

Clinical Studies

Many-isocenter Optimization for Robotic Radiotherapy, Qihui Lyu, Ryan Neph, Victoria Yu, Ran Ruan, Salime Boucher, Ke Sheng, Phys. Med. Biol. 65 (2020) 045003 (14pp)
<https://iopscience.iop.org/article/10.1088/1361-6560/ab63b8>

Self-Channel-and-Spatial-Attention Neural Network for Automated Multi-Organ Segmentation on Head and Neck CT Images, Tong, Nuo; Gou, Shuiping; Qi, Sharon; Yang, Shuyuan; Chin, Robert K.; Sheng, Ke, Physics and Medicine in Biology, 2020 <https://iopscience.iop.org/article/10.1088/1361-6560/ab79c3>

Fully Automated Pancreas Segmentation with Two-Stage 3D Convolutional Neural Networks, Ningning Zhao, Nuo Tong, Dan Ruan, and Ke Sheng MICCAI 2019, LNCS 11765, pp. 201–209, 2019
https://doi.org/10.1007/978-3-030-32245-8_23

DeepMCDose: A Deep Learning Method for Efficient Monte Carlo Beamlet Dose Calculation by Predictive Denoising in MR-Guided Radiotherapy Ryan Neph, Yangsibo Huang, Youming Yang, and Ke Sheng, AIRT 2019, LNCS 11850, pp. 137–145, 2019. https://doi.org/10.1007/978-3-030-32486-5_17

Automated 4π Radiotherapy Treatment Planning with Evolving Knowledge-Base Angelia Landers, Daniel O'Connor, Dan Ruan and Ke Sheng, Medical Physics 2019 <https://doi.org/10.1002/mp.13651>

Parallel Beamlet Dose Calculation via Beamlet Contexts in a Distributed Multi-GPU Framework, R. Neph, C. Ouyang, J. Neylon, Y. M. Yang, and K. Sheng, Medical Physics 2019 Aug;46(8):3719-3733.
<https://doi.org/10.1002/mp.13651>

Shape Constrained Fully Convolutional DenseNet with Adversarial Training for Multi-organ Segmentation on Head and Neck CT and Low Field MR Images Nuo Tong, Shuiping Gou, Shuyuan Yang, Minsong Cao, and Ke Sheng Medical Physics 2019 46 (6), June 2019 0094-2405
<https://doi.org/10.1002/mp.13553>

Shape Constrained Fully Convolutional DenseNet with Adversarial Training for Multi-organ Segmentation on Head and Neck CT and Low Field MR Images Nuo Tong, Shuiping Gou, Shuyuan Yang, Minsong Cao, and Ke Sheng Medical Physics 2019 46 (6), June 2019 0094-2405
<https://doi.org/10.1002/mp.13553>

Single-Arc VMAT optimization for Dual-Layer MLC, Qihui Lyu, Ryan Neph, Victoria Y Yu, Dan Ruan, Ke Sheng, Physics and Medicine in Biology, 2019 64 095028 DOI: [10.1088/1361-6560/ab0ddd](https://doi.org/10.1088/1361-6560/ab0ddd)

Fully Automatic Multi-Organ Segmentation for Head and Neck Cancer Radiotherapy Using Shape Representation Model Constrained Fully Convolutional Neural Networks, Nuo Tong, Shuiping Gou, Shuyuan Yang, Dan Ruan and Ke Sheng Medical Physics 2018 45(10) 0094-2405
<https://doi.org/10.1002/mp.13147>

Lyu, Qihui; Yu, Victoria; Ruan, Dan; Neph, Ryan; O'Connor, Daniel; Sheng, Ke, 2018 Phys. Med. Biol. 63 125013 <https://doi.org/10.1088/1361-6560/aac704>

VMAT optimization with dynamic collimator rotation , Qihui Lyu, Daniel O'Connor, Dan Ruan, Victoria Yu, Dan Nguyen, Ke Sheng, Medical Physics, 2018 <https://doi.org/10.1002/mp.12915>

4pi plan optimization for cortical-sparing brain radiotherapy Slava Murzin, Kaley Woods, Roshan Karunamuni, Tyler Seibert, Vitali Moiseenko, Daniel Simpson, Kathryn Tringale, Ke Sheng, Jona Hattangadi-Gluth, Radiotherapy and Oncology, Volume 127, Issue 1, April 2018, Pages 128-135 DOI: <https://doi.org/10.1016/j.radonc.2018.02.011>

Cochlea-Sparing Acoustic Neuroma Treatment with 4pi Radiotherapy Kaley Woods, Percy Lee, Tania Kaprealian, Isaac Yang, Ke Sheng, Advances in Radiation Oncology, 2018 In Press DOI: <https://doi.org/10.1016/j.adro.2018.01.004>

Fraction-variant beam orientation optimization for non-coplanar IMRT Daniel O'Connor, Victoria Yu, Dan Nguyen, Dan Ruan, Ke Sheng*, Physics in Medicine and Biology, In Press 2018 <https://doi.org/10.1088/1361-6560/aaa94f>.

A Prospective 4pi Radiotherapy Clinical Study in Recurrent High Grade Glioma Patients,Victoria Yu, Angelia Tran, Kaley Woods, Minsong Cao, Robert Chin, Ke Sheng*, Tania Karealian*, Int. Journal of Radiation Oncology, Biology, Physics, Volume 101, Issue 1, 1 May 2018, Pages 144-151, <https://doi.org/10.1016/j.ijrobp.2018.01.048>

Deterministic Direct Aperture Optimization Using Multiphase Piecewise Constant Segmentation, Dan Nguyen , Daniel O'Connor , Dan Ruan , Ke Sheng, Medical Physics 2017 44(10) <https://doi.org/10.1002/mp.12529>

Predicting Liver SBRT Eligibility and Plan Quality for VMAT and 4π Plans, Angelia Tran; Kaley Woods; Dan Nguyen; Victoria Yu; Tianye Niu; Minsong Cao; Percy Lee; Ke Sheng* Radiation Oncology 2017 12:70 <https://doi.org/10.1186/s13014-017-0806-z>

Treatment planning comparison of IMPT, VMAT and 4pi radiotherapy for prostate cases , Angelia Tran, Jingjing Zhang, Kaley Woods, Victoria Yu, Dan Nguyen, Gary Gustafson, Lane Rosen, and Ke Sheng* Radiation Oncology (2017) 12:10 <https://doi.org/10.1186/s13014-016-0761-0>

Viability of Non-Coplanar VMAT for Liver SBRT as Compared to Coplanar VMAT and Beam Orientation Optimized 4 IMRT Advances in Radiation Oncology Kaley Woods, Dan Nguyen, Angelia Tran, Victoria Y. Yu, Minsong Cao, Tianye Niu, Percy Lee, Ke Sheng*, Volume 1, Issue 1, January-March 2016, Pages 67-75 <https://doi.org/10.1016/j.adro.2015.12.004>

A Comprehensive Formulation for Volumetric Modulated Arc Therapy Planning Dan Nguyen, Qihui Lyu, Dan Ruan, Daniel O'Connor, Daniel A. Low, Ke Sheng* Medical Physics 43, 4263 (2016); <https://doi.org/10.1118/1.4953832>

Noncoplanar beams improve dosimetry quality for extracranial intensity modulated radiotherapy and should be used more extensively Ke Sheng*, David M. Shepard and Colin G. Orton, Medical Physics 42, 531 (2015); <https://doi.org/10.1118/1.4895981>

4pi Noncoplanar Stereotactic Body Radiation Therapy for Head and Neck Cancers - Potential to Improve Tumor Control and Late Toxicity. Rwigema JC; Nguyen D; Heron DE; Chen AM; Lee P; Wang P-C, Vargo

JA; Low DA, Huq S; Tenn S, Steinberg ML, Kupelian P, Ke Sheng*. Int J Radiat Oncol Biol Phys. Volume 91, Issue 2, 1 February 2015, Pages 401-409 <https://doi.org/10.1016/j.ijrobp.2014.09.043>

Dose Domain Optimization of MLC Leaf Patterns for Highly Complex IMRT Plans Dan Nguyen, Daniel O'Connor, Victoria Y. Yu, Dan Ruan, Minsong Cao, Daniel A. Low, Ke Sheng*, Medical Physics 42, 1858 (2015); <https://doi.org/10.1118/1.4915286>

Feasibility of prostate robotic radiation therapy on conventional C-arm linacs, Peng Dong, Christopher King, Yingli Yang, Daniel Low, Edwin Romeijn, Troy Long, Patrick Kupelian, Michael Steinberg, Ke Sheng*, Practical Radiation Oncology, (2014) 4, 254-260 (cover article)
<https://doi.org/10.1016/j.prro.2013.10.009>

Integral Dose Investigation of Non-coplanar treatment beam geometries in Radiotherapy , Dan Nguyen, Peng Dong, Troy Long, Dan Ruan, Daniel A. Low, Edwin Romeijn, Ke Sheng*, Med. Phys. 41, 011905 (2014) <https://doi.org/10.1118/1.4845055>

Feasibility of Using Intermediate X-ray Energies for Highly Conformal Extracranial Radiotherapy Peng Dong, Victoria Yu, Dan Nguyen, John Demarco, Kaley Woods, Salime Boucher, Daniel A Low, Ke Sheng*, Med. Phys. 41, 041709 (2014) <https://doi.org/10.1118/1.4868464>

Feasibility of extreme dose escalation for Glioblastoma Multiforme using 4pi radiotherapy, Dan Nguyen Jean-Claude Rwigema Victoria Yu Tania Kaprealian Patrick Kupelian Michael Selch Percy Lee Daniel Low and, Ke Sheng*, Radiat Oncol. 2014 Nov 7;9(1):239 <https://doi.org/10.1186/s13014-014-0239-x>

4pi radiotherapy for liver SBRT, Peng Dong, Percy Lee, Daniel Low, Edwin Romeijn, Troy Long, Patrick Kupelian Ke Sheng* Int J Radiat Oncol Biol Phys. 2013. 85(5): p. 1360-1366.
<https://doi.org/10.1016/j.ijrobp.2012.09.028>

4pi non-coplanar SBRT for centrally located or larger lung tumors, Peng Dong, Percy Lee, Yingli Yang, Daniel Low, Edwin Romeijn, Troy Long, Patrick Kupelian Ke Sheng*, Int J Radiat Oncol Biol Phys 2013 Jul 1;86(3):407-13 <https://doi.org/10.1016/j.ijrobp.2013.02.002>