

STUDENTS PUBLICATIONS

2024

Journal Papers

- Ahmed SBS, Naeem S, Khan AMH, Qureshi B, Hussain A, Aydogan B and Muhammad, W., *Artificial neural network-assisted prediction of radiobiological indices in head and neck cancer*. Frontiers in Artificial Intelligence. (2024).
- Shah, A. M., Lee, K. Y., Hidayat, A., Falchook, A., and Muhammad, W, *A Text Analytics Approach for Mining Public Discussions in Online Cancer Forum: Analysis of Multi-Intent Lung Cancer Treatment Dataset*. International Journal of Medical Informatics 105375, (2024).
- Azeem, U., Younis, H., Mehboob, K., Ajaz, M., Ali, M., Hidayat, A., Muhammad, W, *Radionuclide concentrations in agricultural soil and lifetime cancer risk due to gamma radioactivity in district Swabi, KPK, Pakistan*, Nuclear Engineering and Technology, **56**(1): 207-215, (2024).

Journal Extended Abstracts

- Ahmed, S. B. S., Khan, A. H., & Muhammad, W., *Radiomics assisted machine learning model for prediction of prostate-specific antigen levels*. Bulletin of the American Physical Society, (2024).
- Intakhab, B., Ali, A., and Muhammad, W., *Robust Lung Segmentation Method from CT Images Using Wavelet Transform and K-Means Clustering*. Bulletin of the American Physical Society, (2024).
- Dosimetric Impact of Single Arc Vs. Dual Arcs in Prostate Cancer Treatment: A Rapidplan Model Study Assessing Achievable Clinical Goals for Inexperienced Users Umesh Rana, Ding Nan¹, Noufal Manthala Padannayil, Shyam Pokharel, Nebi Demez², Awens Alphonse², Silvia Pella, Theodora Leventouri, Suresh Rana, PhD²Florida Atlantic University, Boca Raton, FL, Lynn Cancer Institute, Boca Raton Regional Hospital, Baptist Health South Florida, Boca Raton, FL
- Dosimetric Analysis of Partial Arcs for Accelerated Partial Breast Irradiation (APBI) Using Rapidarc Technique Ding Nan¹, Umesh Rana¹, Noufal Manthala Padannayil,, Awens Alphonse², Shyam Pokharel, Nebi Demez², Theodora Leventouri, PhD¹, Silvia Pella, Suresh Rana², (1)Florida Atlantic University, Boca Raton, FL, Lynn Cancer Institute, Boca Raton Regional Hospital, Baptist Health South Florida, Boca Raton, FL
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Abstracts, Regional/local

- Hidayat, A., Hart, G. R., and Muhammad, W., *Prediction of Head and Neck Cancer Using Artificial Neural Network through Basic Health Data*, FLAAPM Spring Meeting, April 18-20, Orlando FL, (2024)
- Abbasi, M. H., and Muhammad, W., *A Preliminary Assessment of the Potential to Reduce the Dose Delivery Time in Intensity-Modulated Proton Therapy Using the Innovative Rapidscan Technology on a Probeam Radiotherapy System with Eclipse Treatment Planning Software*, FLAAPM Spring Meeting, April 18-20, Orlando FL, (2024)
- Ahmed, S. B., S., Khan, A. M. H., Pervez, N., Khan, B. M., Yilmaz, S., Alfshawy, M., Almandhari, Z., Amri, I. A., and Muhammad, W., *Prognosis and Prediction of Treatment Response for Primary Glioblastoma Patients: An Artificial Intelligence Assisted Approach*, FLAAPM Spring Meeting, April 18-20, Orlando FL, (2024)
- Annual AAPM Meeting 2024, LA, California 2 students presentations (Umesh Rana

and Ding Nan).

- FLAAPM Spring Meeting, Orlando FL, 4 students presentations (Hamza Abbasi, Sadaa Alotaibi, Abdulah Hidayat, Saad Ahmed).

2023

Journal Publications

- Neupane, T., Galanakou, P., Shang, C., Leventouri, T., Kasper, M., & Muhammad, W*. A novel Monte Carlo (MC) dose model for small MLC fields of the cyberknife® M6TM radiosurgery system using the EGSnrc. *Journal of Applied Clinical Medical Physics*, e13880. (2023)
- *Viability of the virtual cone technique using a fixed small multi-leaf collimator field for treatment of trigeminal neuralgia*, Neupane T., Shang C., Kassel M., Muhammad W., Leventouri T., *Journal of Applied Clinical Medical Physics*. 24 (8), 2023 DOI: [10.1002/acm2.14148](https://doi.org/10.1002/acm2.14148)
- *Dosimetric effects of inserted non-radioactive elements in tumor area in proton therapy*, Galanakou P., Leventouri T., Muhammad W. *Frontiers in Physics* **11** 1261084 (2023).
- Ataei, A., Deng, J., Muhammad, W. *Liver Cancer Risk Quantification through an Artificial Neural Network based on Personal Health Data*, *Acta Oncologica*, 62(5) (2023).
- Galanakou, P., String, S., Shang, C., Tahir, S., Aydogan, B. Muhammad, W, *A multi-source-based Monte Carlo simulation model for spot scanning proton radiotherapy using GEANT4*. *Radiation Physics and Chemistry*, 208, p.110904. (2023)

Extended Abstracts

- *Prediction of normal tissue complication probability and equivalent uniform dose of organs at risk in lung cancer treatment plans using an Artificial Neural Network*. Pudasaini, M., Leventouri, T., Pella, S., Muhammad, W. *Bulletin of the American Physical Society* (2023).
- *Dosimetric Analysis of Non-Radioactive Elements Injected in Tumor Area in Proton Therapy through Monte Carlo Simulations*, Galanakou P., Leventouri, T. Muhammad, W., *Medical Physics*, 2023.
- *Dosimetric Analysis of Non-Radioactive Elements Injected in Tumor Area in Proton Therapy through Monte Carlo Simulations*. Galanakou, P.*, Leventouri, T. and **Muhammad, W***, *Medical Physics*; 2023.
- *A Monte Carlo Study of the Neutron Ambient Dose Equivalent from a Proton Pencil Beam Medical Therapy Unit*. Lopez, A. R., L., David G. Saez, D., G., and Muhammad, W., *Medical Physics*, 2023.
- *Radiomics Assisted Artificial Neural Network As Prognostic Tool for Cervical Cancer Therapy*, Ahmed, S. B., S., Hammad, A., Sehrish A., and Muhammad, W. *Medical Physics* 2023.
- Abbasi, M. H., Arif, H., Amjad, N., Siddique, M., T., Kakakhel, M., B., Shahid, A., B., and Muhammad, W, *Dosimetric Analysis of MR-Based Synthetic CTs for MR-Only Radiotherapy Planning*, *Medical Physics* 2023.
- *Prediction of normal tissue complication probability and equivalent uniform dose of organs at risk in lung cancer treatment plans using an Artificial Neural Network*, Pudasaini, M., Leventouri, T., Pella, S., and Muhammad, W. *Bulletin of the American Physical Society* 2023.

Abstracts, Regional/local

- Galanakou, P., Leventouri, T. and Muhammad, W., *Dosimetric Analysis of Non-Radioactive Elements Injected in Tumor Area in Proton Therapy through Monte Carlo Simulations*, FLAAPM Spring Meeting, April 27-29, Orlando FL, (2023)

- Lopez, A. R., L., David G. Saez, D., G. and Muhammad, W. *A Monte Carlo Study of the Neutron Ambient Dose Equivalent from a Proton Pencil Beam Medical Therapy Unit*, FLAAPM Spring Meeting, April 27-29, Orlando FL, (2023)
- Ahmed, S. B., S., Hammad, A., Sehrish A., and Muhammad, W., *Radiomics Assisted Artificial Neural Network As Prognostic Tool for Cervical Cancer Therapy*, FLAAPM Spring Meeting, April 27-29, Orlando FL, (2023)
- Abbasi, M. H., Arif, H., Amjad, N., Siddique, M., T., Kakakhel, M., B., Shahid, A., B., and Muhammad, W., *Dosimetric Analysis of MR-Based Synthetic CTs for MR-Only Radiotherapy Planning*, FLAAPM Spring Meeting, April 27-29, Orlando FL, (2023)

2022

Journal Publications

- Hart, G. R., Yan, V., Nartowt, B. J., Roffman, D. A., Stark, G., Muhammad, W., & Deng, J. Statistical Biopsy: An Emerging Screening Approach for Early Detection of Cancers. *Frontiers in Artificial Intelligence*, **5**, 288 (2022).
- Shah, A. M., Muhammad, W., and Lee, K. Examining the Determinants of Patient Perception of Physician Review Helpfulness across Different Disease Severities: A Machine Learning Approach. *Computational Intelligence and Neuroscience*. (ahead-of-print) (2022).
- Shah, A. M., Muhammad, W*, Ahmed, A., and Ahmed, S. B. S. Designing an IT-Based System for Optimizing Lung Cancer Management (2022).
- Qureshi, S. A., Rehman, A. U., Mir, A. A., Rafique, M. and **Muhammad, W***. Simulated Annealing-Based Image Reconstruction for Patients With COVID-19 as a Model for Ultralow-Dose Computed Tomography. *Frontiers in Physiology*, 2324 (2022).
- Galanakou, P., Leventouri, T. and Muhammad, W*. Non-radioactive elements for prompt gamma enhancement in proton therapy. *Radiation Physics and Chemistry*. **196**, 110132 (2022).

Extended Abstracts

- Bin Saeed A, Pudasaini M, Khan A, Muhammad, W., *AI-Assisted TCP/NTCP Predication Model for HNSCC Patients to Aid Treatment Plan Evaluation*. MEDICAL PHYSICS; 2022: WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA; 2022. p. E798-E798.
- Galanakou P, Leventouri T, Muhammad, W., *Stable Isotopes as Prompt Gamma Rays Enhancement Agents in Proton Therapy*. MEDICAL PHYSICS; 2022: WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA; 2022. p. E704-E704.
- Neupane T, Shang C, Leventouri T, Muhammad, W., *Viability of the Virtual Cone Technique Using a Fixed Small Multi-Leaf Collimator Field for Small Target Radiosurgery*. MEDICAL PHYSICS; 2022: WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA; 2022. p. E321-E321.
- T Neupane, C Shang, Muhammad, W., T Leventouri, *Evaluation of Dosimetric Uncertainties in Diminutive MLC Fields by "Fixed Virtual Cone Technique using Measurements and Monte Carlo Simulations*, *Bulletin of the American Physical Society* (2022).
- P Galanakou, T Leventouri, Muhammad, W., Is $^{11}\text{B}(p, \alpha)^8\text{Be}$ nuclear reaction contributing in proton therapy?, *Bulletin of the American Physical Society* (2022).
- Shah A. Muhammad, W., *What Matters the Most to Early-and Late-Stage Patients with Lung Cancer? A Dynamic Topic-Modeling Analysis of Big Data in Online Cancer*

Communities. MEDICAL PHYSICS; 2022: WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA; 2022. p. E678-E679.

- Ahmad S. B. S., Pudasaini M., Khan A., Muhammad, W., *AI-Assisted TCP/NTCP Prediction Model for HNSCC Patients to Aid Treatment Plan Evaluation*. MEDICAL PHYSICS; 2022: WILEY 111 RIVER ST, HOBOKEN 07030-5774, NJ USA; 2022. p. E798-E798.

2021

Journal Publications

- *An Attention Based Approach for Heartbeat Classification using Electrocardiogram Signals*, Sadegh Mohammadi, Th. Leventouri, Hanqi Zhuang, Journal of AI in Medicine , submitted.
- *Novel Monte Carlo Dose Verification Model for the Cyberknife® M6TM Radiosurgery System using the EGSnrc*, Taindra Neupane, Charles Shang, Theodora Leventouri, Wazir Muhammad, JACMP, submitted.

Extended Abstracts

(in Proceedings of the Annual AAPM Meeting)

- *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, *Medical Physics* 48(6): 111 (2021).
- *Evaluation of Dosimetric Uncertainties in Small Fields of the Varian EDGE Radiosurgery System Using Monte Carlo Simulations*, T. Neupane Taindra, C. Shang, W. Muhammad, T. Leventouri, *Medical Physics* (2021), 48(6) 111.
- *Non-Radioactive Elements for Prompt-Gamma Production Enhancement in Proton Therapy*, P. Galanakou, P., T. Leventouri, W. Muhammad *Medical Physics* (2021), 48(6): 111..
- Aslmarand, S. M., Fegghi, T., Muhammad, W., *Auto segmentation, detection, and countering of Lung nodule using convolutional neural networks*, *Bulletin of the American Physical Society* (2021), 66(1).
- Fegghi, T., Ataei, A., Muhammad, W., *Application of deep learning for the efficacy of radiation treatment for lung cancer*, *Bulletin of the American Physical Society* (2021), 66(1).
- Pudasaini, M., Leventouri, T., Pella, S., Muhammad, W., *Estimation of Radiobiological Indices in Radiotherapy of Lung Cancer using an Artificial Neural Network*, *Bulletin of the American Physical Society* (2021), 66(1).
- Neupane, T., Stevens, R., Shang, C., Muhammad, W., T. Leventouri, *A Monte Carlo Dose Verification Model for the Small Fields with 6FFF and 10FFF Energy Beams of the Varian True Beam (EDGE) Radiosurgery System*, *Bulletin of the American Physical Society* (2021), 66(1).
- Ataei, A., Fegghi, T., Leventouri, T., Muhammad, W., *Liver Cancer Risk Quantification through Artificial Neural Network*, *Bulletin of the American Physical Society* (2021), 66(1).

- Rikhtehgaran, S., Muhammad, W., *Efficient machine learning algorithms for investigating and comparing the risk factors of breast and prostate cancers among males and females*, *Bulletin of the American Physical Society* (2021), 66(1).

International Meetings Abstracts

- *Application of deep learning for efficacy of radiation treatment for lung cancer*, T. Fegghi, A. Ataei, W. Muhammad, *Bulletin of the American Physical Society* (2021), 66.
- *Estimation of Radiobiological Indices in Radiotherapy of Lung Cancer using an Artificial Neural Network*, M. Pudasaini, T. Leventouri, S. Pella, W. Muhammad *Bulletin of the American Physical Society* (2021), 66.
- *A Monte Carlo Dose Verification Model for the Small Fields with 6FFF and 10FFF Energy Beams of the Varian True Beam (EDGE) Radiosurgery System*, T. Neupane, R. Stevens, C. Shang, W. Muhammad, T. Leventouri, *Bulletin of the American Physical Society* (2021), 66(1).
- *Liver Cancer Risk Quantification through Artificial Neural Network*, A. Ataei, T. Fegghi, T. Leventouri, W. Muhammad *Bulletin of the American Physical Society* (2021), 66.
- *Non-Radioactive Elements for Prompt-Gamma Production Enhancement in Proton Therapy*, P. Galanakou, P., T. Leventouri, W. Muhammad *AAPM Medical Physics*.
- *Application of deep learning for efficacy of radiation treatment for lung cancer*, T. Fegghi, A. Ataei, W. Muhammad, *American Physical Society* (2021), 66.

FLAAPM Spring Meeting Virtual, March 11-12, Orlando FL

- *Application of deep learning for efficacy of radiation treatment for lung cancer*, T. Fegghi, A. Ataei, W. Muhammad.
- *Estimation of Radiobiological Indices in Radiotherapy of Lung Cancer using an Artificial Neural Network*, M. Pudasaini, T. Leventouri, S. Pella, W. Muhammad.
- *A Monte Carlo Dose Verification Model for the Small Fields with 6FFF and 10FFF Energy Beams of the Varian True Beam (EDGE) Radiosurgery System*, T. Neupane, R. Stevens, C. Shang, W. Muhammad.
- *Liver Cancer Risk Quantification through Artificial Neural Network*, A. Ataei, T. Fegghi, T. Leventouri, W. Muhammad.

2020

Journal Publications

- *Dosimetric comparison of treatment plans computed with Finite Size Pencil Beam and Monte Carlo algorithms using the InCiseT Multileaf collimator equipped CyberKnife® system*, Kalpani Udeni Galpayage, Charles Shang, Theodora Leventouri, *Journal of Medical Physics*, **45** March 3, (2020).
- *Stereotactic Body Radiation Therapy (SBRT) Lung Cancer Treatment Plans Comparison between HD MLC and Normal MLC*, M Pudasaini, S Pella, T Leventouri, W Muhammad, *Medical Physics* **47** (2020).
- *Investigation of Carbon Ion Radiation Therapy Range Uncertainties Via Prompt Gamma Rays Monitoring* P Galanakou, T Leventouri, W Muhammad, *Medical Physics* **47** (2020).
- *Monte Carlo Simulations of Varian Pro-Beam Compact Single-Room Proton Therapy System*, S. String, W. Muhammad, C. Shang *Medical Physics* (2020).

2020 AAPM Annual (Virtual Presentations)

- *Potential Efficacy of Monte Carlo Dose Calculation for 6MV FFF Beam of M6 CyberKnife using BEAMnrc and DOSXYZnrc in EGSnrc Code System*, Neupane T, Shang C, Muhammad W, Leventouri T.
- *Stereotactic Body Radiation Therapy (SBRT) Lung Cancer Treatment Plans Comparison between HD MLC and Normal MLC*, M. Pudasaini, S. Pella, Th. Leventouri, W. Muhammad.
- *Monitoring Prompt Gamma (PG) emission for reducing range uncertainties of carbon ion radiation for cancer treatments*, P. Galanakou, T. Leventouri, W. Muhammad.
- *Building a Dose Verification Model for M6 Cyberknife System using Monte Carlo Simulation*. Neupane T, Shang C, Muhammad W, Leventouri T, in the Joint AAPM/COMP.

2020 APS March Meeting (Virtual Presentations)

- *Characterization of neuroblastoma SH-SY5Y cell lines using dielectrophoresis*, Samaneh Rikhtehgaran, Luc T Wille, Th. Leventouri, Jianning Wei, E Du.
- *Potential Efficacy of Monte Carlo Dose Calculation for 6MV FFF Beam of M6 CyberKnife using BEAMnrc and DOSXYZnrc in EGSnrc Code System*, Neupane T, Shang C, Muhammad W, Leventouri T.
- *Stereotactic Body Radiation Therapy (SBRT) Lung Cancer Treatment Plans Comparison between HD MLC and Normal MLC*, M. Pudasaini, S. Pella, Th. Leventouri, W. Muhammad.
- *Monitoring Prompt Gamma (PG) emission for reducing range uncertainties of carbon ion radiation for cancer treatments*, P. Galanakou, T. Leventouri, W. Muhammad.

2020 FLAAPM, Spring Meeting, February 28-29, Orlando FL (in person)

- *Potential Efficacy of Monte Carlo Dose Calculation for 6MV FFF Beam of M6 CyberKnife using BEAMnrc and DOSXYZnrc in EGSnrc Code System*, Neupane T, Shang C, Muhammad W, Leventouri T.
- *Low energy proton beam contribution to the Spread-Out Bragg Peak* P. Galanakou, Th. Leventouri, S. String, W. Muhammad, FLAAPM, 2020.
- *Potential Efficacy of Monte Carlo Dose Calculation for 6MV FFF Beam of M6 CyberKnife using BEAMnrc and DOSXYZnrc in EGSnrc Code System*, Neupane T, Shang C, Muhammad W, Leventouri T.

2019

- *A study of wavelet-based denoising and a new shrinkage function for low- dose CT scans* Mohammadi, Sadegh; Leventouri, Theodora, Biomedical Physics & Engineering Express, BPEX-101275.R2, (2019).

AAPM Spring Meeting April 7–10, 2018 Las Vegas, NV

- *Potential Efficacy of Monte Carlo Dose Calculations of 6MV FFF Photon Beam of M6TM CyberKnife[®] using the EGSnrc Program*, T. Neupane, M. Rahman, C. Shang, T. Leventouri.

FL-AAPM Fall Meeting, September 26-27, 2019, St. Petersburg, FL

- *A GPU-based Simulating Annealing Algorithm for Intensity Modulated Radiation Therapy optimization*, P. Galanakou, Th. Leventouri'

- *CT Calibration Curve for Proton Therapy Treatment Planning*, Ghasemi M. Ghonchehnazi, Evans Grant, Charles Shang.
- *Development of a Microfluidic Device to Sort Sperm based on their Swimming Potential against the Flow*, Afrouz Ataei, A.W.C. Lau, W. Asghar.

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 Dumitru¹, 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 M6TM 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 InCiseTM 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.

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.

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 IRISTM 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.
- 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.*

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- *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.
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- *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.
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BOOK CHAPTER

A GPU-based pencil beam algorithm for dose calculations of proton therapy

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- *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.
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- 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 BRACHYTHERAPY FOR ABPI TREATMENT USING THE SAVI APPLICATORS, M. Hyvarinen S. Pella, N. Dumitru, Th. Leventouri, AAPM, 2014 annual.
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