Gregory C. Sharp

gcsharp@partners.org

Work address:
Department of Radiation Oncology
Massachusetts General Hospital
55 Fruit Street, Lunder LL274
Boston, MA 02114
617-724-3866 (phone)
617-726-3603 (fax)

Home address:
8 Leather Lane
Beverly, MA 01915
617-650-5845 (mobile)

Education and Appointments

2018-present	Harvard Medical School, Associate Professor, Radiation Oncology, Massachusetts General Hospital.
2008-2018	Harvard Medical School, Assistant Professor, Radiation Oncology, Massachusetts General Hospital.
2004-2008	Harvard Medical School, Instructor, Radiation Oncology, Massachusetts General Hospital.
2002-2004	Harvard Medical School, Postdoctoral Research Fellow, Radiation Oncology, Massachusetts General Hospital.
1997-2002	University of Michigan, Doctor of Philosophy, Electrical Engineering and Computer Sciences. Thesis advisor: Sang Wook Lee Thesis topic: “Automatic and Stable Multiview 3D Surface Registration.”
1998-2002	University of Michigan, Master of Science, Mathematics.
1995-1996	University of Wisconsin, Master of Science, Computer Sciences.
1985-1991	University of Wisconsin, Bachelor of Science, Electrical Engineering.

Employment

2004-present Medical Physicist, Department of Radiation Oncology, Massachusetts General Hospital, Boston, Massachusetts.

Board certified in Therapeutic Medical Physics (ABR, 2011).

Lead physicist for thoracic radiation therapy (2010-).

Lead physicist for image-guided radiation therapy (2008-).

Clinical: Varian and Elekta linear accelerators; CT and 4D-CT simulators; SBRT; on-board imaging; CBCT; EPID; respiratory gating; radiation measurement; quality assurance; computer systems; DICOM; OIS.

Research: image registration; image segmentation; image-guided radiotherapy, motion management; cone-beam CT; 4D-CT; high-performance computing; adaptive proton therapy.

Administrative: thoracic clinical collaborative committee co-chair (2010-), proton accelerator architectural oversight committee (2014-); ACR accreditation committee (2013-); physics policy committee (2015-2016); proton accelerator executive committee (2013-2014); proton accelerator selection committee (2012-2014); paperless task force (2008-2010), linac selection committee (2019-2020).

2002-2004 Research Fellow, Department of Radiation Oncology, Massachusetts General Hospital, Boston, Massachusetts.

Research and clinical implementation of image guided radiation therapy. Development of fluoroscopic guided respiratory gating for the IRIS system. Real-time imaging and tracking software design. Prediction of organ motion. Software reliability and testing. Deformable image registration.

1998-2002 Research Assistant, University of Michigan, Ann Arbor, Michigan.

Computer vision and robotics research. Surface registration methods for three-dimensional mapping for mobile robot navigation. Applied mathematics for solving large-scale multiview registration problems. Design custom range image acquisition hardware, calibration software, and registration software. Research empirical models for photometry in image-based rendering.

1992-1995 System Engineer, Intergraph Japan, Product Development Dept., Tokyo, Japan.

Product development. Develop and maintain Japanese versions of commercial PC and UNIX software products, including Microstation (3D surface CAD), I/EMS (3D solid CAD), PC-NFS (networking), ModelView (ray tracing), and I/RAS (scanning and image processing). Design software for machine-assisted translation of graphical user interfaces and on-line help from English to Japanese.

1990 Intern, Kodak R&D Japan, Software Development Dept., Yokohama, Japan.

Develop Japanese localized version of image database software for VAX VMS.

1988-1989 Intern, IBM, I/O Subsystems Dept., Rochester, MN and Fujisawa, Japan.
Develop embedded SCSI device drivers for peripheral CD-ROM and magneto-optical devices for AS400 computers.

Teaching

2019-present	"Cavity Theory," Harvard Medical Physics Residency Program, Boston, MA. Post-graduate training of medical physics residents.
2018-present	"CT," and "Patient Setup," Harvard Medical School Residency Program, Boston, MA. Post-graduate training of radiation oncology medical residents.
2013-present	"Image fusion workshop," and "Image transfer workshop," Harvard Medical Physics Residency Program, Boston, MA. Post-graduate training of medical physics residents.
2013-present	"Medical Physics Imaging Course," Harvard Medical School Residency Program, Boston, MA. Post-graduate seminar course to teach Medical Physics residents about medical imaging physics for radiotherapy.
2012-present	"PHYS 4651 – Medical Physics Seminar 1," Northeastern University, Boston, MA. Junior level seminar course, 1 semester, 6-8 students per semester, 20 hours in-class.
2012-present	"2-D simulation," "Image-guided radiation therapy," and "Image fusion," Harvard Medical Physics Residency Program, Boston, MA. Post-graduate training of medical physics residents.
2014-2017	"CT," "PET/CT," and "IGRT," Harvard Medical School Residency Program, Boston, MA. Post-graduate training of radiation oncology medical residents.
2013-2015	"HST.S14 – Optimization problems in radiation therapy and medical imaging," MIT, Cambridge, MA. Graduate level course, 1 semester, 10 students per semester, 8 hours in-class per semester.
2009-2013	"MS-L315 – Radiation Physics Laboratory," Suffolk University, Boston, MA. Sophomore level lab course, 4 semesters, 8-21 students per semester, 20 hours in-class per semester.
2010-2011	"C++ programming," Massachusetts General Hospital, Boston, MA. Senior level course, 1 semester, 15 students, 20 hours in-class teaching.
2007	"CSG144 – Pattern Recognition and Computer Vision," Northeastern University, Dept. of Computer and Information Sciences, Boston, MA. Graduate level course, 1 semester, 15 students, 40 hours in-class teaching.
2006	"CSG142 – Digital Image Processing," Northeastern University, Dept. of Computer and Information Sciences, Boston, MA. Graduate level course, 1 semester, 8 students, 40 hours in-class in-class teaching.
1997	"CSE 402 – Introduction to Operating Systems," University of Michigan, Dept. of Electrical Engineering and Computer Science, Ann Arbor, MI. Senior level class: 1 semester, 40 students, 25 hours in-class teaching.
1995-1996	"CS 302 – Introduction to Programming," University of Wisconsin, Dept. of Computer Sciences, Madison, WI. Freshman level class: 3 semesters, 110 students, 180 hours in-class teaching.

Mentoring

2020-present	PhD research advisor, Leonardo Machado, Unversity of Sao Paolo.
2019-present	Resident research advisor, Arthur Lalonde, MGH.
2019	Masters research advisor, Ruben Vissers, Eindhoven University of Technology.
2018-present	PhD research advisor, Keyur Shah, Drexel University.
2018-2020	PhD thesis committee, Irwin Tendler, Dartmouth University.
2018-2020	PhD thesis committee, Nitish Chopra, University of Massachusetts, Lowell.
2017-2019	PhD research advisor, Seyedali Mirzapourrezaei, Wichita State University.
2016	Postdoctoral advisor, Matteo Seregni, Politecnico di Milano.
2015-2016	Undergraduate research advisor, Xuhua Ren, Tianjin University.
2014-2018	PhD thesis committee, Pingge Jiang, Drexel Uuniversity.
2012-2017	PhD thesis committee, Rajath Soans, Drexel University.
2009-2017	PhD thesis advisor, Gueorge Gueorguiev, University of Massachusetts, Lowell.
2012-2015	Postdoctoral advisor, Justin Phillips, MGH.
2012-2015	PhD research advisor, Maxime Desplanque, Politecnico di Milano.
2014-2105	Undergraduate research advisor, Inna Gerstenshteyn, Boston University.
2014	Masters thesis advisor, Robert Hommes, Eindhoven University of Technology.
2013-2014	Masters thesis advisor, Joris Radermacher, Eindhoven University of Technology.
2012-2014	Postdoctoral advisor, Yang-Kyun Park, MGH.
2010-2014	Postdoctoral advisor, Nadya Shusharina, MGH.
2013	Masters research advisor, Dolla Toomeh, University of Massachusetts, Lowell.
2012-2013	PhD research advisor, Mengjiao Wang, Tsinghua University.
2012	Undergraduate research advisor, Andre Miguel Monteiro, Lisbon University.
2012	Undergraduate research advisor, Willem Rohl-Hill, University of Buffalo.
2011-2012	Postdoctoral advisor, James Shackleford, MGH.
2011-2012	Resident research advisor, Kent Riley, MGH.
2011-2012	Masters research advisor, Amelia Arbisser, MIT.
2011	Undergraduate research advisor, Ana Monica Lourenco, Lisbon University.
2011	Masters thesis advisor, Qi Yang, University of Heidelberg.
2010-2011	Research advisor, Esra Cansizoglu, Northeastern University.

Mentoring (cont.)

2009-2011	Masters thesis advisor, Robert Schneider, University of Massachusetts, Lowell.
2009-2011	Postdoctoral advisor, Rui Li, MGH.
2008-2011	PhD research advisor, Sila Kurugol, Northeastern University.
2008-2011	PhD research advisor, James Shackleford, Drexel University.
2009	Undergraduate research advisor, Edward Kim, MGH.2008 Masters thesis advisor, Patrick Hoyer, University of Heidelberg.
2008	PhD qualifying examiner, Northeastern University.
2008	Masters thesis committee, Burak Eram, Northeastern University.
2008	PhD thesis committee, Ying Cui, Northeastern University.
2006-2007	Postdoctoral advisor, Ziji Wu, Massachusetts General Hospital.
2005	PhD thesis committee, Vlad Boldea, Universite Lumiere Lyon 2.
2003	Masters thesis committee, Jason Ruel, Boston University.

Consulting

2013	Consultant, Northwestern University, Evanston, Illinois. Develop a CMake cross-platform build configuration system for the AIM library.
2002	Consultant, University of Michigan, Ann Arbor, Michigan. Develop a computer vision calibration, tracking and measurement system for performance evaluation of a hexapod robot. Develop segmentation-based and correlation-based pattern matching methods. Develop and tune multiple-hypothesis Kalman filter tracking methods. This software is available for free on the web at http://gtms.sourceforge.net.
2002	Consultant, University of Michigan, Ann Arbor, Michigan. Develop a computer vision calibration, tracking and measurement system for high-speed kinematic estimation of a running cockroach. Develop direction-dependant sub-pixel corner finding methods.
1999	Consultant, University of Michigan, Ann Arbor, Michigan. Develop another computer vision calibration, tracking and measurement system for performance evaluation of a hexapod robot.
1998	Consultant, Selectware, Livonia, Michigan. Develop computer vision calibration, tracking and curve fitting algorithms for real-time position estimation and visualization of a thrown bowling ball.
1997	Consultant, Goknar Behavioral Maps, Oak Park, Michigan. Develop expert system software for computer assisted psychiatric diagnosis and treatment.

Professional Service

2020	Workshop organizer, AAPM hands-on workshop on AI.
2019-present	Member, PTCOG online community committee.
2019-present	Member, AAPM working group, imaging for therapy planning.
2019-present	Member, AAPM Auditing committee.
2019-present	Member, AAPM board of directors, New England chapter representative.
2019	Member, AAPM Summer School faculty.
2019	Workshop organizer: AAPM RT-MAC MRI Autocontouring challenge, San Antonio TX.
2018	Immediate past presidentt, NEAAPM.
2017	President, NEAAPM.
2017	Workshop organizer: Auto-Segmentation for Thoracic Radiation Treatment Planning, Denver, CO.
2016	President-elect, NEAAPM. Organized four meetings for local AAPM chapter.
2015	Workshop organizer: Head and Neck Segmentation Challenge, Munich, Germany.
2015	Workshop organizer: Autoseg 2015, Toronto, ON.
2013-2018	Member: AAPM Therapy Imaging Subcommittee.
2007-present	Session chair: AAPM annual meeting.
2014-2015	Secretary: New England AAPM chapter.
2011-2014	Workshop organizer: 3D-Slicer user group, at AAPM annual meeting.
2014	Workshop organizer: MICCAI IGART workshop, Boston, MA.
2013	Workshop organizer: Autoseg 2013, Boston, MA.
2012-2014	Member: IT Infrastructure Committee, National registry of radiation oncology.
2012-2014	Corresponding member: ICRP Task Group 88: Radiological protection in cone-beam CT.
2007	Seminar series organizer: MGH physics research lecture series, Boston, MA.
2005	Member: Ad hoc Study Group on Safety Requirements Relating to Installation, Configuration and Maintenance of Networkable Medical Devices, Food and Drug Administration, Washington DC.
2005	Member: Working Group on Foundations of Integration, High Confidence Medical Devices System and Software, NCO/ITRD/NSF, Philadelphia PA.
2001-2002	President: Computer Science and Engineering Graduate student organization, University of Michigan.
2000-2001	Vice-President: Computer Science and Engineering Graduate student organization, University of Michigan.

Awards

2019-2023	Principle Investigator, NIH-1-R01-CA229178-01A1, “Fast Individualized Delivery Adaptation in Proton Therapy,” (Paganetti, PI)
2016-2019	Principle Investigator, NSF, “Collaborative Research: Optimization Methods for Real-time Organ-motion Management in Radiotherapy,” (Sharp, PI)
2016-2019	Principle Investigator, NSF, “Collaborative Research: SI2-SSE: High-Performance Work flow Primitives for Image Registration and Segmentation,” (Sharp, PI)
2014-2017	Investigator, Elekta Research Grant, “Motion management with online imaging,” (Winey, PI)
2011-2014	Investigator, NIH-2-R01-CA111590-05A1, “Four-dimensional Monte Carlo dose calculation,” (Paganetti, PI)
2013-2014	Principle Investigator, Ira J. Spiro translational research award, “The development of a biologically-guided target definition for localized and locally advanced non-small cell lung cancer,” (Sharp, PI)
2012-2014	Principle Investigator, NIH/MGH Federal Share Grant, “An open-source software for proton treatment planning,” (Sharp, PI)
2011-2013	Principle Investigator, NIH/MGH Federal Share Grant, “Reducing uncertainties in SBRT for Pancreatic Cancer,” (Sharp, PI)
2011-2014	Investigator, NIH-2-R01-CA111590-05A1, “Four-dimensional Monte Carlo dose calculation,” (Paganetti, PI)
2010-2014	Site PI, NIH-U54 2-U54-EB005149-06, National Alliance for Medical Image Computing, (Kikinis, PI)
2010-2011	Principle Investigator, Ira J. Spiro translational research award, “Adaptive radiotherapy for head and neck cancer,” (Sharp, PI)
2008-2010	Principle Investigator, NIH/MGH Federal Share Grant, “GPU-Accelerated Proton Dose Calculation,” (Sharp, PI)
2007-2012	Investigator, NIH-P01 CA021239-29A1, “Proton Therapy Radiation Research,” (DeLaney, PI)
2007-2012	Investigator, NIH-R01 CA118200-01A2, “Management of Breathing Effects in Radiotherapy Planning,” (Bortfeld, PI)
2005-2007	Investigator, NIH-R21 CA110177-01, “A Tumor Tracking System for Image Guided Radiotherapy,” (Jiang, PI)
2001	NSF Summer Institute in Korea, Sogang University, Seoul Korea. Research in facial animation for computer graphics.
1985-1991	Japanese Engineering Leadership Scholarship

Honors

2018	Editors Choice, Medical Physics.
2017	Editors Choice, Medical Physics.
2016	Highlight of 2016, Physics in Medicine and Biology
2015	Editors Pick, Medical Physics. (cover article!)
2014	Editors Pick, Medical Physics.
2012	Featured article, Physics in Medicine and Biology (twice!).
2008	Physics in Medicine and Biology Citation Award (7th most cited paper '03-'08)
2001	Rackham Scholar Nominee
1996	University of Wisconsin Outstanding Teaching Assistant Nominee
1991	Graduation with Distinction
1990	Certificate in Japanese Studies for Engineers
1985-1991	Dean’s Honor List

Professional Affiliations

1997-present	Member, Association for Computing Machinery.
2005-present	Member, American Association of Physicists in Medicine.
1997-2014	Member, IEEE and IEEE Computer Society.

Community Service

2017-present	MGH Youth Scholar mentor.
2017-present	Open Space and Recreation Committee, City of Beverly, MA.
2005-2013	Just ASK Mentorship program, University of Michigan Department of Engineering.
2000	Michigan Mentoring Program for gifted high school children.
1999	University of Michigan Tutoring Services program for gifted middle school children.

Languages

English and Japanese.

Peer Review (Current)

National Science Foundation (NSF)
Canada Institute for Health Research (CIHR)
Deutsche Forschungsgemeinschaft (DFG)

BMC Medical Imaging
British Journal of Radiology
Computer Methods and Programs in Biomedicine
International Journal of Radiation Oncology, Biology, Physics
Medical Image Analysis
Medical Physics (also Associate Editor)
Physica Medica
Physics in Medicine and Biology
Radiological Physics and Technology
Radiotherapy and Oncology
Zeitschrift fur Medizinische Physik

AAPM (American Association of Physicists in Medicine)
ASTRO (American Society for Radiation Oncology)
BIOIMAGING (Joint Conference on Biomedical Engineering Systems and Technologies)
ISBI (IEEE International Symposium on Biomedical Imaging)
MICCAI (Medical Image Computing and Computer Assisted Intervention)
World Congress on Medical Physics

Peer Review (Historic)

ACM Transactions on Graphics
BMC Medical Informatics and Decision Making
Computer Vision Image Understanding
IEEE Transactions on Image Processing
IEEE Transactions on Pattern Analysis and Machine Intelligence
IEEE Transactions on System, Man and Cybernetics
IEEE Transactions on Multimedia
IEEE Transactions on Information Technology in Biomedicine
Journal of Applied Clinical Medical Physics
Journal of Radiation Research
Machine Vision and Applications
Nuclear Instruments and Methods in Physics Research Section A
Pattern Recognition
Pattern Recognition Letters

CVPR (IEEE Conference of Computer Vision and Pattern Recognition)
ICCR (International Conference on the Use of Computers in Radiotherapy)
ICECS (IEEE Circuits and Systems)
ICRA (IEEE International Conference of Robotics and Automation)

Peer Reviewed Journal Articles

1. Lalonde A, Winey BA, Verburg JM, Paganetti H, Sharp GC. Evaluation of CBCT scatter correction using deep convolutional neural networks for head and neck adaptive proton therapy [published online ahead of print, 2020 Jun 24]. *Phys Med Biol*. 2020;10.1088/1361-6560/ab9fcb. doi:10.1088/1361-6560/ab9fcb
2. Cardenas CE, Mohamed ASR, Yang J, et al. Head and neck cancer patient images for determining auto-segmentation accuracy in T2-weighted magnetic resonance imaging through expert manual segmentations. *Med Phys*. 2020;47(5):2317-2322. doi:10.1002/mp.13942
3. Tendler II, Bruza P, Jermyn M, et al. Technical Note: A novel dosimeter improves total skin electron therapy surface dosimetry workflow. *J Appl Clin Med Phys*. 2020;21(6):158-162. doi:10.1002/acm2.12880
4. Meschini G, Kamp F, Hofmaier J, et al. Modeling RBE-weighted dose variations in irregularly moving abdominal targets treated with carbon ion beams. *Med Phys*. 2020;47(7):2768-2778. doi:10.1002/mp.14135
5. Yang J, Veeraraghavan H, van Elmpt W, Dekker A, Gooding M, Sharp G. CT images with expert manual contours of thoracic cancer for benchmarking auto-segmentation accuracy. *Med Phys*. 2020;47(7):3250-3255. doi:10.1002/mp.14107
6. Kim J, Park YK, Sharp G, Busse P, Winey B. Beam angle optimization using angular dependency of range variation assessed via water equivalent path length (WEPL) calculation for head and neck proton therapy. *Phys Med*. 2020;69:19-27. doi:10.1016/j.ejmp.2019.11.021
7. Zhang X, Tang J, Sharp GC, Xiao L, Xu S, Lu HM. A new respiratory monitor system for four-dimensional computed tomography by measuring the pressure change on the back of body. Br J Radiol. 2020;:20190303.
8. Mirzapour SA, Mazur TR, Sharp GC, Salari E. Intra-fraction motion prediction in MRI-guided radiation therapy using Markov processes. Phys Med Biol. 2019 Aug 1.
9. Doolan, P. J., et al. "Higher order analysis of time-resolved proton radiographs." *Biomedical Physics & Engineering Express* 5.5 (2019): 057002.
10. Meschini G, Seregni M, Molinelli S, Vai A, Phillips J, Sharp GC, Pella A, Valvo F, Ciocca M, Riboldi M, Paganetti H, Baroni G. Validation of a model for physical dose variations in irregularly moving targets treated with carbon ion beams. Med Phys. 2019 Aug;46(8):3663-3673.
11. Li Y, Dykstra M, Best TD, et al. Differential inflammatory response dynamics in normal lung following stereotactic body radiation therapy with protons versus photons. Radiother Oncol. 2019;136:169-175.
12. Tappeiner E, Pröll S, Hönig M, et al. Multi-organ segmentation of the head and neck area: an efficient hierarchical neural networks approach. Int J Comput Assist Radiol Surg. 2019;
13. Shusharina N, Fullerton B, Adams JA, Sharp GC, Chan AW. Impact of aeration change and beam arrangement on the robustness of proton plans. J Appl Clin Med Phys. 2019;20(3):14-21.
14. Maier-hein L, Eisenmann M, Reinke A, et al. Author Correction: Why rankings of biomedical image analysis competitions should be interpreted with care. Nat Commun. 2019;10(1):588.
15. Huo W, Zwart T, Cooley J, et al. A single detector energy-resolved proton radiography system: a proof of principle study by Monte Carlo simulations. Phys Med Biol.

2019;64(2):025016.
16. Zhang R, Sharp GC, Jee KW, et al. Iterative optimization of relative stopping power by single detector based multi-projection proton radiography. Phys Med Biol. 2019;64(6):065022.
17. Edmunds, David, Greg Sharp, and Brian Winey. "Automatic diaphragm segmentation for real-time lung tumor tracking on cone-beam CT projections: a convolutional neural network approach." *Biomedical Physics & Engineering Express* 5.3 (2019): 035005.
18. Maier-hein L, Eisenmann M, Reinke A, et al. Why rankings of biomedical image analysis competitions should be interpreted with care. Nat Commun. 2018;9(1):5217.
19. Kim J, Park YK, Edmunds D, Oh K, Sharp GC, Winey B. Kilovoltage projection streaming-based tracking application (KiPSTA): First clinical implementation during spine stereotactic radiation surgery. Adv Radiat Oncol. 2018;3(4):682-692.
20. Yang J, Veeraraghavan H, Armato SG, et al. Autosegmentation for thoracic radiation treatment planning: A grand challenge at AAPM 2017. Med Phys. 2018;45(10):4568-4581.
21. Chang Y, Sharp GC, Li Q, et al. Subject-specific Brain Tumor Growth Modelling via An Efficient Bayesian Inference Framework. Proc SPIE Int Soc Opt Eng. 2018;10574
22. Moteabbed M, Trofimov A, Khan FH, et al. Impact of interfractional motion on hypofractionated pencil beam scanning proton therapy and VMAT delivery for prostate cancer. Med Phys. 2018;
23. Speier C, Pileggi G, Izquierdo-garcia D, et al. Advanced Multimodal Methods for Cranial Pseudo-CT Generation Validated by IMRT and VMAT Radiation Therapy Plans. Int J Radiat Oncol Biol Phys. 2018;102(4):792-800.
24. Pileggi G, Speier C, Sharp GC, et al. Proton range shift analysis on brain pseudo-CT generated from T1 and T2 MR. Acta Oncol. 2018;57(11):1521-1531.
25. Zaffino P, Ciardo D, Raudaschl P, et al. Multi atlas based segmentation: should we prefer the best atlas group over the group of best atlases?. Phys Med Biol. 2018;63(12):12NT01.
26. Botas P, Grassberger C, Sharp G, Paganetti H. Density overwrites of internal tumor volumes in intensity modulated proton therapy plans for mobile lung tumors. Phys Med Biol. 2018;63(3):035023.
27. Baer E, Lalonde A, Zhang R, Jee KW, Yang K, Sharp GC, Liu B, Royle G, Bouchard H, Lu HM. “Experimental validation of two dual-energy CT methods for proton therapy using heterogeneous tissue samples. Med Phys, Jan 2018. https://doi.org/10.1002/mp.12666. **Editors Choice.**
28. Zhang R, Jee KW, Cascio E, Sharp GC, Flanz JB, Lu HM. Improvement of single detector proton radiography by incorporating intensity of time-resolved dose rate functions. Phys Med Biol. 2017;63(1):015030.
29. Zhang R, Baer E, Jee KW, Sharp GC, Flanz J, Lu HM. “Investigation of real tissue water equivalent path lengths using an efficient dose extinction method.” Phys Med Biol. 2017 Jun 23;62(14):5640-5651. doi: 10.1088/1361-6560/aa782c.
30. Raudaschl PF, Zaffino P, Sharp GC, et al. “Evaluation of segmentation methods on head and neck CT: Auto-segmentation challenge 2015.” Med Phys. 2017 May;44(5):2020-2036. doi: 10.1002/mp.12197. Epub 2017 Apr 21. **Editors Choice.**
31. Moteabbed M, Trofimov A, Sharp GC, Wang Y, Zietman AL, Efstathiou JA, Lu HM. “Proton therapy of prostate cancer by anterior-oblique beams: implications of setup and anatomy variations.” Phys Med Biol. 2017 Mar 7;62(5):1644-1660. doi: 10.1088/1361-6560/62/5/1644. Epub 2017 Feb 6. PMID: 28166057.

32. Wachinger C, Brennan M, Sharp G, Golland P. Efficient Descriptor-Based Segmentation of Parotid Glands with Non-Local Means. IEEE Trans Biomed Eng. 2016 Sep 16. doi: 10.1109/TBME.2016.2603119. [Epub ahead of print] PMID: 28113224.
33. Jee KW, Zhang R, Bentefour EH, Doolan PJ, Cascio E, Sharp G, Flanz J, Lu HM. Investigation of time-resolved proton radiography using x-ray flat-panel imaging system. Phys Med Biol. 2017 Mar 7;62(5):1905-1919. doi: 10.1088/1361-6560/aa5a43. Epub 2017 Jan 18. PMID: 28099164.
34. Kim J, Park YK, Sharp G, Busse P, Winey B. "Water equivalent path length calculations using scatter-corrected head and neck CBCT images to evaluate patients for adaptive proton therapy." Phys Med Biol. 2017 Jan 7;62(1):59-72. Epub 2016 Dec 14. PMID: 27973351.
35. Kurz C, Kamp F, Park YK, Zöllner C, Rit S, Hansen D, Podesta M, Sharp GC, Li M, Reiner M, Hofmaier J, Neppl S, Thieke C, Nijhuis R, Ganswindt U, Belka C, Winey BA, Parodi K, Landry G. "Investigating deformable image registration and scatter correction for CBCT-based dose calculation in adaptive IMPT." Med Phys. 2016 Oct;43(10):5635. PMID: 27782706
36. Saleh Z, Thor M, Apte AP, Sharp G, Tang X, Veeraraghavan H, Muren L, Deasy J. A multiple-image-based method to evaluate the performance of deformable image registration in the pelvis. Phys Med Biol. 2016 Aug 21;61(16):6172-80. doi: 10.1088/0031-9155/61/16/6172. Epub 2016 Jul 29. PMID: 27469495. **Highlight of 2016.**
37. He B, Huang C, Sharp G, Zhou S, Hu Q, Fang C, Fan Y, Jia F. Fast automatic 3D liver segmentation based on a three-level AdaBoost-guided active shape model. Med Phys. 2016 May;43(5):2421. Doi: 10.1118/1.4946817. PMID: 27147353
38. Bian J, Sharp GC, Park YK, Ouyang J, Bortfeld T, El Fakhri G. "Investigation of cone-beam CT image quality trade-off for image-guided radiation therapy." Phys Med Biol. 2016 May 7;61(9):3317-46. doi: 10.1088/0031-9155/61/9/3317. Epub 2016 Apr 1.
39. Moteabbed M, Trofimov A, Sharp GC, Wang Y, Zietman AL, Efstathiou JA, Lu HM. "A Prospective Comparison of the Effects of Interfractional Variations on Proton Therapy and Intensity Modulated Radiation Therapy for Prostate Cancer." Int J Radiat Oncol Biol Phys. 2016 May 1;95(1):444-53. doi: 10.1016/j.ijrobp.2015.12.366. Epub 2015 Dec 29.
40. Kolesov I, Lee J, Sharp G, Vela P, Tannenbaum A. "A Stochastic Approach to Diffeomorphic Point Set Registration with Landmark Constraints. IEEE Trans Pattern Anal Mach Intell. 2016 Feb;38(2):238-51. doi: 10.1109/TPAMI.2015.2448102. PMID: 26761731
41. Gueorguiev G, Cotter C, Turcotte JC, Crawford B, Sharp G, Mah'D M. "Clinical implementation and error sensitivity of a 3D quality assurance protocol for prostate and thoracic IMRT." J Appl Clin Med Phys. 2015 Sep 8;16(5):5392. PMID: 26699299
42. Park YK, Sharp GC, Phillips J, Winey BA. "Proton dose calculation on scatter-corrected CBCT image: Feasibility study for adaptive proton therapy." Med Phys. 2015 Aug;42(8):4449. **Cover Article.**
43. Speier, C., et al. "Pseudo-CT generation from T1 and T2-weighted brain MRI based on a localised correlation approach." *Med Phys* 42.8 (2015): 4974-86.
44. Dowdell S, Grassberger C, Sharp G, Paganetti H. Fractionated Lung IMPT Treatments: Sensitivity to Setup Uncertainties and Motion Effects Based on Single-Field Homogeneity. Technol Cancer Res Treat. 2016 Oct;15(5):689-96. doi: 10.1177/1533034615595761. Epub 2015 Jul 24. PMID: 26208837
45. Rehani MM, Gupta R, Bartling S, Sharp GC, Pauwels R, Berris T, Boone JM.

"Radiological Protection in Cone Beam Computed Tomography (CBCT). ICRP Publication 129.", Ann ICRP. 2015 Jul;44(1):9-127.

46. Hani Al-Halabi, Peter Paetzold, Gregory C. Sharp, Christine Olsen, Henning Willers. A Contralateral Esophagus-Sparing Technique to Limit Severe Esophagitis Associated With Concurrent High-Dose Radiation and Chemotherapy in Patients With Thoracic Malignancies. Int J Radiat Oncol Biol Phys., Volume 92, Issue 4, 15 July 2015, Pages 803–810.
47. Wachinger C, Fritscher K, Sharp G, Golland P. "Countour-Driven Atlas-Based Segmentation." IEEE Trans Med Imaging. 2015 Dec;34(12):2492-505.
48. Grassberger C, Dowdell S, Sharp G, Paganetti H. "Motion mitigation for lung cancer patients treated with active scanning proton therapy." Med Phys. 2015 May;42(5):2462-9.
49. Park YK, Sharp GC. Gain Correction for an X-ray Imaging System With a Movable Flat Panel Detector and Intrinsic Localization Crosshair. Technol Cancer Res Treat. 2016 Apr;15(2):387-95. doi: 10.1177/1533034615576829. Epub 2015 Mar 20. PMID: 25795048
50. Doolan PJ, Testa M, Sharp G, Bentefour EH, Royle G, Lu HM. "Patient-specific stopping power calibration for proton therapy planning based on single-detector proton radiography," Phys Med Biol. 2015 Mar 7;60(5):1901-17.
51. Moteabbed M, Sharp GC, Wang Y, Trofimov A, Efstathiou JA, Lu HM. "Validation of a deformable image registration technique for cone beam CT-based dose verification," Med Phys. 2015 Jan;42(1):196-205.
52. Shusharina N, Sharp GC, Choi NC. "Correlation of 18F-FDG PET avid volumes on pre-radiation therapy and post-radiation therapy FDG PET scans in recurrent lung cancer. In reply to Saraiya et al," Int J Radiat Oncol Biol Phys. 2014 Nov 15;90(4):969-70.
53. Phillips J, Gueorguiev G, Shackleford JA, Grassberger C, Dowdell S, Paganetti H, Sharp GC. "Computing proton dose to irregularly moving targets," Phys Med Biol. 2014 Aug 7;59(15):4261-73.
54. Grassberger C, Daartz J, Dowdell S, Ruggieri T, Sharp G, Paganetti H. "Quantification of proton dose calculation accuracy in the lung." Int J Radiat Oncol Biol Phys. 2014 Jun 1;89(2):424-30.
55. Fritscher KD, Peroni M, Zaffino P, Spadea MF, Schubert R, Sharp G. "Automatic segmentation of head and neck CT images for radiotherapy treatment planning using multiple atlases, statistical appearance models, and geodesic active contours," Med Phys. 2014 May;41(5):051910. **Editor's Pick.**
56. Sharp G, Fritscher KD, Pekar V, Peroni M, Shusharina N, Veeraraghavan H, Yang J. "Vision 20/20: perspectives on automated image segmentation for radiotherapy." Med Phys. 2014 May;41(5):050902.
57. Wang M, Sharp GC, Rit S, Delmon V, Wang G. "2D/4D marker-free tumor tracking using 4D CBCT as the reference image." Phys Med Biol. 2014 May 7;59(9):2219-33.
58. Shusharina N, Cho J, Sharp GC, Choi NC. "Correlation of (18)F-FDG avid volumes on pre-radiation therapy and post-radiation therapy FDG PET scans in recurrent lung cancer." Int J Radiat Oncol Biol Phys. 2014 May 1;89(1):137-44.
59. Saleh ZH, Apte AP, Sharp GC, Shusharina NP, Wang Y, Veeraraghavan H, Thor M, Muren LP, Rao SS, Lee NY, Deasy JO. "The distance discordance metric-a novel approach to quantifying spatial uncertainties in intra- and inter-patient deformable image registration," Phys Med Biol. 2014 Feb 7;59(3):733-46.
60. Peroni M, Golland P, Sharp GC, Baroni G, "Stopping Criteria for Log-Domain

Diffeomorphic Demons Registration: An Experimental Survey for Radiotherapy Application," Technol Cancer Res Treat, 2013, Aug 31.
61. Wang Y, Efstathiou JA, Lu HM, Sharp GC, Trofimov A, Hypofractionated proton therapy for prostate cancer: dose delivery uncertainty due to interfractional motion," Medical physics, 2013 Jul;40(7):071714.
62. Dowdell S, Grassberger C, Sharp GC, Paganetti H. "Interplay effects in proton scanning for lung: A 4D Monte Carlo study assessing the impact of tumor and beam delivery parameters," Physics in Medicine and Biology, 2013 Jun 21;58(12):4137-56.
63. Peroni, M., Spadea, M.F., Riboldi, M., Falcone, S., Vaccaro, C., Sharp, G.C., Baroni, G. "Validation of Automatic Contour Propagation for 4D Treatment Planning using Multiple Metrics," Technol Cancer Res Treat, Vol 12 , pp 501-510, Jun 2013.
64. Jason Efstathiou, et al., "Practice-based evidence to evidence-based practice: building the National Radiation Oncology Registry," J Oncol Pract, 2013 May;9(3):e90-5.
65. Esra Ataer-Cansizoglu, Erhan Bas, Jayashree Kalpathy-Cramer, Gregory C. Sharp, Deniz Erdogmus, "Contour-based shape representation using principal curves," Pattern Recognition, Volume 46, Issue 4, April 2013, Pages 1140-1150.
66. Li R, Sharp G. "Robust fluoroscopic tracking of fiducial markers: exploiting the spatial constraints," Physics in medicine and biology, 2013 Mar 21;58(6):1789-808.
67. Grassberger C, Dowdell S, Lomax A, Sharp G, Shackleford J, Choi N, Willers H, Paganetti H., Motion interplay as a function of patient parameters and spot size in spot scanning proton therapy for lung cancer, Int J Radiat Oncol Biol Phys. 2013 Jun 1;86(2):380-6.
68. Chiara Paganelli, Marta Peroni, Marco Riboldi, Gregory C Sharp, Delia Ciardo, Daniela Alterio, Roberto Orecchia and Guido Baroni, "Scale invariant feature transform in adaptive radiation therapy: a tool for deformable image registration assessment and re-planning indication," Physics in Medicine and Biology, 2013 Jan 21;58(2):287-99.
69. Nadezhda Shusharina, Gregory C Sharp, "Image registration using radial basis functions with adaptive radius," Medical Physics, Vol 39, No 11, pp 6542-9, Nov 2012.
70. Ben M Clasie, Gregory C Sharp, Joao Seco, Jacob B Flanz, Hanne M Kooy, "Numerical solutions of the gamma index in two and three dimensions," Physics in Medicine and Biology, Vol 57, No 21, pp 6981-97, Nov 7, 2012. **Featured Article.**
71. Guy Warmerdam, Philipp Steininger, Marcus Neuner, Gregory C Sharp, Brian Winey, "Influence of imaging source and panel position uncertainties on the accuracy of 2D"3D image registration of cranial images," Medical Physics, Vol 39, No 9, pp 5547-56, Sep 2012.
72. Philipp Steininger, Marcus Neuner, Harald Weichenberger, Gregory C Sharp, Brian Winey, Gerhard Kametriser, Felix F Sedlmayer, Heinz Deutschmann, "Auto-masked 2D/3D image registration and its validation with clinical cone-beam computed tomography," Physics in Medicine and Biology, Vol 57, No 13, pp 4277-92, Jul 7, 2012.
73. Josh L Hallman, Shinichiro Mori, Gregory C Sharp, Hsiao-Ming Lu, Theodore S Hong, George TY Chen, "A four-dimensional computed tomography analysis of multiorgan abdominal motion," International Journal of Radiation Oncology, Biology, Physics, Vol 83, No 1, pp 435-41, May 1, 2012.
74. Nadezhda Shusharina, Gregory C Sharp, "Analytic regularization for landmark-based image registration," Physics in Medicine and Biology, Vol 57, No 6, pp 1477-98, Mar 21, 2012. **Featured Article.**
75. Keelin Murphy, et al., "Evaluation of registration methods on thoracic CT: The

EMPIRE10 challenge," IEEE Transactions on Medical Imaging, Vol 30, No 11, pp 1901-20, Nov 2011.
76. Yi Wang, Jason A Efstathiou, Gregory C Sharp, Hsiao-Ming Lu, IF Ciernik, Alexei V Trofimov, "Evaluation of the dosimetric impact of interfractional anatomical variations on prostate proton therapy using daily in-room CT images," Med Phys, Vol 38, No 8, pp 4623-33, Aug 2011.
77. Brian Winey, Greg Sharp, Marc Bussière, "A fast double template convolution isocenter evaluation algorithm with subpixel accuracy," Med Phys, Vol 38, No 1, pp 233-237, Jan 2011.
78. Spadea MF, Baroni G, Gierga DP, Turcotte JC, Chen GT, Sharp GC. , "Evaluation and commissioning of a surface based system for respiratory sensing in 4D CT," J Appl Clin Med Phys. 2010 Dec 4;12(1):3288.
79. Shinichiro Mori, Nobuyuki Kanematsu, Hiroshi Asakura, Gregory C Sharp, Motoki Kumagai, Suguru Dobashi, Mio Nakajima, Naoyoshi Yamamoto, Susumu Kandatsu, Masayuki Baba, "Four-dimensional lung treatment planning in layer-stacking carbon ion beam treatment: comparison of layer-stacking and conventional ungated/gated irradiation," International Journal of Radiation Oncology, Biology, Physics, Oct 23, 2010.
80. James A Shackleford, Nagarajan Kandasamy, Gregory C Sharp, "On developing B-spline registration algorithms for multi-core processors," Physics in Medicine and Biology, Vol 55, No 21, pp 6329-6351, Nov 7, 2010.
81. Michael F Gensheimer, Torunn I Yock, Norbert J Liebsch, Gregory C Sharp, Harald Paganetti, Neel Madan, P Ellen Grant, Thomas Bortfeld, "In vivo proton beam range verification using spine MRI changes," International Journal of Radiation Oncology, Biology, Physics, Vol 78, No 1, pp 268-275, Sep 1, 2010.
82. Maria Francesca Spadea, Marta Peroni, Eleonora Preve, Marco Riboldi, Guido Baroni, George TY Chen, Gregory Charles Sharp, "Uncertainties in lung motion prediction relying on external surrogate: a 4DCT study in regular vs. irregular breathers," Technology in Cancer Research & Treatment, Vol 9, No 3, pp 307-316, Jun 2010.
83. Joyatee Sarker, Alan Chu, Kit Mui, John A Wolfgang, Ariel E Hirsch, George T Y Chen, Gregory C Sharp, "Variations in tumor size and position due to irregular breathing in 4D-CT: a simulation study," Medical Physics, Vol 37, No 3, pp 1254-1260, Mar 2010.
84. Kristy K Brock, et al., "Results of a multi-institution deformable registration accuracy study (MIDRAS)," International Journal of Radiation Oncology, Biology, Physics, Vol 76, No 2, pp 583-596, Feb 1, 2010.
85. Shinichiro Mori, Takeshi Yanagi, Ryusuke Hara, Gregory C Sharp, Hiroshi Asakura, Motoki Kumagai, Riwa Kishimoto, Shigeru Yamada, Hirotoshi Kato, Susumu Kandatsu, Tadashi Kamada, "Comparison of respiratory-gated and respiratory-ungated planning in scattered carbon ion beam treatment of the pancreas using four-dimensional computed tomography," International Journal of Radiation Oncology, Biology, Physics, Vol 76, No 1, pp 303-312, Jan 1, 2010.
86. Marco Riboldi, Gregory C Sharp, Guido Baroni, George TY Chen, "Four-dimensional targeting error analysis in image-guided radiotherapy," Physics in Medicine and Biology, Vol 54, No 19, pp 5995-6008, Oct 7, 2009.
87. M Kumagai, S Mori, GC Sharp, H Asakura, S Kandatsu, M Endo, M Baba, "Dosimetric variation due to CT inter-slice spacing in four-dimensional carbon beam lung therapy," Physics in Medicine and Biology, Vol 54, No 10, pp 3231-46, May 21, 2009.
88. Christian Vrancić, Alexei Trofimov, Timothy C Y Chan, Gregory C Sharp, Thomas

Bortfeld, “Experimental evaluation of a robust optimization method for IMRT of moving targets,” Physics in Medicine and Biology, Vol 54, No 9, pp 2901-2914, May 7, 2009.

89. S Mori, R Hara, T Yanagi, GC Sharp, M Kumagai, H Asakura, R Kishimoto, S Yamada, S Kandatsu, T Kamada. “Four dimensional measurement of intrafractional motion of pancreatic tumors using a 256 multi-slice CT scanner,” Radiotherapy and Oncology, Vol 92, No 2, pp 231-237, Aug 2009.
90. Alexei Trofimov, Christian Vrancic, Timothy C. Chan, Gregory C. Sharp, Thomas Bortfeld, “Tumor trailing strategy for intensity-modulated radiation therapy of moving targets,” Medical Physics, Vol 35, No 5, pp 1718-33, May 2008.
91. David P Gierga, Marco Riboldi, Julie C Turcotte, Greg C Sharp, Steve B Jiang, Alphonse G Taghian, George T Y Chen, “Comparison of target registration errors for multiple image-guided techniques in accelerated partial breast irradiation,” International Journal of Radiation Oncology, Biology, Physics, Vol 70, No 4, pp 1239-1246, Mar 15, 2008.
92. Vlad Boldea, Gregory C. Sharp, Steve B. Jiang, David Sarrut, “4D-CT lung motion estimation with deformable registration: quantification of motion nonlinearity and hysteresis,” Medical Physics, Vol 35, No 3, pp 1008-1018, March 2008.
93. Ziji Wu, Eike Rietzel, Vlad Boldea, David Sarrut, Gregory C. Sharp, “Evaluation of deformable registration of patient lung 4DCT with sub-anatomical region segmentations,” Medical Physics, Vol 35, No 2, pp 775-81, February 2008.
94. Joao Seco, Gregory C. Sharp, Ziji Wu, David P. Gierga, Florian Buettner, Harald Paganetti, “Dosimetric impact of motion in free-breathing and gated lung radiotherapy: a 4D Monte Carlo study of intrafraction and interfraction effects,” Medical Physics, Vol 35, No 1, pp. 356-66, January 2008.
95. Gregory C. Sharp, Sang W. Lee, David K. Wehe, “Maximum likelihood registration of range images with missing data,” IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol 30, No 1, pp 120-30, January 2008.
96. Ying Cui, Jennifer G Dy, Gregory C Sharp, Brian Alexander, Steve B Jiang, “Multiple template based fluoroscopic tracking of lung tumor mass without implanted fiducial markers,” Physics in Medicine and Biology, Vol 52, No 20, pp 6229-42, October 21, 2007.
97. Gregory Sharp, Nagarajan Kandasamy, Harman Singh, Michael Folkert, “GPU-based streaming architectures for fast cone-beam CT image reconstruction and demons deformable registration,” Physics in Medicine and Biology, Vol 52, No 19, pp 5771-83, October 7, 2007.
98. E Kanoulas, J A Aslam, G C Sharp, R I Berbeco, S Nishioka, H Shirato, S B Jiang, “Derivation of the tumor position from external respiratory surrogates with periodical updating of internal/external correlation,” Physics in Medicine and Biology, Vol 52, No 17, pp 5443-5456, Sep 7 2007.
99. H Wu, GC Sharp, Q Zhao, H Shirato, SB Jiang, “Statistical analysis and correlation discovery of tumor respiratory motion,” Physics in Medicine and Biology, Vol 52, No 16, pp 4761-74, Aug 21 2007.
100. Hsiao-Ming Lu, Robert Brett, Gregory Sharp, Soiros Safai, Steve Jiang, Jay Flanz, George Chen, Hanne Kooy, “A respiratory-gated treatment system for proton therapy,” Medical Physics, Vol 34, No 8, pp. 3273-3278, August 2007.
101. Xiaoli Tang, Gregory C. Sharp, Steve B. Jiang, “Fluoroscopic tracking of multiple implanted fiducial markers using multiple object tracking,” Physics in Medicine and Biology, Vol 52, No 14, pp 4081-98, Jun 11 2007.

102. Joao Seco, Gregory C. Sharp, Julie Turcotte, David P. Gierga, Thomas Bortfeld, Harald Paganetti, “Effects of intra-fraction motion on IMRT treatment with segments of few monitor units,” Medical Physics, Vol 34, No 3, pp. 923-934, March 2007.
103. Ying Cui, Jennifer G. Dy, Greg C. Sharp, Brian Alexander, Steve B. Jiang, “Robust fluoroscopic respiratory gating for lung cancer radiotherapy without implanted fiducial markers,” Physics in Medicine and Biology, Vol 52, No 3, pp 741–755, Feb 7 2007.
104. Stella Flampouri, Steve B. Jiang, Gregory C. Sharp, John Wolfgang, Abhijit A Patel, Noah C. Choi, “Estimation of the delivered patient dose in lung IMRT treatment based on deformable registration of 4D-CT data and Monte Carlo simulations,” Physics in Medicine and Biology, Vol 51, No 11, pp. 2763-79, June 7 2006.
105. Khaled Aljarrah, Greg C. Sharp, Toni Neicu, Steve B. Jiang, “Determination of the initial beam parameters in Monte Carlo linac simulation,” Medical Physics, Vol 33, No 4, pp. 850-8, April 2006.
106. H Shirato, K Suzuki, GC Sharp, K Fujita, R Onimaru, M Fujino, N Kato, Y Osaka, R Kinoshita, H Taguchi, S Onodera, K Miyasaka, “Speed and amplitude of lung tumor motion precisely detected in four-dimensional setup and in real-time tumor-tracking radiotherapy,” International Journal of Radiation Oncology, Biology, Physics, Vol 64, No 4, pp. 1229-36, March 15, 2006.
107. Steve B. Jiang, Gregory C. Sharp, Toni Neicu, Ross I. Berbeco, Stella Flampouri, Thomas Bortfeld, “On dose distribution comparison,” Physics in Medicine and Biology, Vol 51, No 4, pp 759-776, February 21, 2006.
108. Gregory C. Sharp, Shashidhar Kollipara, Thomas Madden, Steve B. Jiang, Stanley J. Rosenthal, “Anatomic feature-based registration for patient setup in head and neck cancer radiotherapy,” Physics in Medicine and Biology, Vol 50, No 19, pp 4667-4679, October 7, 2005.
109. Ross I. Berbeco, Hassan Mostafavi, Gregory C. Sharp, Steve B. Jiang, “Towards fluoroscopic respiratory gating for lung tumours without radiopaque markers,” Physics in Medicine and Biology, Vol 50, No 19, pp 4481-4490, October 7, 2005.
110. David P. Gierga, Johanna Brewer, Gregory C. Sharp, Margrit Betke, Christopher G. Willett, George T.Y. Chen, “The correlation between internal and external markers for abdominal tumors: implications for respiratory gating,” International Journal of Radiation Oncology, Biology, Physics, Vol 61, No 5, pp. 1551-1558, July 15, 2005.
111. Martijn Engelsman, Gregory C. Sharp, Thomas Bortfeld, Rikiya Onimaru, Hiroki Shirato, “How much margin reduction is possible through gating or breath-hold?,” Physics in Medicine and Biology, Vol 50, No 3, pp. 477-490, February 7, 2005.
112. Gregory C. Sharp, Steve B. Jiang, Shinichi Shimizu, Hiroki Shirato, “Tracking errors in a prototype real-time tumor tracking system,” Physics in Medicine and Biology, Vol 49, No 23, pp. 5347-5356, December 7, 2004.
113. Huanmei Wu, Gregory C. Sharp, Betty Salzberg, David Kaeli, Hiroki Shirato, Steve B. Jiang, “A finite state model for respiratory motion analysis in image guided radiation therapy,” Physics in Medicine and Biology, Vol 49, No 23, pp. 5357-5372, December 7, 2004.
114. Gregory C. Sharp, Sang W. Lee, David K. Wehe, “Multiview registration of 3D scenes by minimizing error between coordinate frames,” IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol 26, No 8, pp 1037-1050, August, 2004.
115. Gregory C. Sharp, Steve B. Jiang, Shinichi Shimizu, Hiroki Shirato, “Prediction of respiratory tumour motion for real-time image-guided radiotherapy,” Physics in Medicine

and Biology, Vol 49, No 3, pp 425-440, February 7, 2004. **PMB Citation Award.**

116. Ross I Berbeco, Steve B Jiang, Gregory C Sharp, George T Y Chen, Hassan Mostafavi, Hiroki Shirato, "Integrated Radiotherapy Imaging System (IRIS): Design considerations of tumour tracking with linac gantry-mounted diagnostic x-ray systems with flat-panel detectors," Physics in Medicine and Biology, Vol 49, No 2, pp 243-257, January 21, 2004.
117. Gregory C. Sharp, Sang W. Lee, David K. Wehe, "ICP registration using invariant features," IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol 24, No 1, pp 90-102, January 2002.

Full-Length Conference and Workshop Articles

1. Reinke, Annika, et al. "How to exploit weaknesses in biomedical challenge design and organization." *International Conference on Medical Image Computing and Computer-Assisted Intervention*. MICCAI 2018.
2. Fritscher, Karl, et al. "Deep neural networks for fast segmentation of 3D medical images." *International Conference on Medical Image Computing and Computer-Assisted Intervention*. Springer, MICCAI 2016.
3. Bian, Junguo, et al. "Preliminary investigation of CBCT imaging optimization for Image-guided radiation therapy." *2014 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)*. IEEE, 2014.
4. Wachinger C, Sharp GC, Golland P. “Contour-driven regression for label inference in atlas-based segmentation.” MICCAI 2013;16(Pt 3):211-8, Shanghai, China.
5. JA Shackleford, Q Yang, AM Lourenco, N Shusharina N Kandasamy, GC Sharp, “Analytic regularization of uniform cubic B-spline deformation fields,” MICCAI 2012, Vol 2, pp 122-129, Nice, France, Oct 2012.
6. JA Shackleford, N Kandasamy and GC Sharp, "Accelerating MI-based B-spline registration using CUDA enabled GPUs,” MICCAI DCICTIA Workshop, Nice, France, Oct 2012.
7. JA Shackleford et al., “Plastimatch 1.6: Design, architecture, and future directions,” MICCAI IGMDP Workshop, Nice, France, Oct 2012.
8. S Kurugol, E Bas, D Erdogmus, J Dy, G Sharp, D Brooks, “Centerline extraction with principal curve tracing to improve 3D level set esophagus segmentation in CT images,” EMBC 2011, Boston, MA, August 2011.
9. M Peroni, P Golland, G Sharp, G Baroni, “Ranking of Stopping Criteria for Log Domain Diffeomorphic Demons Application in Clinical Radiation Therapy,” EMBC 2011, Boston, MA, August 2011.
10. G Sharp, M Peroni, R Li, J Shackleford, N Kandasamy, “Evaluation of Plastimatch B-Spline Registration on the EMPIRE10 Data Set,” Medical Image Analysis for the Clinic: A Grand Challenge, MICCAI 2010, Beijing, September, 2010.
11. S Kurugol, N Ozay, JG Dy, GC Sharp, DH Brooks, “Locally Deformable Shape Model to Improve 3D Level Set Based Esophagus Segmentation,” ICPR 2010, pp 3955-3958, Istanbul, August 2010.
12. I Kolesov, V Mohan, G Sharp, A Tannenbaum, “Coupled Segmentation for Anatomical Structures by Combining Shape and Relational Spatial Information,” MTNS 2010, Budapest, Hungary, July, 2010.
13. S Kurugol, N Ozay, G Sharp, J Dy, DH Brooks, “3D Segmentation of Esophagus in Thoracic CT Images for Radiation Theraphy Planning,” ICCR 16, Amsterdam, May 2010.
14. G Sharp, R Li, J Wolfgang, GTY Chen, M Peroni, MF Spadea, S Mori, J Zhang, J Shackleford, N Kandasamy, “Plastimatch – An Open Source Software Suite for Radiotherapy Image Processing,” ICCR 16, Amsterdam, May 2010.
15. R Li, G Sharp, “Fast and Robust Tracking of Multiple Implanted Fiducial Markers in Fluoroscopy,” ICCR 16, Amsterdam, May 2010.
16. J Wolfgang, A Gemmel, J Lee, G Sharp, GTY Chen, “Development of a Volume Rendering Visualization Toolkit for Clinical Radiotherapy Applications,” ICCR 16, Amsterdam, May 2010.
17. J Shackleford, G Sharp, N Kandasamy, “Accelerating the Feldkamp, Davis, and Kress

Back-Projection Algorithm Using GPUs," ICCR 16, Amsterdam, May 2010.

18. M Spadea, P Zaffino, M Peroni, M Riboldi, G Sharp, G Baroni, "Quantitative evaluation of a deformable registration toolkit," ICCR 16, Amsterdam, May 2010.
19. S Kurugol, JG Dy, GC Sharp, DH Brooks, "3D level set esophagus segmentation in thoracic CT images using spatial, appearance and shape models," ISBI 2010, pp 444-447, Rotterdam, April 2010.
20. M Peroni, J Stancanello, A Muacevic, M Riboldi, MF Spadea, GC Sharp, G Baroni, "Feasibility study of B-spline deformable registration between CT and MRI atlas for trigeminal neuralgia application to radiosurgery," IFMBE Proceedings 2010, Vol 25, No 4, pp 1649-52, Munich, September, 2009.
21. M Peroni, MF Spadea, M Riboldi, G Baroni, GTY Chen, GC Sharp, "Validation of an automatic contour propagation method for lung cancer 4D adaptive radiation therapy," ISBI 2009, Boston, MA, June 2009.
22. MF Spadea, M Peroni, M Riboldi, G Baroni, GTY Chen, G Sharp, "Analysis of 4D CT cine images for the characterization of organ motion due to breathing," MICCAI Workshop on Pulmonary Image Analysis, New York NY, September 2008.
23. Y Cui, JG Dy, GC Sharp, BM Alexander, SB Jiang, "Learning methods for lung tumor markerless gating in image-guided radiotherapy," KDD 2008, pp 902-910.
24. B. Erem, GC Sharp, Z Wu, DR Kaeli, "Interactive deformable registration, visualization, and analysis of 4D computed tomography" International Conference on Medical Biometrics, pp 232-239, Hong Kong, January 2008.
25. G. Sharp, "A fast approximate normalized cross-correlation algorithm," ICCR 15, Toronto, June 2007.
26. J Seco, Z Wu, G Sharp, D Gierga, H Paganetti, "Accounting for temporal effects in Monte Carlo simulations for lung cancer radiation therapy," ICCR 15, Toronto, June 2007.
27. M. Spadea, M. Riboldi, G. Baroni, G. Chen, G. Sharp, "Correlation analysis between external and internal motion based on 4D-CT data," ICCR 15, Toronto, June 2007.
28. Ziji Wu, Gregory Sharp, Eike Rietzel, Vlad Boldea, David Sarrut, "Validation of Deformable Registration of Lung 4DCT with Anatomical Sub-region Segmentations," ICCR 15, Toronto, June 2007.
29. Vlad Boldea, Gregory C. Sharp, Steve B. Jiang, David Sarrut, "Lung Motion Modeling with Deformable Registration: Nonlinearity and Hysteresis Estimation and Analysis," ICCR 15, Toronto, June 2007.
30. Gregory C. Sharp and Nagarajan Kandasamy, "A Dependable System Architecture for Safety-Critical Respiratory-Gated Radiation Therapy," International Conference on Dependable Systems and Networks (DSN-DCCS), pp 55-60, June 2006.
31. M. Betke, J. Ruel, G. C. Sharp, S. B. Jiang, D. P. Gierga, and G. T. Y. Chen, "Tracking and prediction of tumor movement in the abdomen," Proceedings of the 6th International Workshop on Pattern Recognition in Information Systems - PRIS 2006, pages 27-37, May 2006.
32. Joon Kyu Seo, Gregory C. Sharp, Sang Wook Lee, "Range Data Registration Using Photometric Features," CVPR 2005, pp 1140-1145, June 2005.
33. Huanmei Wu, Betty Salzberg, Gregory C Sharp, Steve B Jiang, Hiroki Shirato, David Kaeli, "Subsequence Matching on Structured Time Series Data," ACM SIGMOD Conference, pp 682-693, June 2005.
34. Gregory C. Sharp, Shashidhar Kollipara, Thomas Madden, Stanley J. Rosenthal, Steve B. Jiang, "Anatomic Feature-Based Registration for Patient Setup in Head and Neck Cancer

Radiotherapy," 14th International Conference on the Use of Computers in Radiation Therapy, pp 78-81, May 2004.

35. Ross I. Berbeco, Hassan Mostafavi, Gregory C. Sharp, Steve B. Jiang, "Tumor Tracking in the Absence of Radiopaque Markers," 14th International Conference on the Use of Computers in Radiation Therapy, pp 433-436, May 2004.
36. Steve B. Jiang, Thomas Bortfeld, Alex Trofimov, Eike Rietzel, Greg Sharp, Noah Choi, George T. Y. Chen, "Synchronized Moving Aperture Radiation Therapy (SMART): Treatment Planning using 4D CT Data," 14th International Conference on the Use of Computers in Radiation Therapy, pp 429-432,May 2004.
37. Gregory C. Sharp, Sang W. Lee, David K. Wehe, "Multiview Registration of 3D Scenes by Minimizing Error Between Coordinate Frames," European Conference of Computer Vision (ECCV), pp. 587–597, May 2002.
38. Gregory C. Sharp, Sang W. Lee, David K. Wehe, "Toward Multiview Registration in Frame Space," IEEE International Conference on Robotics and Automation, pp. 3542–3547, June 2001.
39. Gregory C. Sharp, Sang W. Lee, David K. Wehe, "Invariant Features and the Registration of Rigid Bodies," IEEE International Conference on Robotics and Automation, pp 932–937, May 1999.
40. Kevin Y. Wei, Gregory C. Sharp, "Incorporating Shared Relevance Feedback into a Web Search Engine," WebNet 97 - World Conference on the WWW, Internet & Intranet, November 1997.

Abstracts and Posters

1. H Moazami Goudarzi, T Mazur, S Mirzapour, G Sharp, E Salari. A Control-Theoretic Framework for Intra-Fraction Motion Management in MRI-Guided Radiotherapy, AAPM/ COMP 2020, Virtual Meeting, July 2020.
2. A Lalonde, B Winey, J Verburg, H Paganetti, G Sharp. CBCT Scatter Correction Using Monte Carlo Simulations and Deep Convolutional Neural Networks for Adaptive Proton Therapy, AAPM/COMP 2020, Virtual Meeting, July 2020.
3. Y Xie, G Sharp, D Gierga, T Hong, T Bortfeld, K Kang. An IGRT Safety Check: Automated T12 Vertebra Detection in CT and CBCT, AAPM/COMP 2020, Virtual Meeting, July 2020.
4. M Bobic, A Lalonde, G Sharp, C Grassberger, J Verburg, B Winey, A Lomax, H Paganetti. Weekly Vs. Daily Online Adaptation for Head and Neck Intensity-Modulated Proton Therapy, AAPM/COMP 2020, Virtual Meeting, July 2020.
5. J Pursley, G Maquilan, G Sharp. Quantitative Versus Qualitative and Dosimetric Evaluation of Automated Segmentations, AAPM/COMP 2020, Virtual Meeting, July 2020.
6. Y Xu, H Kooy, N Depauw, J Shin, G Sharp, B Winey, K Jee, B Clasie. Validation of the Proton Pristine Bragg Peak in a Compact Synchrotron Treatment System, AAPM/COMP 2020, Virtual Meeting, July 2020.
7. K Shah, J Shackleford, N Kandasamy, G Sharp. A Generalized Framework for Analytic Regularization of Uniform Cubic B-Spline Deformation Fields, AAPM/COMP 2020, Virtual Meeting, July 2020.
8. N Chopra, T Dou, R Mak, G Sharp, E Sajo. Radiomics-Dosiomics Approach Improves Prediction of Radiation Pneumonitis Compared to DVH Data in Lung Cancer Patients, AAPM/COMP 2020, Virtual Meeting, July 2020.
9. N Chopra, T Dou, G Sharp, H Aerts, R Mak. Radio-Dosiomics Evaluation of Peritumoral Volumes to Predict Radiation Pneumonitis, AAPM 2019, San Antonio, TX, July 2019.
10. W Huo, T Zwart, J Cooley, K Jee, G Sharp, S Rosenthal, X Xu, H Lu. A Monte-Carlo Study of Proton Radiography of Lung Tumor in Motion, AAPM 2019, San Antonio, TX, July 2019.
11. A Mirzapour, T Mazur, H Li, E Salari, G Sharp. Cumulative Dose Modeling for Organ Motion Management in MRI-Guided Radiation Therapy, AAPM 2019, San Antonio, TX, July 2019.
12. L Zhang, G Sharp, K Jee, E Cascio, J Flanz, J Tang, H Lu. Proton Radiography of Tumor Motion Based On Phase Sorting of Energy-Resolved Dose Measurement, AAPM 2019, San Antonio, TX, July 2019.
13. SK Proell, K. Fritscher, G. Sharp. Patch-Based Local Intensity Correction for CT/CBCT Deformable Registration, AAPM 2019, San Antonio, TX, July 2019.
14. C Grassberger et al., Inflammatory response dynamics in early stage lung cancer patients after treatment with proton versus photon radiation. PTCOG 58, Manchester, UK, June 2018.
15. N Shusharina, et al., Aeration change and beam arrangement justify mid-treatment adaptation of proton treatment plans. PTCOG 58, Manchester, UK, June 2018.
16. HM Lu, et al., Imaging tumor motion by the proton radiography technique based on energy-resolved dose measurement. PTCOG 58, Manchester, UK, June 2018.
17. GC Sharp, S Mirzapourrezaei, T Mazur, N Kandasamy, J Shackleford, E Salari, Real-

Time Deformable Image Registration for MRI-Guided Radiotherapy, Radiological Society of North America (RSNA), Chicago, IL. Nov 2018.

18. B Winey*, G Sharp , B Clasie. Installing a Proton Therapy Machine Like a LINAC, AAPM 2018, Nashville, TN, July 2018.
19. C Finley, K Jee, T Zwart, G Sharp, W Huo, M Jones, K Huang, D Catanzano, J Cooley, S Rosenthal, H Lu. Derivation of Energy-Resolved Dose Functions Using a Flat-Panel Detector for a PBS System, AAPM 2018, Nashville, TN, July 2018.
20. D Edmunds, G Sharp , B Winey. Automatic Diaphragm Segmentation for Real-Time Lung Tumor Tracking On Cone-Beam CT Projections: A Convolutional Neural Network Approach, AAPM 2018, Nashville, TN, July 2018.
21. R Zhang, G Sharp , K Jee , C Finley , E Cascio , J Flanz , H Lu. Optimization of Relative Stopping Power by Multi-Projection Proton Radiography, AAPM 2018, Nashville, TN, July 2018.
22. X Zhang, G Sharp, L Xiao, S Xu, J Tang, H Lu. A New Respiration Monitoring System Based On Pressure Measurement, AAPM 2018, Nashville, TN, July 2018.
23. A Mirzapour, T Mazur, G Sharp, E Salari. Intra-Fraction Motion Prediction in MR-Guided Radiotherapy Using Markov Modeling, AAPM 2018, Nashville, TN, July 2018.
24. Andersen A, Park Y, Winey B, Sharp G, Elstrøm U, Petersen J, Bentzen L, Muren L. EP-2149: A priori scatter correction of clinical conebeam CTs to enable on-line proton dose calculations. ESTRO 2018, Barcelona, Spain, Apr 2018.
25. Choi, N. C., et al. Robust Correlation between Immediate Post Radio-Chemotherapy FDG PET Response and Clinical Outcome and Impact of Salvage Radiation for Partial Metabolic Responders in Locally Advanced Non–Small Cell Lung Cancer. ASTRO 2017, San Diego, CA, Sept 2017.
26. Botas, P., et al. Comparison of Internal Tumor Volume Definition Strategies to Reduce Plan Degradation of Intensity Modulated Proton Therapy Plans for Mobile Lung Tumor. ASTRO 2017, San Diego, CA, Sept 2017.
27. M Moteabbed, A Trofimov, G Sharp, A Zietman, J Efstathiou, H Lu. Susceptibility of Hypofractionated Radiotherapy of Prostate Cancer to Interfractional Motion. AAPM 2017, Denver, CO. July 2017.
28. N Shusharina, G Sharp, A Niemierko, N Choi. Dose Escalated Radiation Therapy for Advanced Stage Lung Cancer. AAPM 2017, Denver, CO. July 2017.
29. J Kim, Y Park, G Sharp, B Winey. Feasibility of Kilo-Voltage Projection-Based Real-Time Tracking of Intrafractional Patient Motion During Spine Stereotactic Radiosurgery Or Stereotactic Body Radiation Therapy. AAPM 2017, Denver, CO. July 2017.
30. C Finley, K Jee, T Zwart, G Sharp, W Huo, M Jones, K Huang, D Catanzano, S Nyamane, J Cooley, S Rosenthal, H Lu. Proton Beam Imaging Using X-Ray Flat Panel for a Pencil Beam Scanning System. AAPM 2017, Denver, CO. July 2017.
31. M Seregni, M Riboldi, G Baroni, G Sharp. A Computational Phantom of the Thorax Combining Anatomical and Respiratory Motion Models: Feasibility Study and Preliminary Developments. AAPM 2017, Denver, CO. July 2017.
32. M Moteabbed, A Trofimov, G Sharp, A Zietman, J Efstathiou, H Lu. Bladder Size Variations During Radiotherapy of Prostate Cancer and the Clinical Impact On Treatment Quality. AAPM 2017, Denver, CO. July 2017.
33. W Huo, T Zwart, C Finley, K Jee, G Sharp, S Rosenthal, X Xu, H Lu. Experimental Validation of the Monte Carlo Model of HYPERSCAN(TM) Pencil Beam Scanning System for Proton Beam Imaging and Radiation Treatment. AAPM 2017, Denver, CO.

July 2017.

34. G Meschini, M Seregni, A Vai, J Phillips, G Baroni, M Ciocca, S Molinelli, H Paganetti, A Pella, F Valvo, G Sharp, M Riboldi. Evaluation of a Method for Dose Estimations to Moving Pancreatic Tumors Treated with Gated Carbon Ion Beams. AAPM 2017, Denver, CO. July 2017.
35. H Wang, J Wu, R Zhang, E Baer, C Geng, K Jee, G Sharp, H Paganetti, J Tang, H Lu. Validation of Monte-Carlo Proton Dose Calculation for Real Tissue Samples. AAPM 2017, Denver, CO. July 2017.
36. B Winey, J Kim, G Sharp. Using CBCT Projections to Triage Head and Neck Patients for Adaptive Radiation Therapy. AAPM 2017, Denver, CO. July 2017.
37. R Zhang, G Sharp, K Jee, C Finley, E Cascio, J Flanz, H Lu. Iterative Optimization of Relative Stopping Power by Single Detector Based Multi-Projectional Proton Radiography. AAPM 2017, Denver, CO. July 2017.
38. GC Sharp, C Pinter, G Fichtinger, J Unkelbach. Open source proton treatment planning in 3D Slicer: Status update. PTCOG 56. Tokyo Japan, May 2017.
39. Choi NC, Gainor J, Ackman J, Lim R, Sharp GC, El Fakhri G, Niemierko A. Robust Correlation Between Metabolic Response Measured with ^{18}F-FDG PET Soon After Therapy and Clinical Outcome in Lung Cancer. IASLC 2016 Chicago Multidisciplinary Symposium in Thoracic Oncology, September 2016.
40. Y.K. Park, G.C. Sharp, S.J. Ye, B. Winey. Early Experience in Cone Beam Projection Image Streaming for Real-Time Intrafractional Motion Monitoring Using a Conventional Linear Accelerator. ASTRO 2016. Boston, MA, September 2016.
41. V.L. Patel, T. Millington, G.C. Sharp, A. Niemierko, T.I. Yock, N.C. Choi, T.S. Hong, D.J. Mathisen, and others. Neoadjuvant IMRT with Chemotherapy for Esophageal Cancer Allows Cardiac Sparing Without Increasing Postoperative Pulmonary Complications. ASTRO 2016. Boston, MA, September 2016.
42. Speier, C., et al. New Method for Generating pseudo CTs from Standard Protocol-MRIs. Annual Meeting of the German Society of Radiooncology, 2016.
43. R Zhang, K Jee , G Sharp , J Flanz , H Lu. A New Approach to Proton Radiography Using the Beamline X-Ray Flat Panel. AAPM 2016, Washington, DC, July 2016. **Science Council Award.**
44. E Baer, K Jee, R Zhang, A Lalonde, K Yang, G Sharp, G Royle, B Liu, H Bouchard, H Lu, The Impact of Using Dual-Energy CT for Determining Proton Stopping Powers: Comparison Between Theory and Experiments. AAPM 2016, Washington, DC, July 2016. **Science Council Award.**
45. P Botas, C Grassberger, G Sharp, N Qin, X Jia, S Jiang, H Paganetti. Fast GPU Framework for Four-Dimensional Monte Carlo in Adaptive Intensity Modulated Proton Therapy (IMPT) for Mobile Tumors. AAPM 2016, Washington, DC, July 2016.
46. X Ren, G Sharp, H Gao. Automated Segmentation of Head-And-Neck CT Images for Radiotherapy Treatment Planning Via Multi-Atlas Machine Learning (MAML). AAPM 2016, Washington, DC, July 2016.
47. N Shusharina, F Khan, G Sharp, N Choi. Isotoxic Dose Escalation for Advanced Lung Cancer: Comparison of Different Boosting Strategiesfor Patients with Recurrent Disease. AAPM 2016, Washington, DC, July 2016.
48. P Zaffino, P Raudaschl, K Fritscher, M Spadea, G Sharp. Validation of Plastimatch MABS, a Tool for Automatic Image Segmentation. AAPM 2016, Washington, DC, July 2016.

49. J Shin, K Jee , B Clasie , N Depauw , T Madden , G Sharp , H Paganetti , H Kooy. An Automated Monte Carlo Based QA Framework for Pencil Beam Scanning Treatments. AAPM 2016, Washington, DC, July 2016.
50. R Zhang, K Jee , G Sharp , J Flanz , H Lu. Feature Based Water Equivalent Path Length (WEPL) Determination for Proton Radiography by the Technique of Time Resolved Dose Measurement. AAPM 2016, Washington, DC, July 2016.
51. M Moteabbed, A Trofimov , G Sharp , Y Wang , A Zietman , J Efstathiou , H Lu. Impact of Interfractional Motion On Hypofractionated Pencil Beam Scanning Proton Therapy for Prostate Cancer. AAPM 2016, Washington, DC, July 2016.
52. J Kim, Y Park , G Sharp , B Winey. Water Equivalent Path Length Calculations Using Scatter-Corrected Head and Neck CBCT Images to Evaluate Patients for Adaptive Proton Therapy. AAPM 2016, Washington, DC, July 2016.
53. Y Park, G Sharp , B Winey. Detection of Unpredictable Patient Movement During SBRT Using a Single KV Projection of An On-Board CBCT System: Simulation Study. AAPM 2016, Washington, DC, July 2016.
54. C Kurz, Y Park, F Kamp, S Rit, B Winey, G Sharp, M Reiner, R Nijhuis, D Hansen, U Ganswindt, C Thieke, C Belka, K Parodi, G Landry. Enabling Adaptive IMPT with CBCT-Based Dose Recalculation for H&N and Prostate Cancer Patients. AAPM 2016, Washington, DC, July 2016.
55. G Gueorguiev, C Cotter, M Young, D Toomeh, F Khan, B Crawford, J Turcotte, M Mah'D, G Sharp. A Comprehensive Patient Specific, Structure Specific, Pre-Treatment 3D QA Protocol for IMRT, SBRT and VMAT - Clinical Experience. AAPM 2016, Washington, DC, July 2016.
56. M. Moteabbed, A.V. Trofimov, G.C. Sharp, Y. Wang, A.L. Zietman, J.A. Efstathiou, H.M. Lu. Implications of Spot-Size and Dose Modulation on Robustness of Scanned Proton Beams to Range-Uncertainties and Interfractional Variations for Prostate Cancer. PTCOG 55. Prague, Czech Republic, May 2016.
57. R Zhang, E Baer , K Jee , G Sharp , J Flanz , H Lu. Efficient Dose Extinction Method for Water Equivalent Path Length (WEPL) of Real Tissue Samples for Validation of CT HU to Stopping Power Conversion. AAPM 2016, Washington, DC, July 2016.
58. Seco, J., et al. EP-1838: Proton therapy planning for brain tumors using MRI-generated PseudoCT. ESTRO 2016, Turin, Italy, April 2016.
59. Kurz, C., et al. Utilizing CBCT data for dose calculation in adaptive IMPT. ICTR-PHE 2016, Geneva, Switzerland, Feb 2016.
60. Y.K. Park, G.C. Sharp, B. Winey. During-Treatment Verification of Spine Position Using a Single kV Projection of an On-board Cone Beam Computed Tomography System: Simulation Study. ASTRO 2015, San Antonio, TX, September 2015.
61. J. Kim, Y.K. Park, G.C. Sharp, P.M. Busse, B. Winey. Feasibility of the Use of Scatter Corrected Cone Beam Computed Tomography Images to Evaluate Range Variations During Proton Radiation Therapy of Head and Neck Patients. ASTRO 2015, San Antonio, TX, September 2015.
62. N.C. Choi, J. Gainor, J. Ackman, R. Lim, G.C. Sharp, G. El Fakhri, A. Niemierko. Improved Local Tumor Control With Supplementary Dose of Radiation Guided by 18F-FDG PET Soon After Standard Dose Radiation Therapy and Concurrent Chemotherapy in Inoperable Stages II and III Non-Small Cell Lung Cancer. ASTRO 2015, San Antonio, TX, September 2015.
63. J. Phillips, G. Gueorguiev, C. Grassberger, N.C. Choi, H. Paganetti, G.C. Sharp. Effects of

Excess Breathing Motion on Proton Dose Coverage. ASTRO 2015, San Antonio, TX, September 2015.

64. I Gertsenshteyn, N Tyagi, R Farjam, A Apte, G Sharp, Comparing Mutual Information and Gradient Magnitude Metrics for Deformable Image Registration, AAPM 2015, Anaheim, CA, July 2015.
65. YK Park, GC Sharp, DP Gierga, SJ Ye, BA Winey, Real-Time Intrafractional Motion Tracking During VMAT Delivery Using a Conventional Elekta CBCT System, AAPM 2015, Anaheim, CA, July 2015.
66. M Moteabbed, A Trofimov , G C Sharp , Y Wang , A L Zietman , J A Efstathiou , H Lu , Impact of Interfractional Variations On Anterior Vs. Lateral-Field Proton Therapy of Prostate Cancer, AAPM 2015, Anaheim, CA, July 2015.
67. X Ren, G Sharp, H Gao, Automated Segmentation with Post-Registration Atlas Selection Based On Mutual Information, AAPM 2015, Anaheim, CA, July 2015.
68. N Shusharina, F Khan, G Sharp, N Choi, 18F-FDG PET Imaging to Improve RT Treatment Outcome for Locally Advanced Lung Cancer, AAPM 2015, Anaheim, CA, July 2015.
69. J Phillips, G Gueorguiev, C Grassberger, H Paganetti, G Sharp, Proton Dose Calculation for Irregular Motion Using a Sliding Interface, AAPM 2015, Anaheim, CA, July 2015.
70. C Grassberger, G Sharp , F Fintelmann , H Paganetti , H Willers , Time Evolution of Radiation-Induced Lung Injury After Stereotactic Proton Therapy, AAPM 2015, Anaheim, CA, July 2015.
71. Z Saleh, M Thor, G Sharp, X Tang, T Volpe, R Margiasso, H Veeraraghavan, L Muren, J Deasy, A Novel Objective Approach to Identify Scan Outliers in Deformable Image Registration for Longitudinal Datasets, AAPM 2015, Anaheim, CA, July 2015.
72. G Geuorguiev, C Cotter, M Young, B Crawford, F Khan, J Turcotte, G Sharp, M Mahd, Clinical implementation of a novel transmission detector for 3D quality assurance during radiation therapy, World Congress on Medical Physics, Toronto Canada, June 2015.
73. M Desplanques, K Wang, J Phillips, G Gueorguiev, G Baroni, G Sharp, An open-source treatment planning system for research in particle therapy: Implementation and dosimetric evaluation, World Congress on Medical Physics, Toronto Canada, June 2015.
74. C Pinter, K Alexander, A Wang, A Lasso, G Sharp, D Jaffray, G Fichtinger, Performing radiation therapy research using the open-source SlicerRT toolkit, World Congress on Medical Physics, Toronto Canada, June 2015.
75. Desplanques, M., et al. An accurate, differential approach for proton pencil beam computation in heterogeneous media. French Medical Physics Society, June 2015.
76. Desplanques, M., et al. "Technical and medical status of the hadrontherapy facility CNAO, sited in Pavia (IT), after a three-year experience. French Medical Physics Society, June 2015.
77. N. Shusharina, G.C. Sharp, B. Fullerton, J. Adams, A.W. Chan, Evaluation of Proton Therapy for Advanced Head and Neck Cancer With Respect to Changing Heterogeneity, ASTRO 2014, San Francisco, CA, September 2014.
78. M. Moteabbed, A. Trofimov, G.C. Sharp, Y. Wang, A.L. Zietman, J.A. Efstathiou, H. Lu, Robustness of Proton Therapy Versus IMRT to Interfractional Variations for Prostate Cancer Treatments, ASTRO 2014, San Francisco, CA, September 2014.
79. Y Park, G Sharp, MAGIC: Multi-Acquisition Gain Image Correction for Mobile X-Ray Systems with Intrinsic Localization Crosshairs, AAPM 2014, Austin, TX, August 2014.
80. Y Park, B Winey, G Sharp, Proton Dose Calculation On Scatter-Corrected CBCT Image:

Feasibility Study for Adaptive Proton Therapy, AAPM 2014, Austin, TX, August 2014.

81. N Shusharina, F Khan, N Choi, G Sharp, Dose Escalation Strategy for Lung Cancer Patients Using a Biologically- Guided Target Definition, AAPM 2014, Austin, TX, August 2014.
82. M Desplanques, K Wang, J Phillips, G Gueorguiev, G Baroni, G Sharp, An Open Source Software for Proton Treatment Planning in Heterogeneous Medium, AAPM 2014, Austin, TX, August 2014.
83. C Grassberger, J Daartz, S Dowdell, T Ruggieri, G Sharp, H Paganetti, Impact of Proton Dose Calculation Method On Delivered Dose to Lung Tumors: Experiments in Thorax Phantom and Planning Study in Patient Cohort, AAPM 2014, Austin, TX, August 2014.
84. P Doolan, G Sharp, M Testa, E Bentefour, G Royle, H-M Lu, Reducing Proton Beam Range Uncertainty with Patient-Specific CT HU to RSP Calibrations Based On Single-Detector Proton Radiography, AAPM 2014, Austin, TX, August 2014.
85. Z Saleh, M Thor, A Apte, G Sharp, L Muren, J Deasy, Intra-Patient Deformable Image Registration Uncertainties Quantified Using the Distance Discordance Metric, AAPM 2014, Austin, TX, August 2014.
86. G Gueorguiev, C Cotter, J Turcotte, G Sharp, M Mah'D, B Crawford, Error Sensitivity and Superiority of a Protocol for 3D IMRT Quality Assurance, AAPM 2014, Austin, TX, August 2014.
87. M Moteabbed, A Trofimov, M Testa, G Sharp, Y Wang, H Paganetti, A Zietman, J Efstathiou, H Lu, Comparison of Plan Dose Accuracy for Anterior Vs. Lateral Fields in Proton Therapy of Prostate Cancer, AAPM 2014, Austin, TX, August 2014.
88. P Doolan, G Sharp, M Testa, EH Bentefour, G Royle, HM Lu, An optimization scheme to produce patient-specific calibration curves for proton therapy, PTCOG 53, Shanghai, China, June 2014.
89. B Clasie, GC Sharp, J Seco, J Flanz, H Kooy, The necessity for three-dimensional gamma index in pencil beam scanning, PTCOG 53, Shanghai, China, June 2014.
90. M Moteabbed, A Trofimov, GC Sharp, Y Wang, A Zietman, J Efstathiou, HM Lu, Robustness of anterior- vs lateral-field proton therapy to interfractional variations for prostate cancer, PTCOG 53, Shanghai, China, June 2014.
91. P. Zaffino, K. Fritscher, M. Peroni, M.F. Spadea, R. Schubert, G. Sharp, Atlas selection strategies for multi atlas based segmentation algorithm for head and neck radiotherapy, ESTRO 33, Vienna, Austria, April 2014.
92. M Moteabbed, A Trofimov, G Sharp, H Lu, Evaluation of the Robustness of Proton Therapy Compared with IMRT Regarding Interfractional Variations for Prostate Cancer, AAPM 2013, Indianapolis, IN, Aug 2013.
93. Z Saleh, A Apte, G Sharp, Y Wang, J Deasy, Normalized Distance Discordance (DD): A Quantitative and Position-Specific Metric to Evaluate the Uncertainty of Inter- and Intra-Patient Deformable Registrations, AAPM 2013, Indianapolis, IN, Aug 2013.
94. M Zhu, G Warmerdam, P Steininger, M Neuner, G Sharp, H Shih, B Winey, Implementation and Validation of a 2D-3D Rigid Registration Algorithm for Proton Gantry and Stereotactic Radiosurgery Systems, AAPM 2013, Indianapolis, IN, Aug 2013.
95. Y Wang, G Sharp, A Jackson, Z Saleh, A Apte, H Veeraraghavan, J Deasy, Landmark and ROI-Enhancement-Assisted Inter-Patient Deformable Registration of 3D Bladder CT Images, AAPM 2013, Indianapolis, IN, Aug 2013.
96. Y Wang, M Folkert, Z Saleh, A Apte, G Sharp, N Lee, J Deasy, Evaluation of Landmark-Assisted Deformable Image Registration Technique On Inter- and Intra-Patient Head and

Neck CT Imaging, AAPM 2013, Indianapolis, IN, Aug 2013.

97. N Shusharina, S Pieper, G Sharp, Landmark-Driven Interactive Deformable Image Registration, AAPM 2013, Indianapolis, IN, Aug 2013.
98. G Gueorguiev, G Sharp, M MahD, J Turcotte, B Crawford, A Protocol for 3D IMRT Quality Assurance of Prostate Radiotherapy, AAPM 2013, Indianapolis, IN, Aug 2013.
99. C Grassberger, S Dowdell, G Sharp, H Paganetti, Motion Mitigation in Active Scanning Proton Therapy for Lung Cancer: A 4D Monte Carlo Study, AAPM 2013, Indianapolis, IN, Aug 2013.
100. I Kolesov, P Karasev, N Shusharina, P Vela, A Tannenbaum, G Sharp, Interactive Segmentation of Structures in the Head and Neck Using Steerable Active Contours, AAPM 2013, Indianapolis, IN, Aug 2013.
101. G Sharp, M Peroni, N Shusharina, J Shackleford, P Golland, G Baroni, A Robust Intensity Similarity Measure for Multi-Atlas Segmentation, AAPM 2013, Indianapolis, IN, Aug 2013.
102. S Dowdell, C Grassberger, GC Sharp, H Paganetti, A 4D Monte Carlo Study Quantifying Changes in the Interplay Effect as a Function of Treatment Delivery Parameters in Proton Beam Scanning for Lung, AAPM 2013, Indianapolis, IN, Aug 2013.
103. J Phillips, G Gueorguiev, J Shackleford, C Grassberger, S Dowdell, H Paganetti, G Sharp, Computing Proton Dose to Irregularly Moving Targets, AAPM 2013, Indianapolis, IN, Aug 2013.
104. C Grassberger, J Daartz, S Dowdell, J Verburg, G Sharp, H Paganetti, Experimental Validation of Clinical as Well as Monte Carlo Dose Calculation for Proton Therapy of Lung Cancer Patients, AAPM 2013, Indianapolis, IN, Aug 2013.
105. M Wang, G Sharp, S Rit, V Delmon, G Wang, Improvement of Digitally Reconstructed Radiograph Quality of Thoracic 4D Cone Beam Computed Tomography, AAPM 2013, Indianapolis, IN, Aug 2013.
106. S Dowdell, C Grassberger, GC Sharp, H Willers, A Lomax, H Paganetti, Interplay effects in proton scanning for lung: A 4D Monte Carlo study assessing the impact of tumor and beam delivery parameters, PTCOG 52, Essen, Germany, June 2013.
107. N Shusharina, AW Chan, J Adams, GTY Chen, GC Sharp, "Adaptive Proton Radiotherapy for Base of Skull Tumors", ASTRO 2012, Boston MA, Oct 2012.
108. S.S. Rao, Z. Saleh, M. Tam, A. Apte, G. Sharp, J. Setton, L.Y. Nancy, J.O. Deasy, “A Novel Voxel-based Analysis of the Development of Trismus Following Chemoradiation for Oropharyngeal (OPC) Cancer,” ASTRO 2012, Boston MA, Oct 2012.
109. N. Shusharina, N.C. Choi, G.C. Sharp, “Correlation of FDG Avid Volumes of Initial and Recurrent Lung Cancers After Radiation Therapy or Chemoradiation Therapy,” ASTRO 2012, Boston MA, Oct 2012.
110. ZH Saleh, A Apte, GC Sharp, JO Deasy. “A New Automatically Generated Metric for Evaluating the Spatial Precision of Deformable Image Registrations: The Distance Discordance Metric,” AAPM 54, Charlotte, NC, 2012.
111. C Grassberger, J Shackleford, G Sharp, H Paganetti, “Four-Dimensional Monte Carlo Simulations of Lung Cancer Patients Treated with Proton Beam Scanning to Assess Interplay Effects,” AAPM 54, Charlotte, NC, 2012.
112. G Warmerdam, P Steininger, M Neuner, G Sharp, B Winey. “An Open-Source 2D/3D-Image-Registration Algorithm: Cranial Image Guided Radiotherapy,” AAPM 54, Charlotte, NC, 2012.
113. C Speier, G Sharp, J Wolfgang, “SPARK 4DCT - a Simulation, Post-Processing And

Resorting Kit for 4DCTs," AAPM 54, Charlotte, NC, 2012.

114. Z Saleh, A Apte, G Sharp, S Rao, N Lee, J Deasy, "Exploring the Correlation Between 3D Spatial Dose Distribution and Toxicity in Normal Tissue," AAPM 54, Charlotte, NC, 2012.
115. A Arbisser, G Sharp, P Golland, N Shusharina, "Weighted Voting Method for Multi-Atlas Segmentation in CT Scans," AAPM 54, Charlotte, NC, 2012.
116. M Peroni, G Sharp, P Golland, G Baroni, "Gaussian Weighted Multi-Atlas Based Segmentation for Head and Neck Radiotherapy Planning," AAPM 54, Charlotte, NC, 2012.
117. N Shusharina, A Chan, J Adams, G Chen, G Sharp, "The Role of Treatment Plan Adaptation During the Course of Proton Radiotherapy for Patients with Head and Neck Cancer," AAPM 54, Charlotte, NC, 2012.
118. Y. Wang, J.A. Efstathiou, H. Lu, G.C. Sharp, A.V. Trofimov, "Dose Delivery Uncertainty and CT Imaging Frequency in Hypofractionated and Stereotactic Prostate Proton Therapy," ASTRO 2011, Miami, FL, October 2011.
119. ZH Saleh, A Apte, GC Sharp, JO Deasy. "A New Approach to Evaluating the Impact of Organ Sub-Volume Sensitivity to Irradiation by Deforming Cohort Dose Data Onto a Single 'Reference Human'," AAPM/COMP 53, Vancouver, BC, 2011.
120. GC Sharp, R Li. "Automatic Labeling of the T1 Through T12 Vertebrae in CT," AAPM 53, Vancouver, BC, 2011.
121. N Shusharina, Y Wang, GC Sharp. "Enhancement of Registration Accuracy Using Landmark Information," AAPM 53, Vancouver, BC, 2011.
122. JM Balter, Y Long, MM Folkerts, GC Sharp, TR Bortfeld, JA Fessler. "An Open Platform for 2D-3D Image Registration Experiments," AAPM 53, Vancouver, BC, 2011.
123. Y Wang, JA Efstathiou, HM Lu, GC Sharp, AV Trofimov. "Optimal Frequency of CT Imaging for Monitoring Target Volume and Estimating Delivered Dose in Standard and Hypofractionated Prostate Proton Therapy," AAPM 53, Vancouver, BC, 2011.
124. M.E. Pacold, G.C. Sharp, K. Doppke, H. Prichard, H. Lu, N.D. Arvold, A. Niemierko, N.C. Choi, "Effect of Mid-course Replanning CT on Tumor and Normal Structure Dosimetry and Projected Toxicities during Chemoradiotherapy for Small Cell Lung Cancer," ASTRO 2010, San Diego, CA, 2010.
125. M. Hasan, G.C. Sharp, G. Chen, H. Pfister, J. Wolfgang. "Interactive 4D Visualization of Radiological Path Length Variation for Proton Treatment Port Selection," ASTRO 2010, San Diego, CA, 2010.
126. S. Mori, N. Kanematsu, H. Asakura, G.C. Sharp, M. Kumagai, S. Dobashi, M. Nakajima, N. Yamamoto, S. Kandatsu, M. Baba, "Four-dimensional Lung Treatment Planning in a Layer-stacking Carbon Ion Beam Treatment: Comparison Layer-stacking and Conventional Irradiations," ASTRO 2010, San Diego, CA, 2010.
127. Y Wang, J Efstathiou, I Ciernik, G Sharp, H Lu, A Trofimov, "Dosimetric Impact of Inter-Fractional Variations in Proton Therapy of Prostate Cancer: Assessment of Dose Accumulation and Plan Robustness Using Daily In-Room CT Images," AAPM 52, Philadelphia, 2010.
128. D McQuaid, G Sharp, T Bortfeld, "Inclusion of Effects of Image Registration Errors in Accumulated Dose Distributions," AAPM 52, Philadelphia, 2010.
129. R Li, G Sharp, "Robust Fluoroscopic Tracking of Multiple Implanted Fiducial Markers: Exploiting the Spatial Constraints," AAPM 52, Philadelphia, 2010.
130. B Han, A Ding, X Xu, B Bednarz, G Sharp, N Choi, G Chen, K Riper, "Evaluation of

Performance of a Conceptual Time-Resolved Proton Range Telescope for In-Room Respiration Monitoring Using Monte Carlo Simulations and 4DCT Patient Data," AAPM 52, Philadelphia, 2010.

131. B Winey, G Sharp, M Bussiere, "A Fast Subpixel Resolution Double Gaussian Winston Lutz Algorithm," AAPM 52, Philadelphia, 2010.
132. M Peroni, M Spadea, M Riboldi, J Seco, G Sharp, S Comi, E Rondi, D Zerini, D Alterio, R Orecchia, G Baroni, “Automatic Contour Propagation between Planning Computed Tomography (CT) and Cone Beam CT (CBCT) Scan for In-Room Adaptive Planning: A Feasibility Study on Nasopharyngeal Cancer Patients,” AAPM 52, Philadelphia, 2010.
133. G. Chen, T.S. Hong, J. Hallman, G.C. Sharp, J.A. Wolfgang, H. Lu, S. Mori, “4D Proton Treatment Planning for Liver Tumors,” ASTRO 2009.
134. M Riboldi, M Seregni, G Sharp, G Baroni, G Chen, “Targeting Accuracy in Real-Time Tumor Tracking Via External Surrogates: A Retrospective Clinical Study,” AAPM 51, Anaheim, July 2009.
135. MF Gensheimer, TI Yock, NJ Liebsch, GC Sharp, N Madan, PE Grant, H Paganetti, T Bortfeld, “In Vivo Proton Beam Range Verification Using Spine MRI Changes,” AAPM 51, Anaheim, July 2009.
136. J Seco, R Seethamraju, M Bussiere, H Kooy, GC Sharp, M Harisinghani, “The Application of MRI Pulse Sequences for In-Vivo Verification of the Proton Beam Radiotherapy,” AAPM 51, Anaheim, July 2009.
137. G Chen, S Mori, G Sharp, H Lu, J Wolfgang, J Kung, T Hong, “Effects of Respiration On Proton Dose Distributions and DVHs in Pancreatic Cancer as Assessed by 4D Treatment Planning,” AAPM 51, Anaheim, July 2009.
138. J Sarker, A Chu, K Mui, J Wolfgang, A Hirsch, G Chen, G Sharp, “A Simulation of Position and Volume Errors in 4D-CT Caused by Irregular Breathing,” AAPM 51, Anaheim, July 2009.
139. C Hancox, J Seco, G Sharp, M Peroni, H Paganetti, “Dynamic Monte Carlo Dose Calculations for IMRT in Geant4,” AAPM 51, Anaheim, July 2009.
140. J Lee, J Hallman, G Sharp, G Chen, J Wolfgang, “Volumetric Visualization of Clinical Contours, Dose, High-Definition Patient Anatomy for Four-Dimensional Adaptive Radiotherapy Treatment Planning,” AAPM 51, Anaheim, July 2009.
141. J Seco, G Sharp, H Paganetti, “Study of the Variability of the Dosimetric Outcome Produced by Patient Organ-Movement and Dynamic MLC Delivery with Focus On Intra-Fraction Effects,” AAPM 51, Anaheim, July 2009.
142. J Wolfgang, J Lee, G Sharp, G Chen, “Volume Rendered Cardiac Segmentation and Analysis for Breast Radiotherapy,” AAPM 51, Anaheim, July 2009.
143. C Sagedy, N Kandasamy, G Sharp, “Accelerating B-Spline Registration Using Graphics Processing Units,” AAPM 51, Anaheim, July 2009.
144. J Hallman, S Mori, G Sharp, T Hong, G Chen, “4D Multi-Organ Motion Analysis in Pancreatic Cancer Patients,” AAPM 51, Anaheim, July 2009.
145. DP Gierga, GC Sharp, MF Spadea, JC Turcotte, “A Video Guided Breath Hold Treatment Technique for Cardiac Sparing Breast Radiotherapy,” AAPM 51, Anaheim, July 2009.
146. S Kurugol, G Sharp, J Dy, D Brooks, “Esophagus Segmentation in Thoracic CT Images for Radiotherapy Planning,” AAPM 51, Anaheim, July 2009.
147. M Spadea, G Baroni, G Sharp, “Evaluation of Two Optical Systems for Respiratory Sensing in 4DCT,” AAPM 51, Anaheim, July 2009.
148. S. Mori, G. Sharp, M. Kumagai, R. Hara, H. Asakura, S. Yamada, R. Kishimoto, H. Kato,

S. Kandatsu, “Four-dimensional Heavy Charged Particle Beam Radiotherapy in Pancreatic Cancer,” ASTRO 2008, Boston, MA, November 2008.

149. A Trofimov, C Gansemer, G Sharp, T Bortfeld, N Choi, “Investigating the utility of dose-functional histograms in risk assessment of thoracic radiotherapy” AAPM 50, Houston, July 2008.
150. G Sharp, Z Wu, N Kandasamy, “A Data Structure for B-Spline Registration,” AAPM 50, Houston, July 2008.
151. J Seco, G Sharp, H Paganetti, “Dosimetric effects caused by interplay between MLC-delivery dynamics and organ breathing-motion in IMRT for lung,” AAPM 50, Houston, July 2008.
152. D Kozono, E Hutchinson, R Schneider, G Sharp, A Niemierko, J Wolfgang, K Doppke, N.C. Choi, “Impact of 4D CT Planning for Lung Cancer on Tumor Control Probability as a Function of the Extent of Tumor Motion with Respiration,” ASTRO 49, Los Angeles, November 2007.
153. K Brock et al, “A Multi-Institution Deformable Registration Accuracy Study,” ASTRO 49, Los Angeles, November 2007.
154. J Seco, S Gianolini, G Sharp, Z Wu, D Gierga, F Buettner, H Paganetti, “Image Guided 4D Monte Carlo for reducing motion effects in lung radiotherapy: The MGH experience,” ESTRO 26, Barcelona, September 2007.
155. A Trofimov, C Vrancic, TCY Chan, G Sharp, T Bortfeld, “Tumor Trailing Strategy for IMRT in the Presence of Target Motion: Preliminary Studies,” AAPM 49, Minneapolis, July 2007.
156. C Vrancic, A Trofimov, T Chan, G Sharp, T Bortfeld, “Experimental Evaluation of a Robust Optimization Method for IMRT of Moving Targets” AAPM 49, Minneapolis, July 2007.
157. G Sharp, H Lu, A Trofimov, X Tang, S Jiang, J Turcotte, D Gierga, G Chen, T Hong, “Assessing Residual Motion for Gated Proton-Beam Radiotherapy,” AAPM 49, Minneapolis, July 2007.
158. H Singh, N Kandasamy, M Folkert, G Sharp, “Streaming Architectures for Cone-Beam CT Image Reconstruction and Deformable Registration,” AAPM 49, Minneapolis, July 2007.
159. X Tang, G Sharp, S Jiang, “Fluoroscopic Tracking of Multiple Implanted Fiducial Markers Using Multiple Object Tracking Algorithm,” AAPM 49, Minneapolis, July 2007.
160. V Boldea; G Sharp, S Jiang, D Sarrut, “Construction of 4D-CT Motion Model Using Deformable Registration: Comparison of Eulerian and Lagrangian Approaches,” AAPM 49, Minneapolis, July 2007.
161. M Spadea, M Riboldi, G Baroni, G Chen, G Sharp, “A Feature Matching Approach for the Automatic Correlation of Internal and External Motion in Lung Tumors,” AAPM 49, Minneapolis, July 2007.
162. Z Wu, G Sharp, J Seco, H Paganetti, “The Effects of Anatomy Motion On Dose Distribution,” AAPM 49, Minneapolis, July 2007.
163. J Seco, S Gianolini, G Sharp, Z Wu, D Gierga, F Buettner, H Paganetti, “Image guided 4D Monte Carlo study of the dosimetric effects of intra/inter fraction motion in lung tumors,” AAPM 49, Minneapolis, July 2007.
164. E Heath, J Seco, Z Wu, G Sharp, H Paganetti, J Seuntjens, “A comparison of dose warping methods for 4D Monte Carlo dose calculations in lung,” Third McGill Workshop on Monte Carlo Techniques in Radiotherapy Delivery and Verification, Montreal, May

2007.

165. H. Lu, S. Safai, R. Schneider, J. Adams, Y. Chen, G. Sharp, R. Brett, D. Kirsch, T. Hong, T. Delaney, “Respiratory-Gated Proton Therapy Treatment,” ASTRO 48, Philadelphia, November 2006.
166. DP Gierga, J Turcotte, M Riboldi, GC Sharp, SB Jiang, GTY Chen, “Comparison of Target Registration Errors for Multiple Modalities in Image-guided Partial Breast Irradiation,”
ASTRO 48, Philadelphia, November 2006.
167. JA Wolfgang, K Mui, A Chu, GC Sharp, GTY Chen, “Analysis of Residual Geometric Artifacts From 4DCT,” AAPM 48, Orlando, July 2006.
168. Z Wu, GC Sharp, E Rietzel, “Evaluation of Segmenting Anatomical Sub-Regions for Deformable Registration of Patient Lung 4DCT,” AAPM 48, Orlando, July 2006.
169. J Seco, DP Gierga, GC Sharp, JC Turcotte, H Paganetti, “Effects of Intra-Fraction Motion On IMRT Treatment with Segments of Few Monitor Units,” AAPM 48, Orlando, July 2006.
170. H Wu, GC Sharp, E Shmukler, H Shirato, SB Jiang, “Statistical Analysis of Respiratory Motion and Knowledge Discovery,” AAPM 48, Orlando, July 2006.
171. X Tang, GC Sharp, SB Jiang, “Patient Setup Based On Lung Tumor Mass for Gated Radiotherapy,” AAPM 48, Orlando, July 2006.
172. GC Sharp, A Jeung, X Tang, H Mostafavi, GTY Chen, SB Jiang, “Respiratory Gating with Gantry Mounted Fluoroscopic Imaging,” AAPM 48, Orlando, July 2006.
173. E Kanoulas, JA Aslam, GC Sharp, RI Berbeco, S Nishioka, H Shirato, SB Jiang, “Derivation of the Tumor Position From External Respiratory Surrogates with Periodical Updating of External/internal Correlation,” AAPM 48, Orlando, July 2006.
174. Y Cui, JG Dy, GC Sharp, B Alexander, SB Jiang, “Correlation Score Based Respiratory Gating for Lung Cancer Radiotherapy Without Implanted Fiducial Markers,” AAPM 48, Orlando, July 2006.
175. Y Cui, JG Dy, GC Sharp, B Alexander, SB Jiang, “Fluoroscopic Tracking of Lung Tumor Mass Without Implanted Fiducial Markers,” AAPM 48, Orlando, July 2006.
176. DP Gierga, JC Turcotte, GC Sharp, M Riboldi, A Franke, SB Jiang, GTY Chen, “Uncertainties in Target Volume Surrogates in Image Guided External Beam Partial Breast Irradiation,” AAPM 48, Orlando, July 2006.
177. V Boldea, GC Sharp, SB Jiang, NC Choi, C Ginestet, C Carrie, D Sarrut, “Implementation and Evaluation of Automatic Contour Propagation in 4DCT of Lung,” AAPM 48, Orlando, July 2006.
178. AV Trofimov, GC Sharp, TR Bortfeld, “Variability of Waveforms and Probability Distributions in External Respiratory-Surrogate Marker Data,” AAPM 48, Orlando, July 2006.
179. M Ibrahim, GC Sharp, GTY Chen, SB Weise, NM Alpert, “Correction of Motion Blurring in PET by Gated Acquisition and Image Registration,” 53rd Annual Meeting of the Society of Nuclear Medicine.
180. GTY Chen, J Hawthorne, SB Jiang, M Riboldi, GC Sharp, JA Wolfgang, “Geometric and Dosimetric Gains from IGRT,” ESTRO 24, September 2005.
181. V Boldea, D Sarrut, GC Sharp, SB Jiang, NC Choi, “Study of Motion in a 4D-CT Using Deformable Registration,” ASTRO 47, Denver, October 2005.
182. GC Sharp, A Jeung, Y Ren, S Povzner, R Berbeco, H Mostafavi, GTY Chen, SB Jiang, “Respiratory-Gated Dual Fluoroscopic Imaging for Positioning and Verification,” AAPM

47, Seattle, July 2005.

183. H Wu, G Sharp, B Salzberg, D Kaeli, H Shirato, S Jiang, “Model-Based Probabilistic Prediction of Tumor Respiratory Motion,” AAPM 47, Seattle, July 2005.
184. S Flampouri, G Sharp, J Wolfgang, A Niemierko, N Choi, S Jiang, “Investigation of the Actually Delivered Patient Dose in Lung IMRT Treatment Based On Deformable Registration of 4D CT Data and Monte Carlo Simulations,” AAPM 47, Seattle, July 2005.
185. S Jiang, R Berbeco, J Wolfgang, G Sharp, K Doppke, T Neicu, Y Chen, P Busse, G Chen, “Image-Guided Respiration-Gated Treatment,” AAPM 47, Seattle, July 2005.
186. A Trofimov, M Fernald, B Martin, G Sharp, S Jiang, T Bortfeld, “Motion-Compensation in IMRT Employing Probability Distribution of Target Location: Phantom Tests and Computer Simulation,” AAPM 47, Seattle, July 2005.
187. M Engelsman, G Sharp, T Bortfeld, S Shimizu, H Shirato, “How Much Margin Reduction is Possible through Gating or Breath-Hold?,” ESTRO 23rd Annual Meeting, October 2004.
188. S.B. Jiang, G.C. Sharp, R.I. Berbeco, G.T. Chen, H. Mostafavi, A. Jeung, “Development of an integrated radiotherapy imaging system (IRIS),” ASTRO 2004.
189. GC Sharp, SB Jiang, S Shimizu, H Shirato, “Tracking Errors in a Prototype Real-Time Tumor Tracking System,” AAPM 46, Seattle, July 2004.
190. GC Sharp, DP Gierga, SB Jiang, “Reliable Real-Time Tracking in Fluoroscopy for Image Guided Radiotherapy,” AAPM 46, Seattle, July 2004.
191. T Neicu, RI Berbeco, GC Sharp, S Flampouri, K Aljarrah, SB Jiang, “Patient Breathing Coaching Using The Real Position Management System,” AAPM 46, Seattle, July 2004.
192. K Aljarrah, GC Sharp, T Neicu, SB Jiang, “A Systematic Study On The Determination of Initial Beam Parameters in Monte Carlo Linac Simulation,” AAPM 46, Seattle, July 2004.
193. R Berbeco, W Zhao, H Mostafavi, G Sharp, SB Jiang, “Towards Tumor Tracking in the Absence of Implanted Radio-opaque Markers,” AAPM 46, Seattle, July 2004.
194. SB Jiang, GC Sharp, RI Berbeco, T Neicu, T Bortfeld, “Normalized Dose Difference (NDD): A Simple Method for Dose Distribution Comparison,” AAPM 46, Seattle, July 2004.
195. R Berbeco, G Sharp, H Mostafavi, A Jeung, GTY Chen, SB Jiang, “Construction, Calibration and Commissioning of the Integrated Real-Time Imaging System (IRIS),” AAPM 46, Seattle, July 2004.
196. H Wu, GC Sharp, B Salzberg, H Shirato, D Kaeli, SB Jiang, “A Hidden Markov Model for Tumor Motion Analysis,” AAPM 46, Seattle, July 2004.
197. D Lo, V Vo, S Jiang, H Tseng, G Sharp, T Neicu, S Weinberg, “Development of a Computer-Controlled Phantom to Simulate Tumor Motions Applied to Image Guided Adaptive Radiotherapy,” AAPM 46, Seattle, July 2004.
198. D Gierga, J Brewer, G Sharp, R Berbeco, M Betke, S Jiang, C Willett, G Chen, “The Correlation Between Respiratory Tumor Motion and External Marker Motion,” AAPM 46, Seattle, July 2004.
199. D. P. Gierga, G. Sharp, J. Brewer, M. Betke, C. G. Willett, G. T. Y. Chen, "Correlation between External and Internal Markers for Abdominal Tumors: Implications for Respiratory Gating." ASTRO 45, Salt Lake City, October 2003.
200. GC Sharp, SB Jiang, D Ruan, D Castañon, H Shirato, “of Prediction Methods for Real-Time Tumor Tracking during Treatment,” AAPM 45, San Diego, August 2003.
201. GC Sharp, SB Jiang, S Kollipara, SJ Rosenthal, “Toward an Automatic Method of Anatomical Landmark Localization for Daily Patient Positioning,” AAPM 45, San Diego,

August 2003.

202. RI Berbeco, SB Jiang, GC Sharp, H Mostafavi, GTY Chen, “Integrated Radiotherapy Imaging System (IRIS): Considerations of Tumor Tracking with Gantry-Mounted Kilovoltage X-Ray Systems,” AAPM 45, San Diego, August 2003.
203. RI Berbeco, SB Jiang, GC Sharp, H Mostafavi, S Kollipara, GTY Chen, “Patient Setup with Respiratory Gated Electronic Portal Imaging,” AAPM 45, San Diego, August 2003.
204. SB Jiang, T Bortfeld, A Trofimov, E Rietzel, G Sharp, N Choi, GTY Chen, “Synchronized Moving Aperture Radiation Therapy (SMART): Plan Optimization and MLC Leaf Sequencing Based on 4D CT Data,” AAPM 45, San Diego, August 2003.
205. Da Young Ju, Jin-Ho Yoo,Kyoung Chin Seo, Gregory Sharp, Sang Wook Lee, “Image-Based Illumination for Electronic Display of Artistic Paintings,” SIGGRAPH Technical Sketch, San Antonio, July 2002.

Books

James Shackleford, Nagarajan Kandasamy, Gregory C. Sharp, “High-Performance Deformable Image Registration Algorithms for Manycore Processors,” Morgan Kaufmann, 2013.

Book Chapters

Clemens Grassberger, Gregory C. Sharp, and Harald Paganetti, “Proton Therapy,” in *Principles and Practice of Image-Guided Radiation Therapy of Lung Cancer* (1st Edition), Jing Cai, Joe Y. Chang, and Fang-Fang Yin ed., CRC Press, 2017.

Gregory C. Sharp, Rui Li, Nagarajan Kandasamy, “Theoretical Aspects of Target Detection and Tracking,” and “Fault Detection in Image-Based Tracking,” in *Adaptive Motion Compensation in Radiotherapy* (1st Edition), M.J. Murphy ed., CRC Press, 2012.

James Shackleford, Nagarajan Kandasamy, Gregory C. Sharp, “Deformable Volumetric Registration using B-splines,” in *GPU Computing Gems Emerald Edition* (1st Edition), W. Hwu ed., Morgan Kaufmann, 2011.

George T.Y. Chen, Gregory C. Sharp, John A, Wolfgang, “Imaging in Radiotherapy,” in *Treatment Planning in Radiation Oncology* (3rd Edition), F. Khan and B Gerbi eds., Lippincott Williams & Wilkins, 2011.

Nagarajan Kandasamy, Sherif Abdelwahed, Gregory C. Sharp, John P. Hayes, “An Online Control Framework for Designing Self-Optimizing Computing Systems: Application to Power Management,” in *Self-star Properties in Complex Information Systems: Conceptual and Practical Foundations* (1st Edition), O Babaoglu, M Jelasity, A Montresor, C Fetzer, and S Leonardi eds., Springer 2005.

Invited Publications

George T. Chen, Gregory C. Sharp, Shinichiro Mori, “A Review of Image Guided Radiotherapy,” Radiological Physics and Technology, Vol 2, No 1, pp 1-12, Januray 2009.

Gregory C. Sharp, Hsiao Ming Lu, Alexei Trofimov, Xiaoli Tang, Steve B. Jiang, Julie Turcotte, David P. Gierga, George T.Y. Chen, Theodore S. Hong, “Assessing Residual Motion for Gated Proton-Beam Radiotherapy,” Journal of Radiation Research, Vol 48, Supplement A, pp 55-59, 2007.

Mohit Dilip Khandekar, Nagarajan Kandasamy, Sherif Abdelwahed, Gregory C. Sharp, “An Online Predictive Control Framework for Designing Self-Managing Computing Systems,” Multiagent and Grid Systems, Vol 1, No 2, 2005, pp 63-72.

Other Publications

Da Young Ju, Jin-Ho Yoo,Gregory C. Sharp, Sang Wook Lee, “Image-Based Illumination for Electronic Display of Artistic Paintings,” University of Michigan Tech Report CSE-TR-466-02, September 2002.

Gregory C. Sharp, Sang W. Lee, David K. Wehe, “Registration of Range Images in the Presence of Occlusions and Missing Data,” University of Michigan Technical Report CSE-TR-453-02, Feb 2002.

Gregory C. Sharp, Sang W. Lee, David K. Wehe, “ICP Registration using Invariant Features,” University of Michigan Technical Report CSE-TR-435-00, Sept 2000.

Gregory C. Sharp, Sang W. Lee, David K. Wehe, “An Apparatus and Method for the Complete Construction of Three Dimensional Models,” Patent Disclosure to the University of Michigan Technology Transfer Office, September 2000.

Invited Presentations

“Grand Challenges in Automatic Segmentation for Radiotherapy,” Rhode Island Hospital, Providence, RI, November 2019..

“Python Scripting in 3D Slicer,” AAPM 2019, San Antonio, TX.

“AAPM RT-MAC: MRI Autocontouring challenge,” AAPM 2019, San Antonio, TX.

“Registration: Traditional,” AAPM Summer School, Burlington, VT, June 2019.

“The Theory of Image Registration,” University of Chicago, April 2019.

“3D Slicer for Medical Physics Research and Development,” and “3D Slicer for Medical Image Processing,” Brazilian Congress of Medical Physics, Ribeirao Preto, Brazil.

“Overview of Current Status of Auto-Segmentation in Radiation Oncology,” AAPM 2017, Denver CO.

“Multi-modal Image Registration,” Image-Guided and Robotic Radiotherapy Workshop, Mannheim, Germany, August 2016.

“Image Registration and Segmentation,” Ludwig-Maximilians University, Munich, Germany, August 2016.

“Image Registration and Segmentation,” RAMPS Annual Meeting, New York, NY, June 2016.

“Multi-modal Image Registration,” and “3D Slicer for Radiotherapy Research,” Danish Society of Medical Physics Annual Meeting, Nyborg, Denmark, April 2016.

“Automatic Segmentation of Images and Assessing Reliability,” ASTRO 2015, San Antonio, TX, October 2015.

“Plastimatch and SlicerRT,” AAPM 2015, Anaheim, CA, July 2015.

“Automated segmentation of images for treatment planning purposes,” World Congress on Medical Physics and Biomedical Engineering, Toronto, ON, June 2015.

“Perspectives on Automatic Image Segmentation for Radiotherapy,” MICCAI IGART Workshop, Boston, MA, October, 2014.

“Open source software for medical physics research,” Brigham and Women's Hospital, Boston, MA, November, 2013.

Invited Presentations (cont.)

"Perspectives on Automatic Image Segmentation for Radiotherapy," NEAAPM Fall Meeting, Waltham, MA, October, 2013.

"Image-guided Radiation Therapy," Suffolk University, Boston, MA, September, 2013.

"3D Slicer for Medical Physics Research," PLUNC User group meeting at AAPM/COMP, Vancouver, BC, August, 2011.

"B-spline and landmark-based deformable image registration," Memorial Sloan-Kettering Cancer Center, New York, NY, July, 2011.

"Deformable image registration using B-splines," NEAAPM Winter Meeting, Dedham, MA, February 2011.

"Image-guided Radiation Therapy," Harvard Medical School Radiation Oncology Residency Program, MGH, Boston, MA, October 2010.

"Practical CT," Medical Imaging, University of Massachusetts Boston, Boston, MA, September, 2010.

"An introduction to GPU computing," AAPM Annual Meeting, Philadelphia, PA, July 2010.

"Deformable image registration for radiotherapy," Workshop: GPU Computing for Biomedical Research, Boston, MA, October 2009.

"Image-guided Radiation Therapy," Harvard Medical School Radiation Oncology Residency Program, MGH, Boston, MA, October 2009.

"GPU-accelerated conebeam reconstruction," Politecnico di Milano, Milano Italy, January 2009.

"Plastimatch," Varian iLabs Workshop, Baden Switzerland, January 2009.

"Image-guided Radiation Therapy," Harvard Medical School Radiation Oncology Residency Program, MGH, Boston, MA, October 2008.

"Deformable image registration," Medical physics course for undergraduates, Northeastern University Medical Physics Seminar, Boston, MA, October, 2008.

"Image-guided radiation therapy," Medical physics course for undergraduates, Northeastern University Medical Physics Seminar, Boston, MA, October, 2008.

Invited Presentations (cont.)

"Respiratory Gated Radiation Therapy," Memorial Sloan-Kettering Cancer Center, New York NY, July 2008.

"4D Targeting Error Analysis in Image-Guided Radiotherapy," Varian Research Partners Workshop, Austin TX, April 2008.

"Image Guidance and Respiratory Gating in Radiation Therapy," General Electric Global Research, Schenectady NY, April 2008.

"Marker-based and Markerless Fluoroscopic Image Guidance," Varian iLabs Workshop, Baden Switzerland, February 2008.

"Image Guided Radiotherapy," Mitsubishi Electric Research Laboratory, Cambridge, MA, December 2007.

"IGRT and Respiratory Gating," Educational Series for Radiation Therapy Technicians, MGH, Boston, MA, October, 2007.

"Image guided radiotherapy," Harvard-MIT Division of Health Sciences and Technology, Boston, MA, October, 2007.

"Fluoroscopic Image Guidance," Real-Time Motion Adaptive Radiation Therapy Workshop, Georgetown University, May 2007.

"Image Guidance for Gated Radiotherapy," NIRS-CNAO Joint Symposium on Carbon Ion Therapy, Milan, Italy, November 2006.

"Deformable Registration of Lung CT," Medical Physics Seminar, Brigham and Woman's Hospital, November 2005.

"Image-guided Radiation Therapy," Computer Sciences Colloquium, Drexel University, April 2005.

"Multimodality and Deformable Registration: Challenges in Radiation Oncology," CENSSIS Research and Industrial Collaboration Conference, Northeastern University, October 2004.

"An Automatic Method of Anatomical Landmark Localization for Daily Patient Positioning," NEAAPM Young Investigator Symposium, May 2004.

"Research in Image-guided Radiotherapy at MGH," Tohoku University, July 2003.

Invited Presentations (cont.)

“Tracking Radio-Opaque Markers in Fluoroscopic Video,” NEAAPM Young Investigator Symposium, April 2003.

“Modeling and Predicting Human Breathing,” Massachusetts General Hospital Image Guidance Workshop, Jan 2003.

“Automatic and Stable Multiview 3D Surface Registration,” MIT Graphics Seminar, April 2002.

“Toward Multiview Registration in Frame Space,” Sogang University Electrical Engineering Seminar, July 2001.

“Toward Multiview Registration in Frame Space,” KAIST Graphics Seminar, July 2001.

“Toward Multiview Registration in Frame Space,” Seoul National University Graphics Seminar, July 2001.