



# Department of Human Oncology

UNIVERSITY OF WISCONSIN  
SCHOOL OF MEDICINE AND PUBLIC HEALTH

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## Scheduled Presentations at the 2022 AAPM Meeting



CELEBRATING MEDICAL PHYSICS  
TRANSFORMING HUMAN HEALTH

Scheduled event times listed in Eastern Time.

### Sunday, July 10

#### Radiopharmaceutical Therapy Dosimetry

*CT Metallic Artifacts Affect Clinical, SPECT Image-Based, Iodine-131 Radiopharmaceutical Therapy Dosimetry* (D Adam, T Bradshaw, **P Hill**, J Grudzinski, S Cho, **A Burr**, **P Harari**, B Bednarz) 1:14 pm, Room 202

#### Therapy SNAP Oral: Advances in Treatment Planning I

Moderators: **Z Labby**, M Mashayekhi  
1-2 pm, Room 206

#### Radiopharmaceutical Therapy Dosimetry

*Voxel-Wise Preclinical Dosimetry of 177Lu-NM600 Using the Monte Carlo-Based Platform RAPID* (O Kwon, J Grudzinski, D Adam, P Clark, R Sriramaneni, C Ferreira, J Jeffery, C Massey, C Kerr, **Z Morris**, R Hernandez, J Weichert, B Bednarz)  
1:35 pm, Room 202

#### Multi-Disciplinary SNAP Oral: Imaging for Treatment Assessment and Outcome Modeling

Moderators: **M Lawless**, R Howell  
2-3 pm, Room 206

#### Functional, Biologic and Anatomic IGRT

*Using a Residual Neural Network to Predict Radiation-Induced Pulmonary Function Damage* (**E Wallat**, **M Flakus**, **A Wuschner**, J Reinhardt, G Christensen, J Bayouth)  
2-3 pm, Ballroom C

#### Proton Therapy I

*Characterization of An Isocenter Alignment Device for the Proton PBS Dynamic Collimation System* (T Geoghegan, K Patwardhan, N Nelson, L Bennett, J Yu, A Gutierrez, **P Hill**, R Flynn, D Hyer)  
3:30-4 pm, Exhibit Hall | Forum 4

#### Emerging Imaging, Therapy, and Dosimetry Solutions II

*Validation of a Forward Model for Thick Scintillator Imaging and Spectral Extraction with a Light Field Camera* (B Preusser, **J Slagowski**, P La Riviere, R Wiersma)  
5-6 pm, Room 202

### Monday, July 11

#### SAM Joint Imaging|Therapy Educational Course Imaging for Radiation Therapy: Challenges and Solutions

Moderators: S Kappadath, **J Slagowski**  
7:30-9:30 am, Room 202

#### SAM Therapy Educational Course: Recent Task Groups on the Use of MR in External Beam Radiotherapy: TG 284 and 294

*Safety, Staffing, Equipment Selection and Optimization of Simulation Workflow for Radiotherapy Planning and Response Assessment Studies* (**C Glide-Hurst**) 2 pm, Ballroom A

#### Early-Career Investigator Symposium

*Combining Monte Carlo Voxel-Level External Beam Radiotherapy and Iodine-131 SPECT Based RadioPharmaceutical Therapy Dosimetry Using Deformable Registration and Radiobiological Quantities* (D Adam, J Grudzinski, **P Hill**, T Bradshaw, S Cho, **A Burr**, **P Harari**, B Bednarz) 2:09 pm, Ballroom B

### **Machine Learning for Adaptive Radiotherapy**

*Integration of Attention-GAN to Predict Mid-Treatment Dual-Energy CT for Head and Neck Adaptive Radiation Therapy* (**Y Yan, RA Bayliss, H Emami Gohari, M Dong, C Glide-Hurst**)

3:45-4:15 pm, Exhibit Hall | Forum 2

### **Multi-Disciplinary Scientific Symposium**

*Grant Funding Symposium: Pearls and Pitfalls*  
Moderators: A Sawant, **C Glide-Hurst**  
4:30 PM - 6 PM | Ballroom B

**Tuesday, July 12**

### **Therapy Scientific Session:**

#### **Advances in SRS/SBRT**

Moderators: **P Hill, L Wang**  
8:30-9:30 am, Room 202

### **Radiobiology and Small Animal Systems**

#### **Therapy Interactive ePoster Discussion**

*Dosimetric Comparison of Small Animal Intensity-Modulated Versus 3D Conformal Radiotherapy Using a Computer-Generated Cardiac Mouse Phantom* (**J Slagowski, E Pearson, G Redler, D Olivera Velarde, H Halpern, R Tummala, B Aydogan**)  
9:30-10 am, Exhibit Hall | Forum 3

### **Imaging for Treatment Guidance**

*Impact of Multi-Energy CT On Tumor Delineation of Primary Head and Neck Tumors* (**J Miller, L DiMaso-Myers, P Harari, B Morris, E Merfeld, J Shah, A Burr, M Lawless**)  
10-10:30 am, Exhibit Hall | Forum 5

### **Multi-Energy CT**

*Impact of Iterative Beam-Hardening Correction on Iodine and Calcium Quantification in Multi-Energy CT* (**J Miller, L DiMaso-Myers, P Wohlfahrt, J Shah, M Lawless**)

1:15-1:45 pm, Exhibit Hall | Forum 8

### **External Beam Modeling**

*Tuning An Analytical Proton Therapy Dose Calculation Algorithm for Penumbra Agreement in Collimated Pencil Beam Scanning Proton Therapy*  
(L Bennett, K Erhart, N Nelson, J Yu, A Gutierrez, S Rana, B Smith, **P Hill**, D Hyer, T Geoghegan, K Patwardhan, W Culberson, R Flynn)  
1:15-1:45 pm, Exhibit Hall | Forum 3

### **Space-Time Modulation of Treatment**

*Automated Optimization of Lattice Geometry to Maximize Dose Heterogeneity in Spatially Fractionated Radiation Therapy (SFRT)* (**P Hill, RA Bayliss, Z Morris, C Glide-Hurst**)  
1:45-2:45 pm, Ballroom A

### **Therapy Scientific Session:**

#### **Advances in Safety**

Moderators: **D Jacqmin, S Simiele**  
2:45-3:45 pm, Ballroom A

### **SAM Multi-Disciplinary Scientific Symposium: Medical Physics in Clinical Trials: Design, Quality Assurance, and NIH Programs**

*Medical Physics and Clinical Trial Design for New Technologies* (**C Glide-Hurst**)  
5:20 pm, Ballroom B

### **Radiobiology Issues Regarding Theranostic Radiopharmaceuticals**

*New Frontiers: Interactions with the Immune System and the Abscopal Effect* (**Z Morris**)  
5:25 pm, Room 202

**Wednesday, July 13**

### **Functional Imaging in Radiation Therapy Multi-Disciplinary Interactive ePoster Discussion**

*Active Bone Marrow Delineation in a Swine Model Via Proton Density Fat Fraction MRI and Multi-Energy CT* (**D Coleman, J Meudt, D Shanmuganayagam, J Shah, A McMillan, A Pirasteh, J Miller, B Bednarz, M Lawless**)  
10-10:30 am, Exhibit Hall | Forum 6

### **Therapy External Beam Radiotherapy—Guidance and Delivery Techniques**

*Dosimetric Delivery Validation of Dynamically Collimated Pencil Beam Scanning Proton Therapy*  
(N Nelson, W Culberson, D Hyer, T Geoghegan, K Patwardhan, B Smith, R Flynn, J Yu, A Gutierrez, **P Hill**)  
10-10:30, Exhibit Hall | Forum 3

### **Deep Learning for Image-Guided Therapy**

*Transformer-Based Deep Learning Architecture for Improved Cardiac Substructure Segmentation* (**N Summerfield, J Qiu, S Hossain, M Dong, C Glide-Hurst**)  
10:30-11 am, Exhibit Hall | Forum 2

## **TBI/TSET**

*Updating a Total Body Irradiation Program to Allow for High Dose Treatments with Lung Blocking*

(J Huang, **K Schaefer**, **M Lawless**, **L DiMaso-Myers**, **T Tyson**, **K Bradley**)

10:30-11 am, Exhibit Hall | Forum 4

## **Enhancing a Physicist's Role in Radiation**

*Therapy Treatment Plan Assessment*

*Enhancing a Physicist's Role in the Assessment of Treatment Plan Quality*

(**D Jacqmin**)

1:45 pm, Ballroom A

## **Therapy Scientific Session: Advanced Preclinical and Clinical RT Strategies and Techniques**

Moderators: **J Slagowski**, M Kim

2:45-3:45 pm, Room 206

### **Thursday, July 14**

## **Advances in Anatomic, Biologic, and Functional Image Guidance**

*Quantifying Robustness of CT-Ventilation*

*Biomarkers to Image Noise*

(**M Flakus**, **A Wuschner**, **E Wallat**, J Meudt, D Shanmuganayagam, G Christensen, J Reinhardt, J Bayouth)

7:30-8:30 am, Room 206

## **Don't Miss a Beat: Addressing Cardiotoxicity in Cancer Therapies**

Moderator: **C Glide-Hurst**

7:30-8:30 am, Ballroom A

*State of the Art in Imaging for Cardiotoxicity*

(**C Glide-Hurst**)

7:30 am

## **Clinical Dosimetry, Calibration, Shielding**

*Investigating Dosimetry for Individual Proton Beamlets*

(N Nelson, W Culberson, D Hyer, L Bennett, T Geoghegan, K Patwardhan, B Smith, R Flynn, J Yu, A Gutierrez, **P Hill**)

9:10 am, Ballroom A

## **Imaging Scientific Session: Dual Energy Radiography, CT, and CBCT**

Moderators: **J Miller**, W Zbijewski

2-3 pm, Room 201

### **ePosters (On demand)**

**ePosters** (Viewing Sunday 12:30-5 pm, Monday/Tuesday 9 am-5 pm, Wednesday 9 am-2 pm in Exhibit Halls D & E)

## **Therapy General ePoster Viewing**

*Design and Construction of a Total Body Irradiation (TBI) Apparatus with Lung Blocking for Implementation of a Decubitus High Dose TBI Program* (**K Schaefer**, **J Huang**, **M Lawless**, **L DiMaso-Myers**, **T Tyson**, **K Bradley**)

*IMRT QA Result Prediction by MLC Transmission Decomposition* (J Stasko, W Ferris, D Adam, W Culberson, **S Frigo**)

*Dose Calibration and Integral Depth Dose Correction of An Analytical Dose Calculation Algorithm for Collimated Pencil Beam Scanning Proton Therapy*

(L Bennett, K Erhart, N Nelson, J Yu, A Gutierrez, S Rana, B Smith, **P Hill**, D Hyer, T Geoghegan, K Patwardhan, W Culberson, R Flynn)

*Attachment Reproducibility of the Accessory Tray-Mounted Proton Dynamic Collimation System*

(T Geoghegan, K Patwardhan, L Bennett, J Yu, A Gutierrez, **P Hill**, R Flynn, D Hyer)

## **Multi-Disciplinary General ePoster Viewing**

*The Use of Dual Isocenter MR-Guided Adaptive Radiation Therapy for Large Field Sarcomas* (**T Tyson**, **J Crosby**, **Z Morris**, **C Glide-Hurst**)

*Predicting Indirect Radiation-Induced Damage Using Parametric Response Mapping and Dosimetric Analysis*

(**A Wuschner**, **E Wallat**, **M Flakus**, G Christensen, J Reinhardt, J Bayouth)