates - Design and Benchtop Validation - S. Patch*, M. Narayanaswamy

PO-GePV-T-134 Sensitivity of Target Coverage and Patient Specific IMPT QA to Spot Positioning Errors - S. Mossahebi*, P. Sabouri, B. Zhang, E. Makdsay Hana, J. Williams, S. Chen

PO-GePV-T-135 Impact of Spot Position Uncertainties on Intensity Modulated Proton Therapy Plans for Head and Neck Cancers - P. Sabouri*, S. Mossahebi, B. Zhang, S. Chen

PO-GePV-T-136 Impact of Esophageal and Biliary Stents on Proton Dose Calculation - S. Mossahebi*, P. Sabouri, G. Kim, J. Polf, J. Molitoris, B. Greenwald, P. Darwin, S. Chen

PO-GePV-T-137 Non-Radioactive Elements for Prompt-Gamma Production Enhancement in Proton Therapy - P. Galanakou*, T. Leventouri, W. Muhammad

PO-GePV-T-138 The Benefit of Novel Beam Arrangements Made Feasible by Range Uncertainty Reductions in Proton Therapy for Brain and Skull Base Tumors - S. Tattenberg*, T. Madden, B. Gorissen, T. Bortfeld, K. Parodi, J. Verburg

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PO-GePV-T-142 Automated Plan Checking Software Demonstrates Continuous and Sustained Improvements in Safety and Quality: A 3-Year Longitudinal Analysis - D. Stuhr, Y. Zhou, H. Pham, J. Xiong, S. Liu, J. Mechalakos, S. Berry*

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PO-GePV-T-144 Radiotherapy Dose Accumulation Routine (RADAR) - a Fast Dose Accumulation Tool for Planning with Previous Treatments - Y. Hu*, L. KUO, J. Mechalakos, L. Zhang, N. Shah, A. Ballangrud, A. Li, J. Deasy, L. Cervino, P. Zhang

PO-GePV-T-145 Validation of Radiochromic.com Gamma Analysis Software - I. Mendez*, J. Rovira Escutia, B. Casar

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PO-GePV-T-147 Automated Verification of Treatment Parameter Transfer Between TPS and OIS Databases Via Direct Value Comparison - W. Donahue*, E. Draeger, D. Han, Z. Chen

PO-GePV-T-148 Application of FMEA to Review and Analyze Software Error Messages - B. Miller*, S. Gardner, C. Smith, Z. Sun, N. Wen, I. Chetty

PO-GePV-T-149 A Custom-Made Cassette for In-Water Film Dose Measurements and Quality Assurance of Cs-137 Blood Irradiators - H. Moktan Tamang*, S. Jayarathna, R. Tailor, S. Cho

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PO-GePV-T-151 Validation of Automated Segmentation Algorithms for Clinical Radiation Therapy Treatment Planning - W. Watkins*, D. Du, K. Qing, J. Liu, C. Ladbury, A. Liu

PO-GePV-T-152 Application of Automatic Plan Checking and Report Printing to Improve Clinical Workflow Accuracy and Efficiency - P. Yan*, D. Mynampati, S. Hsu, A. Basavatia, P. Brodin, C. Velten, W. Tomé

PO-GePV-T-153 Towards Implementation of a Knowledge-Based Decision Support System for Treatment Plan Auditing Through Automation - S. Liu*, K. Ohri, J. Bertini, S. Berry, D. Yang, C. Della-Biancia

PO-GePV-T-154 A Methodology and Open Source Tool for Radiotherapy Dose Transformation QA - H. Clark*

PO-GePV-T-155 Challenges on Implementing An Hybrid AI-And-Rules Based Plan Check Tool in Clinical Practice - a Pilot Study - S. Luk*, E. Ford, M. Kim, M. Phillips, K. Hendrickson, A. Kalet

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PO-GePV-T-157 An End-To-End Test to Evaluate Off-Axis Targeting Accuracy for Single-Isocenter Multitarget Stereotactic Radiosurgery - C. Guthier*, S. Friesen

PO-GePV-T-158 How AI Can Support Personalized Risk Mitigation During Automated Treatment Planning - M. Bach*, G. Spira

PO-GePV-T-159 Failure Modes and Effects Analysis of Low Dose Bilateral Whole Lung Irradiation Treatment for COVID-19 Positive Patients Requiring Respiratory Ventilation - A. Swanson*, D. DiCostanzo, N. Gupta, K. Hintenlang, A. Cetnar

PO-GePV-T-160 Failure Modes and Effects Analysis (FMEA) for Multi-Site, Multi-Institutional Deep Inspiration Breath Hold (DIBH) Treatments - M. Dimayorca*, S. Wadi-Ramahi, R. Lalonde, T. Wilhite, S. Ellsworth, A. Hays, M. Huq

PO-GePV-T-161 Comparing Leakage Doses Between Three Gamma Knife Icon Machines - H. Wang, D. Luo*, R. Pino

PO-GePV-T-162 Failure Mode and Effect Analysis for Volumetric Modulated Arc Therapy for Total Body Irradiation - T. Gray*, A. Antolak, S. Ahmed, A. Magnelli, L. Lu, Y. Cho, P. Xia, B. Guo

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PO-GePV-T-163 Efficiency Analysis of the Automatic Plan Printing Application - J. Park*, K. O'grady, L. KUO, W. Fong, W. Yan, R. Lalonde, L. Cervino

PO-GePV-T-164 Sources of Systemic and Random Errors in Bleached Optically Stimulated Luminescence Dosimeter (OSLD) In-Vivo Measurements: A Retrospective Clinical Study - S. Yoon*, H. Lin, C. Kennedy, D. Mihailidis, B. Burgdorf, T. Li

PO-GePV-T-165 The Use of Statistical Process Control Methods to Evaluate Patient-Specific Delivery QA Failure as a Function of Plan Complexity - R. Price*, I. Veltchev, T. Lin, A. Eldib, C. Ma

PO-GePV-T-166 Variability of Control Limits for Mean Percent Dose Differences Across Different Anatomical Contours - H. Mehrens*, R. Douglas, M. Gronberg, K. Nealon, L. Zhang, L. Court

PO-GePV-T-167 An Investigation of a Statistical Process Control Based Quality Assurance for Optical Stimulated Luminescence Detector (OSLD) System - K. Episcopia, R. Febo, D. Lovelock, L. Cervino, S. Lim*

PO-GePV-T-168 4D Monte Carlo Assessment of the Impact of Inter- and Intra-Fractional Respiratory Motion Variation on Delivered Dose - M. Shiha*, J. Cygler, R. Macrae, E. Heath

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PO-GePV-T-170 A Practical Workflow to Streamline Treatment Planning for Reirradiation with Considering Biological Doses - A. Tai*, E. Quashie, E. Gore, J. Bovi, X. Li

PO-GePV-T-171 Daily Portal Exit Dosimetry Images as a Way to Monitor Interfractional Dosimetric Variation: A Feasibility Study - A. Haertter*, E. Hubley, S. Yoon, T. Li, W. Gu, C. Kennedy

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PO-GePV-T-174 Machine Learning Based Prediction for Patient-Specific Quality Assurance: Understand the Plan Complexity for VMAT - X. Zhang*, Y. Zhang, B. Liu, N. Yue, K. Nie

PO-GePV-T-175 Quantitative Comparison of 2D and 3D Modes of a Commercial EPID-Based Hybrid Patient-Specific QA System for Spine SBRT Treatments - S. Ahmed*, J. Zavala Bojorquez, P. Qi, S. Chao, E. Murphy, J. Suh, P. Xia

PO-GePV-T-176 Comparison of Pixel Sensitivity Map Methods for EPID Dosimetry Measurement - M. Ahmed*, N. Dang, V. Leandro Alves, J. Siebers

PO-GePV-T-177 A New Generation of X-Ray Irradiator for Preclinical Research: Dosimetric Characterization - M. Rezaee*, J. Wong

PO-GePV-T-178 An Improved Statistical Model for Gamma Index Pass Rates in Intensity Modulated Radiation Therapy Patient-Specific Quality Assurance - P. Jensen*, W. Donahue, Z. Chen

PO-GePV-T-179 EBT3 Film Calibration Using Deep Learning with Keras Functional API - L. Chang*

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PO-GePV-T-181 Initial Experience in Comparing IQM and SRS MapCHECK for Single ISO Multiple Mets Brain SRS/SRT Plan Quality Assurance - Y. Liang*, D. Pavord, H. Lee, Z. Horne, R. Wegner, S. Karlovits, J. Sohn

PO-GePV-T-182 Clinical Implementation of Varian TrueBeam Portal Dosimetry: Comparison to Sun Nuclear MapCHECK2 for Patient-Specific Quality Assurance - S. Roles*, B. Broekhoven, W. Godwin, A. Rapchak, C. Mart, D. McDonald, G. Owen, M. Maynard, J. Peng, K. Fallon

PO-GePV-T-183 Extraction of a Large Dataset Populating the Gamma Criteria Parameter Space for EPID-Based Patient-Specific QA - P. Brown*, S. Tanny, D. Rosenzweig

PO-GePV-T-184 Development of a User-Friendly Correction Method for the Lateral Response Artifact from Flatbed Scanners in Radiochromic Film Dosimetry - G. Guyer*, R. Kueng, A. Joosten, M. Fix, P. Manser, S. Mueller

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PO-GePV-T-186 CNN-Based Classification of IMRT Errors from Sparsely Sampled Measurements - L. Maloney*, G. Yan, N. Potter, K. Mund

PO-GePV-T-187 Validation of Rapid Arc Gating Technique for Lung and Liver Stereotactic Body Radiation Therapy (SBRT) with In-House 4D-Phantom - C. Bhatt*, A. Kumar, R. Dobhal

PO-GePV-T-188 A Convolutional neural Network Model for Predicting Gamma Passing Rate of 3D Array Detector-Based VMAT QA - T. Matsuura*, D. Kawahara, A. Saito, E. Shiba, K. Yamada, S. Ozawa, Y. Nagata

PO-GePV-T-189 Machine- and Site-Specific Analyses of TomoTherapy Patient-Specific QA Results Planned with Accuray Planning Station and RaySearch RayStation - P. Hill*, R. BAYLISS

PO-GePV-T-190 Quasi-3D Dosimetry System with Solid Polyurethane-Based Dosimeter - J. Cho*, S. Jung, J. Son, H. Jin, C. Choi, J. Park, J. Kim

PO-GePV-T-191 Utilization of a Plan Quality Prediction Software to Investigate Patient Specific QA Passing Rates - P. Irmén*, C. Stambaugh, C. Melhus

PO-GePV-T-192 Design of a Respiratory Motion Quality Assurance System with Portal Dosimetry and Customizable Tumor Phantom - H. Tan*, L. Tan, C. Koh, K. Ang, S. Park

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PO-GePV-T-194 Estimation of Dosimetric Leaf Gap Correction Factor as Part of Commissioning a Log File Based QA System - S. Unnikrishnan*, S. Neelakandan Sukumari, P. Raghukumar

PO-GePV-T-195 Sensitivity of OSLD with Fully Filled Deep Electron/hole Traps in Kilovoltage Energy Range - M. Chun*, H. Jin, S. Lee, O. Kwon, C. Choi, J. Park, J. Kim

PO-GePV-T-196 Measuring Superficial Total Doses Delivered by Helical Tomotherapy using EPR Dosimetry - S. Höfel*, M. Fix, M. Drescher, F. Zwicker

PO-GePV-T-197 Evaluating the Accuracy of Different Methods for Estimating the Dose to An IMD (implanted Medical Device) of a TBI Patient, Treated at An Extended Distance with External Blocks - L. Russell*, J. Sillanpaa

PO-GePV-T-198 Dosimetric Evaluation of Prostate VMAT Plans Optimized by the Photon and Progressive Resolution Optimization Algorithm - J. Chow*, R. Jiang, K. Mamari

PO-GePV-T-199 ADiar: Architecture of Dose-Image Agent Retrieval—an Architecture to Automatically Retrieve Similar Radiotherapy Plans - Y. Shao*, Y. Shao, Z. Xu

PO-GePV-T-200 Deep Learning Dose Distribution Prediction Models for Cervical Cancer Volumetric Modulated Arc Therapy - Q. Zhang*, P. Bao, B. Dong, R. Yang

PO-GePV-T-201 Automated and Clinical-Criteria-Driven Planning for Locally Advanced Non-Small-Cell Lung Cancer Using the Expedited Constrained Hierarchical Optimization (ECHO) System - Q. Huang, L. Hong, Y. Zhou*, G. Jhanwar, J. Yang, H. Pham, E. Yorke, L. Cervino, J. Deasy, M. Zarepisheh

PO-GePV-T-202 Monitor Unit Efficient VMAT Treatment Planning Facilitated by the MU Objective Tool - M. Ashenafi*, M. Hare, C. Rothfuss, H. Zhang

PO-GePV-T-203 Evaluation of Performance of Static MLC Leaf-Sequencing Algorithms in IMRT - J. Jing*, H. Lin, J. Chow

PO-GePV-T-204 Sparing Lung Tissue with Virtual Block Method in VMAT Planning for Locally Advanced Non-Small Cell Lung Cancer - J. Chen*, J. Dai

PO-GePV-T-205 MLC Leaf Position Optimization for Direct Aperture Optimization Treatment Planning - D. Wu*, A. Eldib, Q. Jiang, L. Chen, C. Ma

PO-GePV-T-206 Using a Novel Leaf Sequencer and Segment Shape Optimization Algorithm to Reduce Treatment Session Times on the Elekta Unity - J. Snyder*, J. St-Aubin, S. Yaddanapudi, S. Strand, S. Kruger, R. Flynn, D. Hyer

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PO-GePV-T-210 Automated Deliverable Plan Generation of Intensity Modulated Radiation Treatment Using Dose Distribution Predicted from Deep Learning - Z. Sun*, W. Hu, J. Wang, J. Fan, X. Xia, j. zhao

PO-GePV-T-211 Dosimetric Differences of Plans Using Flattened 6MV Versus Flattening-Filter-Free 10MV Beams for the Treatment of Prostate with and Without Seminal Vesicles - M. Ashenafi*, C. Rothfuss, A. Gray, H. Zhang

PO-GePV-T-212 Evaluation of Elekta Unity IMRT Beam Complexity Using a Novel Leaf Sequencer and Shape Optimizer in the Monaco Treatment Planning System - J. St-Aubin*, J. Snyder, S. Yaddanapudi, R. Flynn, D. Hyer

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PO-GePV-T-222 Focal Spot Size Effect of the Reflexion X1 Radiotherapy Machine: A Monte Carlo Simulation Study - O. Oderinde*, D. Zaks, C. Huntzinger, S. Shirvani, T. Laurence, M. Lu

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PO-GePV-T-228 Evaluation of a Scripted Planning Technique in Lung SBRT - J. Donaghue*, S. Gajdos, L. Muhieddine Mossolly

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PO-GePV-T-232 Evaluation of Bladder Dosimetric Property for Localized Prostate Cancer Using Deformable Registration of Simulation CT - C. Ma*, X. Zhang, Y. Zhang, N. Yue, X. Wang

PO-GePV-T-233 Dosimetric Comparison of VMAT Prostate Plans Designed with 10MV Vs 18MV Photon Beams - D. Shvydka, M. Hajduk*

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PO-GePV-T-240 The Use of Daily Transit Dosimetry to Monitor Anatomy Changes and Setup Errors in Prone Breast Radiotherapy - X. Shen*, S. Hsu, D. Mynampati, P. Brodin, A. Basavatia, J. Fox, W. Tomé

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PO-GePV-T-244 Investigating the Differences Between PlanIQ and IPA Planning Tools for Plan Optimization in Head & Neck Cancers - C. Kabat*, S. Stathakis, H. Parenica, N. Papanikolaou, S. Das, B. Chera, P. Mavroidis

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PO-GePV-T-249 The Feasibility Study of Using Light Detection and Ranging (LiDAR) Application for Total Body Irradiation (TBI) - B. Yeager*, F. Mostafaei, M. Gagne, J. Barrett, A. Al-Basheer

PO-GePV-T-250 Extending the Body Outline Out into the Air to Improve the Superficial Dose Evaluation Accuracy for Breast Cancer Intensity Modulated Radiotherapy - Q. Jiang*, W. Huang, X. Yi, W. Lu, H. Cui, J. Dang, Y. Li

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PO-GePV-T-253 Treatment of Large-Size Prostate Cancer Patients on An O-Ring Linac with 6MV FFF: Plan Quality Comparison with a C-Arm Linac Using 10MV Or 15MV Photons - B. Liu*, C. Cheng, X. Wang, J. Zhu, R. Parikh, K. Nie, N. Yue, Y. Zhang

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PO-GePV-T-255 Are Auto-Generated Organ-At-Risk Contours Good Enough in Prostate Radiotherapy? - H. Liu*, B. Sintay, D. Wiant

PO-GePV-T-256 Dosimetric Effects Due to Inter-Observer Variability of Organ Contouring When Utilizing a Knowledge-Based Planning System for Prostate Cancer - H. Liu*, C. Amaloo, B. Sintay, D. Wiant

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PO-GePV-T-258 An Unsupervised Method for Error Detection of Treatment Plan in Radiotherapy - Z. Song*, H. Yan, J. Dai

PO-GePV-T-259 The Effect of Dimensionality-Reduction Algorithms on Parameter Checking of Treatment Plan in Radiotherapy - P. Huang*, Z. Song, J. Dai

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PO-GePV-T-266 Automated and Clinical-Criteria-Driven IMRT Planning for Prostate Using Expedited Constrained Hierarchical Optimization (ECHO) - Y. Zhou*, L. Hong, Q. Huang, G. Jhanwar, J. Yang, H. Pham, L. Happersett, A. Damato, L. Cervino, J. Deasy, M. Zarepisheh

PO-GePV-T-267 Auxiliary Structures-Assisted Plan Optimization for Advanced Left Breast Cancer Radiotherapy - R. Lei*, X. Zhang, R. Yang

PO-GePV-T-268 Evaluation of Initial Planning Techniques in Ethos for Adaptive Head and Neck Patients - N. Nasser*, J. Caudell, E. Moros, V. Feygelman, G. Redler

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PO-GePV-T-270 Gamma Analysis to Validate Dose Calculation Algorithms in a Lung Phantom: AAA Vs AcurosXB - B. Rudek, T. Chen, D. Barbee, H. Wang, A. Rea, J. Xue*

PO-GePV-T-271 Clinical Implementation of Automated Treatment Planning for Rectum Intensity-Modulated Radiotherapy on UIH Using Voxel-Based Dose Prediction and Clinical Optimization Strategies - Y. Zhong*, J. Wang, W. Hu

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PO-GePV-T-277 Implementing Recommendations of TG 329 - E. Sudentas*, L. Fu, C. Teng

PO-GePV-T-278 A Hybrid Full-Body Image Set Generation for TBI Using Both CT and 3D Optical Imaging - H. Jung*, S. Kim

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PO-GePV-T-281 Solving Beam Orientation Optimization (BOO) of IMRT Treatment Plan Using Tree Embedded Reinforcement Learning for Prostate Cancer - A. Sadeghnejad Barkousaraie*, A. Balagopal, G. Bohara, S. Jiang, D. Nguyen

PO-GePV-T-282 Clinical Impact of the Dose Calculation Engine for Vestibular Schwannoma Treatments on Cyberknife - E. Ali*, E. Vandervoort

PO-GePV-T-283 Improved Dose Prediction Performance with Data Clustering and Transfer Learning On H&N Cancer Patients - D. Nguyen*, T. Bai, A. Sadeghnejad Barkousaraie, R. McBeth, A. Balagopal, S. Jiang

PO-GePV-T-284 Feasibility Study of a Novel and Efficient Treatment Planning Technique for Total Body Irradiation and Total Marrow Irradiation on Conventional Linacs - C. Han*, S. Dandapani, J. Wong, A. Liu

PO-GePV-T-285 Generalizability Study on a Deep Learning-Based Dose Conversion Model - X. Zhong*, Y. Xing, M. Lin, S. Jiang, Y. Zhang

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PO-GePV-T-303 Independent Evaluation of MPC Using Winston-Lutz Test - W. Luo*, M. Halfman

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PO-GePV-T-305 Efficient Beam Modeling of a Linear Accelerator with the Reference Data Set to Enable a Faster Clinical Go-Live - Y. Zhong*, Y. Yang, j. zhao, W. Hu

PO-GePV-T-306 Streamline the Annual Relative Dosimetry QA Check with MapCheck - M. Zhang*, D. Lovelock, H. Zhang, L. Voros, Y. Song

PO-GePV-T-307 Validation of Non-Isocentric Delivery and Analysis of VMAT QA Plans Using ArcCHECK - G. Cui*, N. Walls, N. Eclon, J. Duan

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PO-GePV-T-309 Small Field Dosimetry of a Novel Biology-Guided Radiotherapy System - B. Han*, N. Kovalchuk, M. Shi, K. Bush, D. Capaldi, D. Breikreutz, E. Simiele, L. Xing, M. Surucu, C. Chuang

PO-GePV-T-310 A Novel Method to Verify Deformable Dose Accumulation for Patients Treated with Helical Tomotherapy - H. Zhong*, J. Garcia Alvarez, K. Kainz, G. Chen, A. Tai, E. Ahunbay, X. Li

PO-GePV-T-311 Evaluation of Out-Of-Field Dose Calculation Accuracy of Monaco Treatment Planning System for a 1.5T MR-Linac - Y. Zhang*, S. Yan, Z. Li, B. Li, H. Quan, J. Zhu

PO-GePV-T-312 Cross Dose Engine Transformation Based Fast Dose Calculation for Online MR-Guided Adaptive Radiotherapy - T. Song*, L. Zhou, Y. Li

PO-GePV-T-313 Second Dosimetry Check with Deep DoseNet - P. Dong*, L. Xing

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PO-GePV-T-319 Commissioning and Clinical Implementation of Pseudo 4Pi On An MR-Guided Radiotherapy (MRgRT) Linac - J. McCulloch*, A. Gutierrez, T. Romaguera, D. Alvarez, K. Mittauer

PO-GePV-T-320 Dosimetric Analysis of ElastoGel Bolus - M. Pacella*, M. Webster, S. Tanny

PO-GePV-T-321 Validation of Spatial Fractionated GRID Treatment Planning Using Volumetric Modulated Arc Therapy (VMAT) - C. Collins*, M. Schwer, M. Keefe, D. Wazer, G. Cardarelli

PO-GePV-T-322 Treatment Planning and Verification for Radiodynamic Therapy Using 45 MV Beams - A. Eldib*, J. Liu, C. Ma

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PO-GePV-T-323 Dosimetric Impact of Materials Override of Hydrogel Spacer in Stereotactic Body Proton Therapy (SBPT) for Locally Advanced Pancreas Cancer (LAPC) - D. Han*, H. Hooshangnejad, W. Yao, J. Jatzczak, K. Ding

PO-GePV-T-324 Quantifying the Dosimetric effect of Tumor Treating Fields (TTF) Transducer Arrays: Is a Correction Needed? - K. Kelly*, I. Alecu, N. Papanikolaou, N. Kirby, P. Myers, D. Saenz, S. Stathakis, K. Rasmussen

PO-GePV-T-325 Reducing Delivery Time of 3D DIBH Breast Treatments Using a Sliding Window Technique Over Step and Shoot Field in Field - A. Lee*, D. Pearson, J. Seekamp

PO-GePV-T-326 An Investigation into the Dosimetric Properties of a Three-Dimensional (3D) Printing Material for Potential Use in Radiation Therapy - K. Bittinger*, N. Sperling

PO-GePV-T-327 Volumetric Axillary Boost (VMAB): Novel Planning for Nodal Coverage in Breast/Chestwall Patients - W. Duggar*, B. Eske, D. Deng, H. Soysal, C. Yang

PO-GePV-T-328 Development of a Collision Prediction Tool Between Gantry and Table Using Blender - G. Guyer*, Y. Wyss, J. Bertholet, P. Mackeprang, H. Loebner, M. Fix, P. Manser, M. Stampanoni, S. Mueller

PO-GePV-T-329 Preliminary Treatment Planning System Commissioning Results for the First Clinical Biology-Guided Radiotherapy Machine - N. Kovalchuk*, B. Han, E. Simiele, D. Capaldi, D. Breikreutz, T. Yeung, J. White, D. Zaks, M. Owens, S. Maganti, A. Purwar, L. Vitzthum, D. Chang, L. Xing, M. Surucu

PO-GePV-T-330 Capacity Assessment of African Clinics to Conduct Hypofractionated Radiotherapy Clinical Trials for Localized Prostate Cancer - W. Swanson*, M. Lavelle, V. Ainsworth, N. Bih, D. Seymour, W. Ngwa

PO-GePV-T-331 Photoelectric Dose-Enhancement Using FDA-Approved Materials - W. Swanson*, Y. Hao, W. Ngwa

PO-GePV-T-332 Comparing Ideal and Realistic Surrogate Motions with the Radixact Synchrony System - K. Jeong*, L. Goddard, W. Tomé

PO-GePV-T-333 End-To-End Testing of Hybrid VMAT-Based Total Body Irradiation Technique: Simulation, Planning and Delivery Verifications - S. Ahmed*, T. Gray, L. Lu, P. Xia, B. Guo

PO-GePV-T-334 Pre-Treatment 4DCT Fiducial Marker Combination Selection for Robotic Lung SBRT - W. Belcher*, A. Ju, J. Jung

PO-GePV-T-335 Prediction of Fiducial Marker Positions in Robotic SBRT Using 4D-CTs at Different Treatment Dates - J. Jung*, W. Belcher, K. Patel, E. Patel, K. Yang, S. Sharma, A. Ju

PO-GePV-T-336 The 4D Composite Dose Study of the Breath Motion Effect During the Lung Stereotactic Body Radiotherapy (SBRT) - Z. Xia*, F. Wang, Y. Xu, J. Xu

PO-GePV-T-337 Effect of Target Positioning Error on Tumor Control Probability in Stereotactic Radiosurgery for Metastatic Brain Tumors Using the CyberKnife M6 - T. Takizawa*, S. Tanabe, H. Nakano, S. Utsunomiya, M. Sakai, K. Maruyama, S. Takeuchi, T. Nakano, A. Ohta, M. Kaidu, H. Ishikawa, K. Onda

PO-GePV-T-338 Predicting the Effect of Indirect Cell Kill for Radiosurgery of Multiple Brain Metastases Via Single-Isocenter/Multi-Target Volumetric Modulated Arc Therapy (SINT-VMAT) - A. Palmiero*, D. Fabian, M. Randall, W. St Clair, D. Pokhrel

PO-GePV-T-339 Treating Vestibular Schwannomas Abutting the Brainstem with SRS/FSRS Alone - M. Keohane*, Z. Whiting, D. Koffler, A. Goenka, E. Calugaru, J. Chang

PO-GePV-T-340 Evaluation of Three Dosimeters on Output Factor Measurement of the New Aktina SRS Cone System - L. Zhuang*, M. Gao, M. Pankuch, M. Xu, G. Pixton, C. Breit

PO-GePV-T-341 A Multi-Clinic Validation of An End-To-End Procedure for MLC-Based Stereotactic Radiosurgery with a Novel Phantom - T. Brown*, J. Fagerstrom, C. Beck, C. Holloway, J. Kerns, D. Kaurin, K. Kielar

PO-GePV-T-342 Consistency in Response Between Two Copies of a High-Resolution Diode Array for SRS Dosimetry - B. Barraclough*

PO-GePV-T-343 Evaluation of a New Diode Detector for Beam Data Measurements - S. Stathakis*, C. Kabat, M. Naessig

PO-GePV-T-344 A Comparison of Field Output Corrections Factors for a Diode Detector Among Various Measurement Setups and Among Various Energies for Stereotactic Cones - Y. Lee*, Y. Kim

PO-GePV-T-345 A Method for Estimating the Geometrical Accuracy for Single-ISO Multiple-Target Treatment - H. Li*, N. Wen, I. Chetty

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PO-GePV-T-347 Dosimetrical Verification of Output of Small Cones in a Radiosurgery Device - L. Jin*, S. Hayes, C. Ma

PO-GePV-T-348 A Simple Method for Quantifying and Reducing Lateral Response Artifact of Flatbed Scanner for Film Dosimetry - X. Du*, B. Rasmussen

PO-GePV-T-349 Thresholding Gamma Analysis on SRS Anthropomorphic Phantoms - A. Molineu*, L. Acuna Scafati, S. Kry

PO-GePV-T-350 An End-To-End, Low-Cost, Universal Winston-Lutz Type Quality Assurance Procedure for Hypofractionated Image-Guided Stereotactic Radiosurgery - L. Ma*, W. Hu, T. Nano, L. Wang, C. Chuang

PO-GePV-T-351 Evaluation of Delivery Quality Assurance of Cyberknife Stereotactic Radiosurgery - J. Li*, X. Zhang, H. Zhuang, R. Yang

PO-GePV-T-352 Comparison of SRS QA Tools on IROC Head Phantom Plan - C. Teng*, N. Vassell, E. Sudentas, T. Nguyen, Y. Lo

PO-GePV-T-353 Implementing a QA Phantom to Test Discrepancies in Stereotactic Space Definition for Gamma Knife ICON - J. Caron*, S. Ahmad, Y. Chen

PO-GePV-T-354 Evaluation of a New Winston Lutz Tool for the Treatment of Multiple Brain Metastases for Mono-Isocentric Beams - A. Perez-Andujar*, Y. Muta, G. Klein, J. Chen

PO-GePV-T-355 Simple and Reliable Calibration Fields for OrthoChromatic Film Dosimetry Protocol - W. Feng*, C. Shi, J. Zhou, A. Chu, L. Zhou, J. Sakellakis, M. Needham, A. Grann

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PO-GePV-T-357 Comparison of Commercial Pre-Treatment QA Devices for Stereotactic Radiotherapy Plans - S. James*, A. Al-Basheer, E. Elder, J. Barrett, F. Mostafaei

PO-GePV-T-358 On the Optimal Number of Dose-Limiting Shells in the SBRT Auto-Planning Design for Peripheral Lung Cancer - Y. Duan*, Z. Xu

PO-GePV-T-359 Volume-Staged Stereotactic Radiosurgery (VS-SRS) Treatment of Large Arteriovenous Malformation AVM: Volumetric Modulated Arc Therapy Approach - D. Soultan*, H. Jiang, N. Demez, F. Wang

PO-GePV-T-360 Clinical Evaluation of a Novel Automatic Inverse Planning System in Gamma Knife Lightning - T. Cui*, K. Nie, J. Zhu, D. Shabbar, J. Weiner, A. Chundury, N. Ohri, Y. Zhang, I. Vergalasova, N. Yue, X. Wang

PO-GePV-T-361 Dose Gradient Improvement for SBRT Lung Plans During Optimization - T. Li*, B. Mowbray, P. Vadnais, A. Mendez, C. Geraghty, B. Hasson

PO-GePV-T-362 Investigation of Treatment Planning Strategies for Multi-Isocenter Intracranial stereotactic Radiosurgery - I. Rusu*, J. Roeske, S. Gros, A. Solanki, H. Kang

PO-GePV-T-363 Validation and Clinical Implementation of VMAT Liver SBRT on 6MV-FFF O-Ring Halcyon Linac - T. Tackett*, A. Webster, M. Bernard, M. Kudrimoti, D. Pokhrel

PO-GePV-T-364 Retrospective Characteristic Analysis of New Exponential Dosimetric Variable, Dose Dropping Speed (DDS) in the Treatment Plans of Arteriovenous Malformations (AVM) to Evaluate Dose Fall-Off - H. Kaur*, H. Kaur, S. Hazarika, J. Ninan, D. Gupta, S. Pande

PO-GePV-T-365 Evaluation of Model-Based Dose Algorithms Using HU as a Density Surrogate for FFF-SBRT of Island Lung Lesions - B. Bismack*, S. Devpura, I. Chetty

PO-GePV-T-366 Evaluation of Parameters Affecting Gamma Passing Rate in Patient-Specific QA's for Multiple Brain Lesions IMRS Treatments - E. Salari*, D. Shvydka, E. Parsai

PO-GePV-T-367 Gamma Knife Thalamotomy – Imaging Verification of the Isocenter Location - C. Yang*, Y. Chen

PO-GePV-T-368 To Determine the Impact of Rotational Uncertainties on Dosimetric Coverage of Distant Targets Using VMAT Planning and a TPS Tool to Measure Plan Uncertainty - G. Klein*, Y. Muta

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PO-GePV-T-373 Dosimetric Impact of Anatomical Changes Between Photon and Proton Stereotactic Body Radiation Therapy for Lung Cancer - C. Liu*, T. Ma, T. Gray, S. Ahmed, N. Yu, K. Stephans, G. Videtic, P. Xia

PO-GePV-T-374 The Dosimetric Effect of Using a Titanium Material Assignment Versus Limited Hounsfield Units for SBRT Spine Patients with Hardware - Z. Richards*, D. Christ, D. DiCostanzo, K. Dibs, D. Blakaj

PO-GePV-T-375 Quantitative Assessment of Inter-Fractional Anatomy Change on Dose Delivery of Prostate SBRT - C. Cheng*, X. Zhang, B. Liu, N. Yue, R. Parikh, Y. Zhang, X. Wang

PO-GePV-T-376 Analysis of Plan Quality for Intensity-Modulated Proton Therapy Vs. Photon Stereotactic Radiosurgery for Brain Metastases - T. Gray, C. Liu, P. Xia, T. Gray*

PO-GePV-T-377 Robustness of AI Treatment Planning to Account for Inter-Fractional Changes in Targets and OARs - T. Gray*, W. Wang, C. Liu, Q. Wu, D. LaHurd, E. Balagamwala, A. Vassil, P. Xia

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PO-GePV-T-381 Dosimetric Evaluation of Lung Stereotactic Body Radiation Therapy (SBRT) Treatment Plans - T. Giadui*, B. Wang, A. Hollander, B. Micaily, C. Miyamoto, S. Li

PO-GePV-T-382 Thoracic Spine SBRT: Is Free Breathing CT Sufficient for VMAT Planning? - K. Xu*, Y. Zhang, J. Zhou, N. Yue, C. Ma

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PO-GePV-T-384 Comparison of Monte Carlo and Pencil Beam Algorithms in Brain Dose Calculations for Stereotactic Radiosurgery of Multiple Brain Metastases - H. Jiang*, R. Badkul, N. Demez, D. Johnson, D. Soultan, D. Craft

PO-GePV-T-385 Algorithm for Forward SBRT Planning with Constant Dose Rate Flattening Filter Free Dynamic Conformal Arcs - J. Barbieri*, G. Beninati, R. Teboh Forbang, A. Ndlovu

PO-GePV-T-386 The Influence of Iso-Center Location, Beam Type and Lesion Size on Plan Specific QA in Lung SBRT - S. Mashouf*, S. Tripathi

PO-GePV-T-387 A Dynamic Conformal Arc Technique Based on a High Dose Rate Flattening Filter Free Beams for Peripheral Lung Cancer - J. Zhang*

PO-GePV-T-388 Dosimetric Study of Stereotactic Body Radiotherapy Using Flattening Filter Free Beams for Peripheral Lung Cancer - c. deng*, J. Zhang

PO-GePV-T-389 Dosimetric Impact of Peripheral MLC Leaves for Stereotactic Radiosurgery - X. Zhao*, E. Covington, A. Alexandrian, R. Popple

PO-GePV-T-390 Organ-At-Risk Motion Analysis for Pancreatic Tumor Stereotactic Radiotherapy - T. Gray*, C. Liu, B. Guo, D. LaHurd, E. Balagamwala, A. Vassil, P. Xia

PO-GePV-T-391 Intra-Fraction Motion of Brain SRS/SRT with Multiple Targets: An Evaluation Based on a Robotic Radiosurgery System - X. Chen*, L. Jin, L. Chen, J. Liu, L. Wang, S. Hayes, S. Weiss, R. Price, C. Ma

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PO-GePV-T-393 Optimizing Isocenter Placement Based on Rotational Uncertainty in Single-Isocenter SRS - C. Baley*, N. Kirby, S. Stathakis, N. Papanikolaou, P. Myers, K. Rasmussen, D. Saenz

PO-GePV-T-394 Dosimetric Study of the Electron Return Effect on Breast Treatment Planning On a 1.5 T MR-LINAC - J. Park*, T. Chiu, Y. Park, X. Gu, A. Godley, Y. Zhang

PO-GePV-T-395 Dosimetric Quality Comparisons Between MRI-Linac Vs Conventional VMAT for Prostate SBRT - R. McBeth*, M. Joo, Z. Xiong, J. Park, A. Owrangi

PO-GePV-T-396 Investigation of Dosimetric Accuracy for CyberKnife Intracranial SRT/SRS Treatment Planning Using a Consistent CT Calibration Model - J. Liu*, L. Jin, X. Chen, L. Chen, L. Wang, C. Ma

PO-GePV-T-397 New Dosimetric Guidelines for Acuros Through Comparative Evaluation of SBRT Lung Treatment Plans Against AAA - M. Pacella*, M. Webster, S. Tanny, N. Joyce, L. Constine, M. Milano, I. Yeo

PO-GePV-T-398 Evaluation of Dosimetric Uncertainties in Small Fields of the Varian EDGE Radiosurgery System Using Monte Carlo Simulations - T. Neupane*, C. Shang, W. Muhammad, T. Leventouri

PO-GePV-T-399 Automatic Spine SBRT Treatment Planning Using Pinnacle Scripting - P. Qi*, S. Chao, E. Murphy, E. Balagamwala, J. Suh, P. Xia

PO-GePV-T-400 The Influence of Metal Artifacts in Ray Tracing and Monte Carlo Calculation Algorithms for Thoracic Spine Lesions Treated with CyberKnife - X. Zhang*, J. Li, Y. Pan, H. Zhuang, R. Yang

PO-GePV-T-401 Enhanced Dose Conformity by Manually Sectional Adjustment of High-Definition Multileaf Collimators: A Dosimetric Comparison Between Two Linac-Based Stereotactic Radiosurgery/Radiotherapy BrainLab IPlan Planning Techniques - A. IQBAL*, A. Elawadi

PO-GePV-T-402 Clinical Implementation of PDT Dose and Reactive Oxygen Species Explicit Dosimetry (ROSED) for Pleural Photodynamic Therapy (pPDT) - Y. Ong*, A. Dimofte, K. Cengel, T. Zhu

PO-GePV-T-403 Impact of Dose Calculation Algorithm on Airway Dosimetry: Comparison of AAA and Acuros - P. Kinkopf*, A. Modiri, K. Yu, Y. Yan, P. Mohindra, R. Timmerman, A. Sawant, E. Vicente

PO-GePV-T-404 Dosimetric Comparison of Gamma Knife® Icon and Linear Accelerator-Based FSRT Plans for the Re-Irradiation of Recurrent Glioblastomas - A. Kyler*, H. Liu, A. Ali, W. Shi, Y. Yu, K. Mooney

PO-GePV-T-405 Comparison of Ray Tracing and Monte Carlo Algorithms for Spine Lesions Treated with CyberKnife - J. Li*, X. Zhang, Y. Pan, H. Zhuang, R. Yang

PO-GePV-T-406 Treatment Planning of Intra-Cranial Lesions with Zap Surgical & Comparison with CyberKnife - M. Zaman*, T. Loysel, L. Goganovic, J. Ducote

PO-GePV-T-407 Dosimetric Case Study of Lung SBRT with Two Adjacent Targets: One ISO Vs Two ISOs - J. Zhang*, B. Lee, W. Inouye, R. Kwon, W. Lien

PO-GePV-T-408 Can a Single Beam Model Be Used for SBRT Planning on Multiple Linear Accelerators? - S. Wang*, J. Cunningham, S. Devpura, K. Snyder, C. Smith, B. Miller, S. Gardner

PO-GePV-T-409 A Trajectory Sampling Metric for the Optimization of Dose Distributions in Radiosurgery - R. MacDonald*, J. Lincoln, C. Church, A. Syme, C. Thomas

PO-GePV-T-410 Predictive Model of Lung Tumor Intrafraction Motion Variability - L. Knybel*, J. Cvek, M. Penhaker

PO-GePV-T-411 on the Interplay Effect in Lung SBRT Treated with CyberKnife Static Tracking System - M. Zeverino*, Y. Jia, J. Bourhis, F. Bochud, R. Moeckli

PO-GePV-T-412 How Low Can We Go? Modified HyperArc VMAT Geometry for Recurrent Head and Neck SRT - D. Pokhrel*, M. Kudrimoti, M. Bernard

PO-GePV-T-413 Single Fraction SRS Planning Strategies for Dual Metastases Have Different Doses - M. Alfishawy*, M. Abdallah, A. Yassin, K. El-Shahat, I. Hajjaj, A. Mahmoud, R. Hamed, B. Dawood, A. Elsaed, N. Gebriel, H. Attallah

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PO-GePV-T-416 Northwestern Memorial Hospital's Experiences in Gamma Knife ICON Unit in First 15 Months - P. Lee*, G. Khelashvili, M. Gopalakrishnan, S. Sachdev, J. Kalapurakal, T. Kruser

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PO-GePV-T-418 An Innovative Modification of a Commercial Mask Used in Gamma Knife Icon Stereotactic Radiosurgery - R. He*, W. Duggar, E. Mundra, S. Vijayakumar, C. Yang

PO-GePV-T-419 Measuring Cone Factors for Stereotactic Radiosurgery Applicators on a Varian Edge - S. Tanny*, J. Yoon, M. Ostyn, A. Gray

PO-GePV-T-420 Dosimetric Comparison of Coplanar and Noncoplanar Beam Arrangements for Radiotherapy of Patients with Lung Cancer: A Meta-Analysis - M. Ma*, J. Dai

PO-GePV-T-421 End to End Verification of BrainLAB's Element Planning System for Intracranial SRS Treatments of Arteriovenous Malformations on Varian TrueBeam - N. Shrestha*, G. Narayanasamy, M. Radvany, F. Kalantari, S. Morrill, Z. Su, F. Xia

PO-GePV-T-422 Characterization of Single-Dose Radiotherapy (SDRT) Performance in a New High-Speed Ring Gantry-Based LINAC System - O. Oderinde*, S. Khan, A. Da Silva, S. Tian, X. Yang, K. Higgins, S. Shirvani, G. Kuduvalli

PO-GePV-T-423 Feasibility Study of Precision-CyberKnife, IPlan-Navalis, Raystation-VersaHD and Monaco-VersaHD to Satisfy the UNC Treatment Planning Protocol of Stereotactic Radiosurgery for Multiple Brain Lesions - P. Mavroidis*, R. McGurk, E. Schreiber, M. Dance, K. Zourari, G. Kalaitzakis, E. Zoros, T. Boursianis, E. Pappas, B. Read, P. Barry, N. Papanikolaou, S. Das, S. Stathakis

PO-GePV-T-424 Effect of Dose Rate on Cardiac Synchronized Volumetric Modulated Arc Therapy - J. Poon*, K. Kohli, D. Schellenberg, M. Deyell, S. Thomas

PO-GePV-T-425 API Based Automated Treatment Planning of Lung Stereotactic Radiation Therapy - J. Dise*, M. Schmidt, P. Szentivanyi, F. Reynoso, E. Pryser, C. Abraham, N. Knutson, G. Hugo

PO-GePV-T-426 Dosimetric Evaluation of Different Rotating Gamma Ray System Designs - A. Eldib*, H. Liu, Q. Jiang, B. Wang, S. Li, C. Miyamoto, C. Ma

PO-GePV-T-427 Monte Carlo (GATE/Geant4) Estimation of Clinician Hand Dose from Radionuclide Injection - H. Edelman*, B. Loughery

PO-GePV-T-428 The Capabilities and Characteristics of Helical Tomotherapy and Volumetric-Modulated Arc Therapy in Sparing the Hippocampus During Prophylactic Cranial Irradiation - D. Wang*, J. Zhu, X. Ma, Y. Yin, B. Li, L. Fu, J. Gu

PO-GePV-T-429 A Comparative Study of Radiation Dosimetry On Acute Hematotoxicity by Fixed Field Intensity Modulated Radiotherapy and Helical Tomotherapy for Cervical Cancer - D. Wang*, Y. Yin, X. Ma, D. Li, J. Zhu

PO-GePV-T-430 Investigation on the Use of Comet Assay for the Measurement of High Dose Radiation - J. Lourdurajan*, S. Rabi, T. Peace, R. SINGH

PO-GePV-T-431 Effect of PEGylated Gold Nanoparticles in Intraoperative Radiotherapy(IORT) Dose Enhancement in the MCF-7 Human Breast Cancer Cell Line Using Gafchromic™ EBT3 Films - N. Seyedpour, S. Gholami*, F. Kalantari, H. Ghanbari

PO-GePV-T-432 Concurrent Radiosensitization and Chemoradiotherapy for Brain Tumors - A. Hubbard*, C. Thiages, K. Djam, H. Kramer, Y. Walter, A. Benoit, E. Yank, O. Salas, A. Ekenyong

PO-GePV-T-433 The Plant Hemoglobin Can Be Developed as a Radio-Enhancer in Solid Tumor Radiation Treatment - S. Yasmin-Karim*, J. Wood, M. Moreau, W. Ngwa

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PO-GePV-T-434 Investigate Depth-Dependent Dose Enhancement of PSMA-Targeted Gold Nanoparticles Assisted Radiosensitization at Megavoltage Energy - D. Hara*, J. Shi, R. Schmidt, W. Tao, W. Ma, N. Dogan, J. Ford, A. Pollack

PO-GePV-T-435 A Treatment Planning System for Small Animal Radiation with the Gamma Knife - J. Yuan*, A. Yuan, A. Kerstetter-fogle, C. Flask, S. Choi, A. Sloan, S. Brady-kalnay, R. Muzic, Y. Zheng

PO-GePV-T-436 Analysis of Preclinical IMRT Plan Quality Versus Number of Beam Angles - D. Olivera Velarde*, E. Pearson, B. Aydogan, H. Halpern, G. Redler, B. Epel, J. Slagowski

PO-GePV-T-437 Precise Pulse Delivery Control Using Monitor Units in Electron FLASH-RT - J. Xu*, Y. Poirier, A. Sawant

PO-GePV-T-438 Dosimetry and Quality Assurance for the Small Animal Radiation Research Platform (SARRP) - R. Mueller*, S. Aldelaijan, M. Moreau, W. Ngwa, G. Makrigiorgos, R. Berbeco

PO-GePV-T-439 Evaluation of A New Method to Measure Colony Growth In-Vitro - R. Holden*, J. Park, A. Lynnette Price, D. Dunn, S. Floyd, M. Oldham

PO-GePV-T-440 Radiation Cell Survival Fraction After a FLASH Radiation Pulse - S. Zhou*, Y. Yan, D. Zheng, S. Wang, S. Wisnoskie, D. Umstadter

PO-GePV-T-441 A Study of Indirect Apoptotic Death by Vascular Damage on Cell Survival After Single-Fraction Radiotherapy by Using An Improved Cellular Automata Model - D. Kawahara*, L. WU, Y. Nagata, Y. Watanabe

PO-GePV-T-442 EQD2 of HDR Brachytherapy for Vaginal Cancer Based on a Novel Model - B. Wang*, S. Li, B. Micaily, A. Hollander, T. Giaddui, C. Miyamoto

PO-GePV-T-443 Effect of Total and Hypoxic Tumor Volumes on the TCP in Hypofractionated Radiotherapy - A. Chvetsov*, R. Stewart, L. Hanin, J. Zeng, R. Rengan, S. Lo

PO-GePV-T-444 A Biology-Driven Deep-Learning Based Cell Survival Model for Proton Radiation - Y. Lai*, C. Shen, Y. Chi, F. Guan, X. Jia

PO-GePV-T-445 Relative Response of Murine Lung Tumors from Conventional Radiotherapy (CRT) Versus Pulsed Low-Dose-Rate (PLDR) Radiotherapy - T. Dos Santos*, D. Cvetkovic, L. Chen, C. Ma

PO-GePV-T-446 Optimal Treatment Scheduling in the Presence of Stress-Induced Phenotypic Switching of Cancer Cells - J. Joo*, Y. Cho

PO-GePV-T-447 DNA-Scale Dose Deposition Surrounding Heavy-Metal Nanoparticles Irradiated with a Monoenergetic Kilovoltage-Energy Beam - N. Myziuk*, E. Porter, M. Snyder

PO-GePV-T-448 Alpha Particle Microdosimetry Calculations Aided by Shallow Neural Network Regression Fitting - P. Wagstaff*, P. Mínguez Gabiña, J. Roeske

Ultrasound General ePoster Viewing

PO-GePV-U Ultrasound General ePoster Viewing

PO-GePV-U-01 The Accuracy and Radiomics Feature Effects of Multiple U-Net Based Automatic Segmentation Models for Transvaginal Ultrasound Images of Cervical Cancer - X. Jin*, J. Jin, C. Xie

PO-GePV-U-02 The Use of Statistics-Based Analyses of Random Spherical Void Phantoms as a Potential Means for Quantitatively Assessing the Performance of Ultrasound Imaging Systems - M. Holland*