

## 2019 AAPM Annual Meeting

July 14-18, 2019

Henry B. Gonzales Convention Center  
San Antonio, TX

### Oral Presentations:

Accounting for Respiration-Induced Motion of Peripheral airways in Virtual Bronchoscopy-Guided Lung Stereotactic Ablative Radiotherapy Planning- Best in Physics

**Esther Vicente, A Modiri, Kun-Chang Yu, H Wibowo, Yulong Yan, Robert Timmerman, Amit Sawant**

Clinical Acceptability and Preliminary Robustness Evaluation of Multi-Criteria Optimization of VMAT Comprehensive Breast Cancer Treatment Plans

**Rachel McCarroll**

NIH Grant Funding

N/A (Organizer/Moderator)

**A Sawant**

R01 CA202761 Investigating radiation-induced injury to airways and pulmonary vasculature in lung SAbR

**A Sawant**

Position Monitoring - Future Roadmap

**A Sawant**

Development and Implementation of a Small Field Calibration Procedure for a Novel Stereotactic Radiosurgery Device Utilizing TG-21 & IAEA TRS 483

**S Becker\*, E Nichols, B Yi**

Future High precision Stereotactic Treatment Delivery: Is Penumbra a Concern?

B Kopchick, **H Xu**, X Qiu, Cyu

“Towards the automation of initial chart check for photon/electron EBRT: A view of University of Maryland”

**H Xu\*, S Chen, S Lee, B Zhang, N Lamichhane, B Yi**

Motion Mitigation in Spot Scanning Proton Therapy with An Automated Gating System and Voluntary Breath Holding

**S Mossahebi**

### Snap Oral:

Optimization of Image Guidance Clinical Workflow for Frameless Linac-Based Stereotactic Radiosurgery (SRS) Using Three Dimensional Surface Imaging Monitoring System

**S Chen<sup>1</sup>\*, B Agyepong<sup>2</sup> , Y Poirier<sup>1</sup> , N Lamichhane<sup>1</sup> , S Becker<sup>1</sup> , B Zhang<sup>1</sup> , A Gopal<sup>1</sup> , E Nichols<sup>1</sup> , P Mohindra<sup>1</sup> , B Yi<sup>1</sup> , J Molitoris<sup>1</sup> , M Mishra<sup>1</sup>**

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Evaluation of Stopping Power Ratio Prediction of Lung Tissue From Dual-Energy CT  
**S Mossahebi, P Sabouri, J Polf,**

“Dosimetric effects on the patient setup using daily vs weekly CBCT in treating advanced stage lung cancer: preliminary results”

**J Zhou\*, G Lasio, A Gopal, S Lee, B Zhang, B Yi**

### E-Poster Discussion:

Development and In-Patient Validation of Inter-Fraction Fidelity of a Surface Photogrammetry +CT Based Volumetric Motion Model for Lung Radiotherapy

**M. Ranjbar\*, P Sabouri, S Mossahebi, D Leiser, G Lasio, J Hung, A Sawant, J Zhou**

“A Dosimetric Evaluation of Daily CBCT Imaging for Prostate Radiotherapy”

**A Gopal\*, B Zhang, S Lee, G Lasio, S Chen, B Yi**

Improving IMPT Delivery Efficiency by Increasing Minimum Spot MU in Plan Optimization

**Mingyao Zhu, Katja Langen**

Study of Dual Energy CT Based proton Stopping Power Ratio Determination in Small Anatomic Structures

**J Polf, M Mille, S Mossahebi<sup>1</sup>, H Chen, P Maggi, H Chen-Mayer**

Two Decades of Physics and Dosimetry Reporting in Radiobiological Studies: A Potential Factor of the Reproducibility Crisis

**E Draeger<sup>1,2\*</sup>, A Sawant<sup>1,3</sup>, C Johnstone<sup>1</sup>, B Koger<sup>4</sup>, S Becker<sup>3</sup>, Z Vujaskovic<sup>1,5</sup>, IL Jackson<sup>1</sup>, Y Poirier<sup>1,3</sup>, (1) Division of Translational Radiation Sciences, Department of Radiation Oncology, University of Maryland School of Medicine, Baltimore MD (2) Department of Therapeutic Radiology, Yale University School of Medicine, New Haven CT (3) Division of Medical Physics, Department of Radiation Oncology, University of Maryland School of Medicine, Baltimore MD (4) Department of Radiation Oncology, University of Washington, Seattle WA (5) Department of Radiation Oncology, University of Maryland School of Medicine, Baltimore MD**

Development and Implementation of a Mechanical and Radiation Tests for a Novel Stereotactic Radiosurgery Device Utilizing a 2D Detector Array, to Replace the Film-Based QA

**S Becker\*, P Sabouri, E Nichols, B Yi, Univ. of Maryland School Of Medicine, Baltimore, MD**

Secondary Particle Interactions in a Compton Camera Designed for in Vivo Range Verification of Proton Therapy

**R Panthi<sup>1</sup>, P Maggi<sup>2</sup>, S Peterson<sup>3</sup>, D Mackin<sup>1</sup>, J Polf<sup>2</sup>, S Beddar<sup>1</sup>**

“Geometric and Dosimetric Trend Analysis of Setup Cone-Beam CT for Head and Neck (HN) Cancer Treatment Replanning”

**B Zhang\*, S Lee, J Zhou, S Chen, W D'Souza, B Yi**

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"Real-time 4D CT image reconstruction from transit images by amplitude scaling of deformation vector field"  
J Jung\*, J Kim, I Yeo, **B Yi**

### E-Poster:

Cylindrical Shell Arc External Beam With A Cylinder As An Alternative To The Cylinder With Interstitial HDR For Vaginal Cuff And Endometrial Cases

**N Lamichhane\*, P Mohindra, E Nichols, M Guerrero, S Chen, B Yi**

"Commissioning of Mobius3D for linac-based SRS and determination of the dosimetric-leaf-gap"

**R McCarroll\*, P Sabouri, N Lamichhane, Y Poirier, B Yi, S Chen, M Guerrero**

"Monitoring of HDR Treatment Using a Localization Jig System and An Imaging Plate: A Phantom Study"

**Yi B, S Chen, P Mohindra, Lamichhane N**

"Cylindrical Shell Arc External Beam With A Cylinder As An Alternative To The Cylinder With Interstitial HDR For Vaginal Cuff And Endometrial Cases"

**N Lamichhane\*, P Mohindra, E Nichols, M Guerrero, S Chen, B Yi**

"Target Dose Enhancement by Anatomy-Based Shift (ABS) with 4-D and 6-D Treatment Couch Movement Using Daily Cone Beam CT with Head and Neck Patients"

**S Lee\*, B Zhang, H Xu, J Zhou, A Gopal, S Chen, B Yi**

Validation of a Preclinical KV Treatment Planning System for Small Animal Image-Guided Radiotherapy

**A Anvari, A Sawant**

Influence of Proton Spot Properties on Patient Dose Reconstructions in Pencil Beam Scanning Treatment

Y Yeom<sup>1</sup>, G Kuzmin<sup>2</sup>, K Griggin<sup>1</sup>, M Mille<sup>1</sup>, J Polf<sup>3</sup>, U langner<sup>4</sup>, J Jung<sup>5</sup>, C Lee<sup>6</sup>, J Shin<sup>7</sup>, D Ellis<sup>5</sup>, C Lee<sup>1</sup>

Comparison of Breast V105% Between Pre- and Post-Merged Subfields in Field-In-Field Hypofractionated Breast Radiation Treatment Plans

Dwivedi, A, McGarry, T, Bond, L, Braver, JK, **Biswal, NC**

Comparison of Single-Iso VMAT verses Multi-Iso Dynamic Conformal Arc for Multi-Met SRS Plans

Dwivedi, A, Ip, W, McGarry, T, Bond, L, Braver, JK, **Biswal, NC**

"Cardiotoxicity Mitigation in Central Lung Hypofractionated Radiotherapy Using Non-Uniform Spatiotemporal Dose Modulation"

**Arezoo Modiri, Amberly Mendes, Sarah Lam, Abigail Berman, Steve Feigenberg, Amit Sawant**

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Real-Time Dose Verification in Preclinical Small Animal Radiation Therapy  
**A Anvari, A Sawant**

Commissioning of HDR Valencia Applicators  
**P Aryal, S Chen, M Agarwal, J Zhou, G Lasio**

“Dosimetric Impact of Alternative Image Guidance Protocols for Radiation Treatment Setup for Head and Neck Cancer Patients: Daily Cone-Beam Computed Tomography (CBCT) Versus Daily 2D KV Imaging”  
**S Lee\*, B Zhang, G Lasio, H Xu, A Gopal, S Chen, B Yi**

Target Dose Enhancement by Anatomy-Based Shift (ABS) with 4-D and 6-D Treatment Couch Movement Using Daily Cone Beam CT with Head and Neck Patients  
**S Lee, B Zhang, H Xu, J Xhou, A Gopal, S Chen, B Yi**

Systematic Evaluation of the Spectral Response of EBT3 Radiochromic Films to Proton Therapy Beams  
**A Darafsheh\*, D Mulrow, Y Leon, T Zhao, S Mossahebi, A Kassaei, R Khan**

A Phantom Study of Proton Range Uncertainty From the Measured Exit Dose in Bilateral HN Treatment  
**W Yao, M Zhu, S Chen, K Langen**