

## PSMMP PUBLICATIONS 2018

- *A Fast GPU Point-cloud Registration Algorithm*, Md Mushfiqur Rahman Panagiota Galanakou Georgios Kalantzis, 2018 19th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/Distributed Computing (SNPD).

### **Journal extended Abstracts**

- *A Dosimetric Comparison of IMR Vs VMAT Optimization in Early Stage Whole Breast Cancer*, S Pella, N Moshiri, T Leventouri, SU-I-GPD-P-18 Medical Physics **45**, 2018
- *Dosimetric Evaluations of the Bladder and Rectum in Brachytherapy Treatments Using Multi-Lumen Cylinders*, N Dumitru<sup>1</sup>, M Shojaei, S Pella, T Leventouri, SU-I-GPD-T-38 Medical Physics **45**, 2018
- *Dose Rate Dosimetric Effects During the 6 MV Flattening Filter Free RapidArc-Based Stereotactic Body Radiation Therapy On Lung* N Dumitru, M Pudasaini, S Pella, T Leventouri, SU-I-GPD-T-403 Medical Physics **45**, 2018.
- *Potential Efficacy of Monte Carlo Dose Calculations of 6MV FFF Photon Beam of M6™ CyberKnife® using the EGSnrc Program*, T. Neupane, M. Rahman, C. Shang, T. Leventouri, AAPM Spring Meeting April 7–10, 2018, Las Vegas, NV.
- *Dosimetry Effects of Small Field Sizes Between Treatment Plans Computed with Finite Size Pencil Beam Algorithm (FSPB) and Monte Carlo Algorithm (MC) Using InCise™ Multileaf Collimators Equipped CyberKnife System (CK-MLC)*, K Galpayage Dona, C Shang, Z Christ, A Shramm, B Erika, J Cole, B Rashmi, M Kasper.
- *A study on the Consistency of Treatment Planning and Delivery for Endometrial Cancer treatments with Multi-Lumen Cylinders for High Dose Rate Brachytherapy* ECMP 2018 (European Congress of Medical Physics) Copenhagen, Denmark, Aug 23 -25 Nicolae Dumitru, Marjan Shojaei, Silvia Pella, Th. Leventouri.

### **FL-AAPM Spring Meeting February 22-24, 2018, Orlando FL**

- *Selection of Functional Human Sperm with Microfluidic Sorting Device* A Ataei, AWC Lau, Th Leventouri, W Asghar, S Pella
- *Radio-Biological Consequences Due To Applicator Displacement In Savi Treatments With APBI For Under Evaluated Applicators At The Cavity Evaluation Process*. P. Galanakou, S. Pella, Th. Leventouri
- *Dosimetric and Radiobiological Effect Differences between Plans from High Definition MLC and Standard MLC for SBRT Lung Cancer*, M. Pudasaini, N. Dumitru, S. Pella, Th. Leventouri
- *Medical Physics Computational Research*, M. Rahman, G. Galanakou, G. Gibbard, Th. Leventouri, G. Kalantzis

## PSMMP PUBLICATIONS 2017

- *A GPU accelerated simulation annealing algorithm for IMRT optimization*, P. Galanakou, T. Leventouri, A. Georgakilas, G. Kalantzis, (IEEE proc. SNPD 2017).
- *A Novel Test to Verify the Accuracy and Limitations of the Cyberknife M6 Fiducial Synchrony® Respiratory Tracking for Linear and Rotational Respiratory Tumor Motion*. G Gibbard, C Shang IJROBP **99** (2), E663; 2017.
- *Radiobiological plan evaluation parameters for fractionated highdose rate gyn brachytherapy*, M. Shojaei, M. Rahman, S. Pella, G. Kalantzis (ICSHM 2017).

## Journal extended Abstracts

- *Effects of Therapeutic Radiation On Sperm in Prostate External Radiotherapy* SU-I-GPD-J-92 Medical Physics **44**, 2017. A Ataei\*, T Leventouri, S Pella.
- *Implementation of a Parallel Simulating Annealing Algorithm for Intensity Modulated Radiation Therapy Optimization*, SU-I-GPD-J-99, Medical Physics **44**, 2017, P Galanakou\*, T Leventouri, G Kalantzis.
- *Consistency of Treatment Volume Vs. Bladder and Rectum Anatomical Variations with Fractionated High-Dose Rate GYN Brachytherapy Using Multi Lumen Cylinders*, SU-I-GPD-J-104, Medical Physics **44**, 2017, M Shojaei\*, N Dumitru, S Pella, T Leventouri
- *Dosimetric Implications of the Organs at Risk in Vaginal Cuff Brachytherapy with Multi-Lumen Cylinder*, SU-I-GPD-T-37, Medical Physics **44**, 2017, N Dumitru, M Shojaei, S Pella, T Leventouri
- *The Consistency Dosimetric Analysis of the Accelerated Breast Brachytherapy*, J. Pinder, S. Chandrasekara, M. Hyvärinen, S. Pella, T. Leventouri, ESTRO 36, 5 - 9 May 2017, Vienna Austria.

## FL-AAPM Spring Meeting April 28-30, 2017, Orlando FL

- *Matlab toolkit for physics QA*. M. Mushfiqur Rahman, T. Leventouri, Georgios Kalantzis.
- *Evaluation of Sperm Quality Affected by Therapeutic Radiation* A. Ataei, S. Pella, Th. Leventouri.
- *Impact of the Dosimetric Consequences From Minimal Displacements throughout the Treatment Time in APBI With Savi Applicators*, Shereen Chandrasekara, Silvia Pella, Janeil Pinder.
- *The Consistency Dosimetric Analysis of the Accelerated Breast Brachytherapy*, J.Pinder, S. Chandrasekara, M. Hyvärinen, S. Pella, Th. Leventouri.
- *The Consistency of Treatment Volume with Fractionated High-Dose Rate GYN Brachytherapy Using Multi Lumen Cylinders*, M. Shojaei, N. Dumitru, M. Hyvarinen, J. Pinder, S. Pella, Th. Leventouri.

## PSMMP PUBLICATIONS 2016

- *"The Advantages of Collimator Optimization for Intensity Modulated Radiation Therapy"* International Journal of Cancer Therapy and Oncology (IJCTO). Brian E. Doozan, 2016, submitted.
- *"Phantom Study incorporating a diode array into the TPS for patient-specific QA"*, C. Casey, Z. Ouhib, Th. Leventouri, J. Applied Clinical Medical Physics (JACMP), submitted 2016.
- *Dosimetric and radiobiological comparison of CyberKnife M6™ InCise multileaf collimator over IRIS™ variable collimator in prostate stereotactic body radiation therapy*, Vindu Kathriarachchi, Charles Shang, Grant Evans, Th. Leventouri, and G. Kalantzis, J Med Phys **41**, 135-143 (2016).

## International/National Meetings

### AAPM 2016 July 31-August 4, 2016, Washington D.C.

- *Impact Of The Dosimetric Consequences From Minimal Displacements Throughout The Treatment Time In APBI With SAVI Applicators - S Chandrasekara, S Pella, M Hyvarinen, J Pinder.*
- *ACCELERATED PARTIAL BREAST IRRADIATION USING SAVI, MULTI LUMEN MAMMOSITE AND CONTURA APPLICATORS* S. Pella (invited speaker), A. Kyriacou, M. Chilukuri.
- *The Importance of Immobilization Devices in Brachytherapy Treatments of Vaginal Cuff - M Shojaei, N Dumitru, S Pella, A Bacala.*
- *The Consistency Dosimetric Analysis of the Accelerated Breast Brachytherapy - J Pinder, S Chandrasekara, S Pella, A Bacala.*
- *A Study of the Consistency of Brachytherapy Treatments for Vaginal Cuff* M Shojaei, S Pella, N Dumitru, A Bacala.
- *A Novel Test for Coincidence Between Light Fields and Electron Radiation Fields - G Gibbard, C Shang, S Khanal.*
- *A Technique for Modeling a Diode Array Into the TPS for Lung SBRT Patient Specific QA - C Curley, Z Ouhib, T Leventouri.*
- *A Potential Real Time AQA for Cyberknife Cones and MLC Based Treatments - C Shang, G Gibbard, J Cole, A Schramm, T Leventouri, S Khanal.*

### 2016 ASTRO Annual Meeting, September 25-28, Boston MA

- *THE IMPORTANCE OF LOCALIZATION AND IMMOBILIZATION IN TREATMENT FOR ENDOMETRIAL CANCER WITH HDR BRACHYTHERAPY USING MULTI LUMEN CYLINDERS*, N. Dumitru, M. Hyvarin, S. Pella, M. Shojaei.  
ABS World Annual Congress, June 27-28, 2016, San Francisco, CA
- *IMPACT OF THE DOSIMETRIC CONSEQUENCES FROM MINIMAL DISPLACEMENTS THROUGHOUT THE TREATMENT TIME IN APBI WITH SAVI APPLICATORS* S. Chandrasekara, S. Pella, M. Hyvarin.

- DOSIMETRIC IMPLICATIONS OF THE ORGANS AT RISK IN ADJUVANT VAGINAL CUFF BRACHYTHERAPY WITH MULTI LUMEN CYLINDER APPLICATORS, N. Dumitru, M. Hyvarin, S. Pella, M. Shojaei.

**2016 AAMD Annual Meeting, June 12-16, Atlanta GA**

- A DOSIMETRIC/BIOLOGICAL COMPARISON OF IMRT VERSUS RAPID ARC OPTIMIZATION IN WHOLE BREAST WITH AXILLARY NODE IRRADIATION S. Pella (invited speaker), N. Moshiri.
- Does Image Guidance Need to be Performed Before Every Session in Accelerated Partial Breast Irradiation With High-Dose-rate Brachytherapy? Implications on Treatment Planning and Fractional CT Scanning, S. Chandrasekara, J Pinder, M Shojaei, Silvia Pella, International journal of radiation oncology, biology, physics **96**(2S): E546 55 October 2016 57. DOI: 10.1016/j.ijrobp.2016.06.1995.
- The Importance of Localization and Immobilization in Treatment for Endometrial Cancer With High-Dose-Rate Brachytherapy Using Multilumen Cylinders, M. Shojaei, N. Dumitru, S. Chandrasekara, J. Pinder, M. Hyvarin, C. Curley, S. Pella, International Journal of Radiation Oncology, Biology, physics **96** (2S): E688: 55 October 2016, 57 DOI: 10.1016/j.ijrobp.2016.06.2350.

**2016 ESTRO Annual Meeting April 29-May 3, Turin, Italy**

DOSIMETRIC CONSEQUENCES FROM MINIMAL DISPLACEMENTS IN APBI BRACHYTHERAPY USING THE SAVI APPLICATOR S. Chandrasekara, S. Pella, J. Pindel.

**2016 FLAAPM Spring Meeting April 28-30, Orlando FL**

Oral Presentations

- Suraj Khanal, *A potential real-time AQA for Cyberknife Cones and MLC based treatments.*
- Stephanie Lewkowitz, *Sparse Modeling Applied to Patient Identification for Safety in Medical Physics Treatment.*
- Casey Curley, *Modeling the measurement environment: a dosimetric study for lung stereotactic body radiation therapy patient specific quality assurance.*

Poster Presentations

- Shereen Chandrasekara, *Assess variation in dose for OARs and importance of immobilization when using SAVI applicators*
- Grant Gibbard, *Validation of a novel real time QA device*
- Sadegh Mohammadi, *Investigation of 3 penalty methods for IMRT treatment planning*

## PSMMP PUBLICATIONS 2015

- *Evaluation of surface dose outside the treatment area for five breast cancer irradiation modalities using thermo-luminescent dosimeters*, Suraj P. Khanal, Zoubir Ouhib, Rashmi K Benda, Th. Leventouri, Intern. J. Cancer Therapy and Oncology, **3**, 2015 ISSN 2330-4049.
- *A computational study on different penalty approaches for constrained optimization in radiation therapy treatment planning with a simulated annealing algorithm*, Sadegh Mohamadi, Charles Shang, Zoubir Ouhib, Th. Leventouri, Georgios Kalantzis, 16th IEEE/ACIS International Conference on Software Engineering, Artificial Intelligence, Networking and Parallel/ Distributed Computing (SNPD) June 1-3, 2015, Takamatsu, Japan DOI:10.1109/SNPD.2015.7176174.
- *A GPU-based Pencil Beam Algorithm for Dose Calculations in Proton Radiation Therapy*, Georgios Kalantzis, Th. Leventouri, Hidenobu Tachibana, Charles Shang, Int. J. of Networked and Distributed Computing, **3** 243-249, 2015 ISSN: 2211-7946.
- *A computational tool for patient specific dosimetry and radiobiological modeling of selective internal radiation therapy with <sup>90</sup>Y microspheres*, Georgios Kalantzis, Th. Leventouri, Aditiya Apte, Charles Shang, Appl. Radiation and Isotopes, **105**, 123-129, 2015 DOI: 10.1016/j.apradiso.2015.08.009.
- *Dosimetric Evaluations Due to Minimal Displacements in Gynecological High Dose Rate Brachytherapy*, Nicolae Dumitru, Silvia Pella, Mikko Hyvarinen, Samantha Long, Th. Leventouri, Brachytherapy, **14**, 102, 2015.
- *Will CyberKnife M6™ Multileaf collimator offer advantages over IRIS™ collimator in prostate SBRT?* Kathriarachchi V, Shang CY, Kalantzis G, Leventouri Th., Med. Phys. **42**, AAPM Spring Clinical Meeting, St. Louis MO, March 7-10, 2015.
- *Should We Use RapidArc (VMAT) for Breast Treatments? A Dosimetric Comparison of IMRT Versus VMAT Optimization in Whole Breast Irradiation of Early Stage Breast Cancer*, SU-E-T-693:N Moshiri Sedeh, S Pella, T Leventouri, D Littlejohn and T Costantino Med. Phys. **42**, 3496 (2015); <http://dx.doi.org/10.1118/1.4925057>
- *A GPU-Based Pencil Beam Algorithm for Dose Calculations in Proton Radiation Therapy*, G Kalantzis, T Leventouri, H Tachibana and C Shang, Med. Phys. **42**, SU-E-T-373339 (2015); <http://dx.doi.org/10.1118/1.4924398>
- *Variations of Cardiac Dose at Different Respiratory Status in CyberKnife M6 Treatment Plans for Accelerated Partial Breast Irradiation (APBI)*, S Long, C Shang, G Evans and T Leventouri, Med. Phys. **42**, SU-E-T-797: 3521 (2015); <http://dx.doi.org/10.1118/1.4925161>.

## BOOK CHAPTER

*A GPU-based pencil beam algorithm for dose calculations of proton therapy*  
G. Kalantzis, T. Leventouri, H. Tachibana, C. Shang, (Studies in Computational Intelligence Vol. **612**, Editor: Roger Lee, Springer, 2015).

## International/National Meetings

- *Will CyberKnife M6™ Multileaf collimator offer advantages over IRIS™ collimator in prostate SBRT?*, Kathriarachchi V, Shang CY, Kalantzis G, Leventouri Th. AAPM Spring Clinical Meeting, St. Louis MO, March 7-10, 2015
- *Dosimetric Consequences from Minimal Displacements in APBI with SAVI applicators* ABS Annual meeting – Orlando FL
- *Will CyberKnife M6™ Multileaf collimator offer advantages over IRIS™ collimator in prostate SBRT?*, Kathriarachchi V, Shang CY, Kalantzis G, Leventouri Th. FLAAPM Annual Meeting, Orlando FL, May 1-2, 2015.
- *A Dosimetric Study of a Heterogeneous Phantom for Lung Stereotactic Body Radiation Therapy Comparing Monte Carlo and Pencil Beam Calculations to Dose Distributions Measured with a 2-D Diode Array*, Casey Curley, Zoubir Ouhib, Th. Leventouri, FLAAPM Annual Meeting, Orlando FL, May 1-2, 2015.
- *Variations of Cardiac Dose at Different Respiratory Status in CyberKnife M6 Treatment Plans for Accelerated Partial Breast Irradiation (APBI)*, S Long, C Shang, G Evans and T Leventouri, FLAAPM Annual Meeting, Orlando FL, May 1-2, 2015.
- *Will CyberKnife M6™ Multileaf collimator offer advantages over IRIS™ collimator in prostate SBRT?* Kathriarachchi V, Shang CY, Leventouri Th., Kalantzis G, FLAAPM Annual Meeting, Orlando FL, May 1-2, 2015.

## PSMMP PUBLICATIONS 2014

- **DOSIMETRIC CONSEQUENCES FROM MINIMAL DISPLACEMENTS IN APBS WITH SAVI APPLICATORS**, M. Hyvarinen S. Pella, N. Dumitru, Th. Leventouri, Annual Radiation Safety International meeting, 2014 Varna Bulgaria.
- **PLANNING TECHNIQUES WITH RESULTS IN ECLIPSE AND BRAINLAB FOR SBRT LUNG TUMORS**, B. Doozan, S. Pella (invited speaker), Bay Care Radiation Oncology 2014.
- **MOTION CONTROL CHALLENGES IN HDR BRACHYTHERAOY FOR ABPI TREATEMNT USING THE SAVI APPLICATORS**, M. Hyvarinen S. Pella, N. Dumitru, Th. Leventouri, AAPM, 2014 annual.
- **CHALLENGES IN MEASURING OUTPUT FACTORS FOR SMALL FIELDS UNDER 1 CM** C. Smith, S. Pella, A. Bacala, Th. Leventouri, AAPM, 2014 annual.
- **IMPROVING MOTION CONTROL IN HDR BRACHYTHERAPY FOR MULTY LUMEN CYLINDERS**, M. Hyvarinen S. Pella, N. Dumitru, Th. Leventouri, AAPM, 2014 annual.

- PLANNING TECHNIQUES WITH RESULTS IN ECLIPSE AND BRAINLAN FOR SBRT LUNG TUMORS, S. Pella, B. Doozan, Bay Care Radiation Oncology, 2014 annual.
- INVESTIGATION OF DOSE VARIATION WITH MINOR DISPLACEMENT IN HIGH DOSE RATE BRACHYTHERAPY, M. Hyvarinen, N. Dumitru, S. Long, C. Curley, S. Pella, Th. Leventouri, International RSNA, Varna, 2014.
- CHALLENGES IN COMMISSIONING SMALL FIELDS FOR SRS TREATMENT PLANNING SYSTEMS C. Smith, A. Bacala, S. Pella, AAPM Spring, 2014.
- THE IMPORTANCE OF MOTION CONTROL IN HIGH DOSE RATE BRACHYTHERAPY TREATMENTS, M. Hyvarinen, N. Dumitru, S. Long, S. Pella, Th. Leventouri, ABS, 2014 annual.
- *Measuring Output Factors for Photon Fields Smaller than 10 cm × 10 cm*, B Doozan, S Pella, A Bacala, Th. Leventouri, C Smith, J. Applied Clinical Medical Physics, **15**, No. 3, 2014.