

COLLEGE OF MEDICINE CURRICULUM VITAE

John E. Bayouth, Ph.D.

October 20, 2010

I. EDUCATIONAL AND PROFESSIONAL HISTORY

A. Institutions attended, board certification, licensure

Higher Education

1988	B.S.	Kansas State University, Manhattan, Kansas
1991	M.S.	Kansas State University, Manhattan, Kansas
1993	Ph.D.	The University of Texas Health Science Center, M. D. Anderson Cancer Center, Houston, Texas

Postgraduate Education

1993-94	Fellowship	Radiation Physics, University of Texas, M.D. Anderson Cancer Center, Houston, Texas
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Board certification, Licensure, and Registration

American Board of Radiology (Therapeutic Radiological Physics)	<i>certified</i> June 1997
Texas Board of Examiners	<i>through</i> 2004
Iowa Department of Public Health - Radiation Therapy	<i>registered</i> 2009 to current

B. Professional and Academic Positions

1988-90	Graduate Research Assistant, Nuclear Engineering, Kansas State University, Manhattan, Kansas
1988-90	Consulting Engineer, Southwest Research Institute, Center for Nuclear Waste Regulatory Analysis, San Antonio, Texas
1990-1993	Graduate Research Assistant, Radiation Physics, M.D. Anderson Cancer Center, University of Texas, Houston, Texas
1994-1996	Assistant Professor, Department of Radiation Oncology University of Pittsburgh, Pittsburgh, Pennsylvania
1996-1999	Chief of Medical Physics, Division of Radiation Oncology Shadyside Hospital, Pittsburgh, Pennsylvania
1999-2004	Assistant Professor, Department of Radiation Oncology The University of Texas, Galveston, Texas
2004-current	Associate Professor, Department of Radiation Oncology The University of Iowa Hospitals & Clinics, Iowa City, Iowa
2004-current	Director of Medical Physics, Department of Radiation Oncology The University of Iowa Hospitals & Clinics, Iowa City, Iowa

C. Honors and Awards

1988	Outstanding College Students of America
1989	Knights of St. Patrick Honorary in Engineering
1989	INPO Fellowship in Nuclear Engineering; Alpha Nu Sigma Honorary
1991	Robert J. Shalek Fellow in Medical Physics

II. TEACHING

A. Teaching assignments on semester by semester basis

Year	Clinical Teaching	hrs/year
1999-2004	Case conference	100
2003-2004	IMRT Training Course	80
1999-present	Treatment planning and quality assurance	50
2005-present	Imaging – simulation, verification, and quality assurance	50
2005-present	Linear accelerator: acceptance, commissioning, and QA	200
2005-present	Treatment delivery procedures	50
2005-present	Translational research	6

Year	Classroom, Seminar, or Teaching Lab	Hours
1999-2001	RATT 2301: Dosimetry I (lectures, homework, exams)	30
1999-2001	RATT 2301: Dosimetry II (lectures, homework, exams)	30
2002-2004	Medical Physics for Radiation Oncology physician residents	30
2003	Integrated Medical Curriculum–Endocrine & Reproduction	25
2004-present	Radiation Oncology Medical Physics Lecture Series for Residents	19.5
2005-present	Radiation Biology (77:103)	3
2006-present	Medical Physics (77:211)	4
2006-present	Case-based Learning II (Education Orientation/Feedback and Facilitate Small Group – FCP2)	29.5
2007	Foundations of Clinical Practice	30

B. Students supervised

Physics Residents

James Sample, M.S.	2004-2006	University of Iowa Hospitals & Clinics
Hemant Shukla, M.S.	2006-2008	University of Iowa Hospitals & Clinics

Earl Nixon, M.S.	2006-2008	University of Iowa Hospitals & Clinics
William Kearney, PhD	2007-present	University of Iowa Hospitals & Clinics
Xiaofei Ying, M.S.	2008-present	University of Iowa Hospitals & Clinics
Vibha Chaswal, PhD	2008-present	University of Iowa Hospitals & Clinics
Junyi Xia, PhD	2009-present	University of Iowa Hospitals & Clinics
Yunfei Huang	2010-present	University of Iowa Hospitals & Clinics
Daniel Hyer	2010-present	University of Iowa Hospitals & Clinics

PhD Dissertation Committees

David LaRose		<i>conferred</i> May 2000
Iterative X-Ray/Ct Registration Using Accelerated Volume Rendering		
Yunfei Huang		2007-2010

Residency Mentorship

James Sample, M.S.	2004-2006	University of Iowa Hospitals & Clinics
Hemant Shukla, M.S.	2006-2008	University of Iowa Hospitals & Clinics
Earl Nixon, M.S.	2006-2008	University of Iowa Hospitals & Clinics
William Kearney, PhD	2007-present	University of Iowa Hospitals & Clinics
Xiaofei Ying, M.S.	2008-present	University of Iowa Hospitals & Clinics
Vibha Chaswal, PhD	2008-present	University of Iowa Hospitals & Clinics
Junyi Xia, PhD	2009-present	University of Iowa Hospitals & Clinics
Yunfei Huang	2010-present	University of Iowa Hospitals & Clinics
Daniel Hyer	2010-present	University of Iowa Hospitals & Clinics

Students Supervised

Kevin Bylund, Doris Duke Fellow	2007-2008	University of Iowa Hospitals & Clinics
Yunfei Huang	2007-2010	University of Iowa Hospitals & Clinics

C. Other contributions to institutional programs

Year	Contribution	hrs/year
1999-2004	Radiation Oncology Case conference	100
2005-present	Radiation Oncology Case conference	10
2005-present	Medical Physics Journal Club	10

Institutional conferences:

1. Bayouth JE. Prostate Motion Associated With Differential Filling Of Bladder and Rectum During External Beam Radiotherapy. Holden Comprehensive Cancer Center: Image Guided Therapy Update. University of Iowa Hospitals & Clinics. Iowa City, Iowa. 2003.
2. Bayouth JE. Technical Issues Surrounding the Treatment of Prostate Cancer With Radiation Therapy. College of Engineering Imaging Group. University of Iowa, Iowa City, Iowa. 2004.

3. Bayouth JE. MRI in Radiotherapy. Holden Comprehensive Cancer Center: Radiation Oncology Forum. University of Iowa Hospitals & Clinics. Iowa City, Iowa. 2005.
4. Bayouth JE. Challenges Presented By Advanced Radiation Therapy Treatment Planning. Radiation Therapists In-Service. University of Iowa Hospitals & Clinics. Iowa City, Iowa 2006
5. Bayouth JE. Impact of Imaging in Radiation Oncology – Megavoltage Cone Beam CT. Holden Comprehensive Cancer Center: Radiation Oncology Forum. University of Iowa Hospitals & Clinics. Iowa City, Iowa. 2007.

III. SCHOLARSHIP AND PROFESSIONAL PRODUCTIVITY

A. Publications or creative works

Peer-reviewed papers

1. Faw RE, Simons GG, Gianakon TA, and **Bayouth JE**. Simulation of angular and energy distributions of the PTB beta secondary standard. *Health Physics* 1990;59:311-324. PMID: 2394589
I collected the experimental data for this paper by measuring the dose distributions created by the PTB beta source using thermoluminescent dosimeters. I calibrated, exposed, and performed the readout studies.
2. Rosenblum MG, Macey DJ, Podoloff DA, Kasi LP, **Bayouth JE**, Cunningham J, Bhadkamkar V, Reieger P, Thompson LB, Cheung L, Pinsky C, Sharkey R, and Murray JL. A phase I pharmacokinetic, toxicity and dosimetry study of ¹³¹I labeled IMMU-4 F(ab')₂ in patients with advanced colorectal carcinoma. *Antibody, Immunoconjugates and radiopharmaceuticals* 1993;6:239-255. [Link to abstract of article](#)
I was responsible for the dosimetric portion of the study, performing the calculations to determine the radiation dose distributions based on imaging and blood kinetic data provided by others.
3. **Bayouth JE**, and Macey DJ. Dosimetry considerations of bone-seeking radionuclides for marrow ablation. *Medical physics* 1993;20:1089-1096. PMID: 8413017 [doi:10.1118/1.597005](https://doi.org/10.1118/1.597005)
I designed and performed the study, analysis, and completed the majority of writing.
4. **Bayouth JE**, and Macey DJ. Quantitative Imaging Of Ho-166 With An Anger Camera. *Physics in Medicine and Biology* 1994;39:265-279. PMID: 15552124 [Link to article](#)
I designed and performed the study, analysis, and completed the majority of writing.
5. **Bayouth JE**, Macey DJ, Kasi LP, and Fossella FV. Dosimetry and toxicity of samarium-153-EDTMP administered for bone pain due to skeletal metastases. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1994;35:63-69. PMID: 7505819 [Link to article](#)
I designed and performed the study, analysis, and completed the majority of writing.
6. Diaz M, Macey DJ, Kasi LP, **Bayouth JE**, and Podoloff DA. Dispensing therapeutic amounts holmium-166 with a radionuclide calibrator. *Journal of Nuclear Medicine Technology* 1995;23:275-278.
I designed and performed the technique used to determine the absolute calibration of a re-entrant well counter by cross-calibration with a Ge-Li detector.
7. **Bayouth JE**, Macey DJ, Boyer AL, and Champlin RE. Radiation dose distribution within the bone marrow of patients receiving holmium-166-labeled-phosphonate for marrow ablation. *Medical physics* 1995;22:743-753. PMID: 7565363 [doi:10.1118/1.597491](https://doi.org/10.1118/1.597491)

I designed and performed the study, analysis, and completed the majority of writing.

8. Giap HB, Macey DJ, **Bayouth JE**, and Boyer AL. Validation of a dose-point kernel convolution technique for internal dosimetry. *Physics in Medicine and Biology* 1995;40:365-381. PMID: 7732068 [Link to article](#)

I participated in designing experiments, data analysis, and a minor contribution of writing.

9. **Bayouth JE**, Macey DJ, Kasi LP, Garlich JR, McMillan K, Dimopoulos MA, and Champlin RE. Pharmacokinetics, dosimetry and toxicity of holmium-166-DOTMP for bone marrow ablation in multiple myeloma. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1995;36:730-737. PMID: 7738641 [Link to article](#)

I designed and performed the study, analysis, and completed the majority of writing.

10. Macey DJ, Grant EJ, **Bayouth JE**, Giap HB, Danna SJ, Sirisriro R, and Podoloff DA. Improved conjugate view quantitation of I-131 by subtraction of scatter and septal penetration events with a triple energy window method. *Medical physics* 1995;22:1637-1643. PMID: 8551988 [doi:10.1118/1.597423](#)

I participated in designing the scatter subtraction model, collected data, performed analysis, and a minor contribution of writing.

11. **Bayouth JE**, Wendt D, and Morrill SM. MLC quality assurance techniques for IMRT applications. *Medical physics* 2003;30:743-750. PMID: 12772980 [doi:10.1118/1.1564091](#)

I designed and performed the study, analysis, and completed the majority of writing.

12. **Bayouth JE**, and Morrill SM. MLC dosimetric characteristics for small field and IMRT applications. *Medical physics* 2003;30:2545-2552. PMID: 14528977 [doi:10.1118/1.1603743](#)

I designed and performed the study, analysis, and completed the majority of writing.

13. Culp LR, Pou AM, Jones DV, **Bayouth JE**, and Sanguineti G. A case of radiation recall mucositis associated with docetaxel. *Head & Neck* 2004;26:197-200. PMID: 14762890 [Link to article](#)

I designed IMRT treatment planning technique used and the dosimetric information presented.

14. Sanguineti G, Culp LR, Endres EJ, and **Bayouth JE**. Are neck nodal volumes drawn on CT slices covered by standard three-field technique? *International Journal of Radiation Oncology, Biology, Physics* 2004;59:725-742. PMID: 15183476 [doi:10.1016/j.ijrobp.2003.11.025](#)

I imported all patient data into the system used for experiments, designed the IMRT treatment planning parameters, extracted and analyzed dosimetric information, and a significant contribution of writing.

15. Cavey M, **Bayouth JE**, Endres EJ, Pena JM, Colman M, and Hatch S. Dosimetric comparison of conventional and forward-planned intensity-modulated techniques for comprehensive locoregional irradiation of post-mastectomy left breast cancers. *Medical dosimetry: official journal of the American Association of Medical Dosimetrists* 2005;30:107-116. PMID: 15922178 [doi:10.1016/j.meddos.2005.02.002](#)

The first author was my trainee. I designed the experiment and defined the metrics to be analyzed, designed the IMRT treatment planning parameters, and a significant contribution of writing.

16. Cavey ML, **Bayouth JE**, Colman M, Endres EJ, and Sanguineti G. IMRT to escalate the dose to the prostate while treating the pelvic nodes. *Strahlentherapie und Onkologie: Organ der Deutschen Rontgenesellschaft* 2005;181:431-441.

The first author was my trainee. I helped the trainee design the experiment and defined the metrics to be analyzed, designed the IMRT treatment planning parameters, helped the trainee to analyze results, and a significant contribution of writing.

17. Yao M, Dornfeld KJ, Buatti JM, Skwarchuk M, Tan HM, Nguyen T, Wacha J, **Bayouth JE**, Funk GF, Smith RB, Graham SM, Chang K, and Hoffman HT. Intensity-modulated radiation treatment for head-and-neck squamous cell carcinoma - The University of Iowa experience. *International Journal of Radiation Oncology, Biology, Physics* 2005;63:410-421. PMID: 16168834 [doi:10.1016/j.ijrobp.2005.02.025](https://doi.org/10.1016/j.ijrobp.2005.02.025)

I performed treatment planning analysis for the patient population presented.

18. Sanguineti G, Cavey ML, Endres EJ, Brandon GG, and **Bayouth JE**. Is IMRT needed to spare the rectum when pelvic lymph nodes are part of the initial treatment volume for prostate cancer? *International Journal of Radiation Oncology, Biology, Physics* 2006;64:151-160. PMID: 16198066 <http://dx.doi.org/10.1016/j.ijrobp.2005.06.026>

I design the metrics to be analyzed, designed the IMRT treatment planning techniques and parameters to use, and helped analyze results.

19. Yao M, Nguyen T, Buatti JM, Dornfeld KJ, Tan H, Wacha J, **Bayouth JE**, Clamon GH, Funk GF, Smith RB, Chang K, Hoffman HT. Changing failure patterns in oropharyngeal squamous cell carcinoma treated with intensity modulated radiotherapy and implications for future research. *American Journal of Clinical Oncology* 2006; 6:606-612. PMID: 17148999

I performed treatment planning analysis for the patient population presented.

20. Dou X, Wu X, **Bayouth JE**, Buatti JM. The matrix orthogonal decomposition problem in intensity-modulated radiation therapy. *Computing and Combinatorics* 2006; 156-165.

I provided clinical data for testing analysis, defined metrics to assess effectiveness of the approach, and minor contributions of writing.

21. **Bayouth JE**, Kaiser HS, Smith MC, Pennington EC, Anderson KM, Ryken TC, Buatti JM. Image guided stereotactic radiosurgery using specially designed high dose rate linac. *Medical Dosimetry* 2007; 32:134-141. PMID: 17472892 [doi:10.1016/j.meddos.2007.01.010](https://doi.org/10.1016/j.meddos.2007.01.010)

I designed and performed the study, analysis, and completed the majority of writing.

22. **Bayouth JE**. Siemens multileaf collimator characterization and quality assurance approaches for intensity-modulated radiotherapy. *International Journal of Radiation Oncology, Biology, Physics* 2008; 70:S93-S97. PMID: 18406947 [doi:10.1016/j.ijrobp.2007.07.2394](https://doi.org/10.1016/j.ijrobp.2007.07.2394)

I designed and performed the study, analysis, and completed the majority of writing.

23. **Bayouth JE**, Pena J, Culp L, Brack, C, Sanguineti, G. Feasibility of IMRT to cover pelvic nodes while escalating the dose to the prostate gland: Dosimetric and acute toxicity data on 35 consecutive patients. *Medical Dosimetry* 2008; 33:180-190. PMID: 18674682 [doi:10.1016/j.meddos.2007.05.006](https://doi.org/10.1016/j.meddos.2007.05.006) [Link to article](#)

I designed and performed the study, analysis, and completed the majority of writing.

24. Bylund KC, **Bayouth JE**, Smith MC, Hass, AC, Bhatia SK, Buatti JM. Analysis of interfraction prostate motion using megavoltage cone beam CT. *International Journal of Radiation Oncology, Biology, Physics*. 2009; 73: 1284-1285. [Link to article](#)

The first author was my trainee. I designed the experiment and defined the metrics to be analyzed, established the technique used in the study for gathering data, helped trainee to analyze results, and a significant contribution of writing.

25. **Bayouth JE**, Bylund KC, Siochi RAC, Shukla HP, Nixon E, Buatti JM. Validation of treatment planning and delivery in conventional linear accelerator without flattening filter. Submitted to *International Journal of Radiation Oncology, Biology, Physics*.
I designed and performed the study, analysis, and completed the majority of writing.
26. Nixon E, **Bayouth JE**, Siochi RAC, Shukla HP. Evaluation of CT extended field of view imaging impact on radiation therapy treatment planning. *Medical Physics*. 2009; 34: 2449
The first author was my trainee. I designed the experiment and defined the metrics to be analyzed, established the technique used in the study for gathering data, helped trainee to analyze results, and a significant contribution of writing.
27. Siochi RAC, Pennington EC, Waldron TJ, **Bayouth JE**. Radiation therapy plan checks in a paperless clinic. *Journal of Applied Clinical Medical Physics*. 2009; 10: 2905. PMID: 19223840
I lead the initial design of the radiation therapy plan check process, specified the approach for 4D radiation therapy, and a minor contribution of writing. PMID: 19223840
28. Stancanello J, **Bayouth JE**, Orton CG. Point/counterpoint. Genomics, functional and molecular imaging will pave the road to individualized radiation therapy. *Medical Physics*. 2008; 35: 4769-4772. PMID: 19070208
I designed and performed the study, analysis, and completed the majority of writing.
29. Bylund KC, **Bayouth JE**, Smith MC, Siochi RAC, Buatti JM. Geometric and dosimetric impact of interfraction prostate motion measured with megavoltage cone beam CT. Submitted to *Radiotherapy Oncology*.
The first author was my trainee. I helped the trainee design the experiment and defined the metrics to be analyzed, helped trainee to analyze results, and a significant contribution of writing.
30. **Bayouth JE**, Menda y, Graham, MM. Utility of positron emission tomography in radiotherapy practice with emphasis on head and neck cancer. *Imaging Decisions MRI* 2008; 12(1): 14-24. [doi:10.1111/j.1617-0830.2008.00119.x](https://doi.org/10.1111/j.1617-0830.2008.00119.x)
I designed and performed the experimental study, analysis of results, and completed the ~60% of the writing.
31. Flynn RT, Hartmann J, Bani-Hashemi A, Nixon E, Siochi RAC, Pennington EC, **Bayouth JE**. Dosimetric characterization and application of an imaging beam line with a carbon electron target for megavoltage cone beam computed tomography. *Medical Physics* 2009; 36: 2181-2192. PMID: 19610307
32. Nelms DW, Shukla HI, Nixon E, **Bayouth JE**, Flynn RT. Assessment of three dead detector correction methods for cone-beam computed tomography. *Medical Physics* 2009; 36:4569-4576. PMID: 19928088
33. Bylund KC, **Bayouth JE**, Buatti JM. In Reply to Reddy et al. *International journal of radiation oncology, biology, physics* 2009;73:1284-1285.
34. Klein EE, Hanley J, **Bayouth JE**, et al. Task Group 142 report: Quality assurance of medical accelerators. *Medical Physics* 2009;36:4197-4212. PMID: 19810494
35. Ding K, **Bayouth JE**, Buatti JM, Christensen GE, Reinhardt JM. 4DCT-based measurement of changes in pulmonary function following a course of radiation therapy. *Medical Physics* 2010;37:1261-1272.

36. Han D, Sonka M, **Bayouth JE**, Wu Xiaodong. Optimal multiple-seams search for image resizing with smoothness. *The Visual Computer* 2010; 26:749-759.
37. Kim Y, Muruganandham M, Modrick JM, **Bayouth JE**. Evaluation of artifacts and distortions of titanium applicators on 3.0-Tesla MRI: Feasibility of titanium applicators in MRI_guided brachytherapy for gynecological cancer. *International Journal of Radiation Oncology, Biology, Physics* 2010; In press. PMID 20934275.

Book sections

1. **Bayouth JE**, and Bodduluri M. Physics and quality assurance of linac based, image guided, robotic radiosurgery. In: Kondziolka D, editor. Radiosurgery: the 1997 International Stereotactic Radiosurgery Society Meeting in Madrid, Spain. Vol 2. Berlin: S. Karger; 1997. p. 268.
2. Fuhrer RS, **Bayouth JE**, Zorub D, Acevedo J, and Weinberger M. Clinical experience in treatment techniques and future applications of accuray neurotron 1000, linac-based image-guided robotic radiosurgery. In: Kondziolka D, editor. Radiosurgery: the 1997 International Stereotactic Radiosurgery Society Meeting in Madrid, Spain. Vol 2. Berlin: S. Karger; 1997. p. 268.
3. Siochi RAC, **Bayouth JE**, Yang J, and Celi JC. IMRT Plans Quality Assurance. In: Ahlswede J, Ayyangar K, Saw CB, editors. An Introduction to IMRT. Malvern, PA: Siemens Medical Solutions; 2004.
4. Yang J, Celi JC, **Bayouth JE**, and Siochi RAC. LINAC Calibration and QA for Cinematic IMRT. In: Ahlswede J, Ayyangar K, Saw CB, editors. An Introduction to IMRT. Malvern, PA: Siemens Medical Solutions; 2004.
5. Yao M, Menda Y, **Bayouth JE**. PET-CT in Treatment Planning of Melanoma. In: Paulino AC, editor. PET-CT in Radiotherapy Treatment Planning. Philadelphia, PA: Elsevier; 2006.

Electronic publications

1. **Bayouth JE**, Celi JC, Hoban P, Marles A, Siochi RAC, and Yang J. An Introduction to IMRT: www.oncolink.org; 2004.
2. **Bayouth JE**, Stancanello J. Genomics, functional and molecular imaging will pave the road to individualized radiation therapy. <http://www.vjbio.org>; 2008.

Abstracts

1. Kasi LP, Macey DJ, **Bayouth JE**, and Boyer AL. Characteristics of a beta camera for quantitative autoradiography. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1991;32:1059.
2. **Bayouth JE**, Macey DJ, Murray JL, Cunningham LK, and Kasi LP. Bone marrow toxicity of ¹³¹I labeled monoclonal antibody fragments. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1992;35:941.
3. **Bayouth JE**, and Macey DJ. Dosimetry considerations of bone-seeking radionuclides for bone marrow ablation. *Medical Physics* 1992;19:781.
4. Macey DJ, **Bayouth JE**, Boyer AL, and Auster M. A new scatter subtraction method for quantitative ¹³¹I SPECT imaging. *Medical Physics* 1992;19:780.
5. Macey DJ, **Bayouth JE**, Giap HB, and Boyer AL. Design of a SPECT based 3-D treatment planning approach for radionuclide therapy. *Medical Physics* 1993;20:874.
6. Macey DJ, **Bayouth JE**, and Champlin RE. Design of a treatment planning strategy for bone marrow ablation with radionuclide therapy. *Medical Physics* 1993;20:930.
7. Macey DJ, **Bayouth JE**, Boyer AL, and Champlin RE. Implications of heterogeneity in red marrow doses from holmium-166 administered for bone marrow ablation. *Medical Physics* 1993;20:875.
8. Macey DJ, Grant EJ, Giap HB, and **Bayouth JE**. Improved conjugate view quantitation of I-131 by subtraction of scatter and septal penetration events with a triple-window method. *Medical Physics* 1993;20:873.

9. Kasi LP, Macey DJ, **Bayouth JE**, Garlich J, McMillan K, Simon J, Dimopoulos M, Podoloff D, and Champlin R. Pharmacokinetics of holmium-166dotmp - a new agent for bone marrow ablation. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P33.
10. Champlin R, Dimopoulos M, **Bayouth JE**, Macey D, Kasi L, Przepiorka D, Podoloff D, Garlich J, Simon J, and Alexanian R. Ho-166 Dotmp, A Bone Seeking Radiochelate For Selective Marrow Radiotherapy With Bone-Marrow Transplantation (Bmt) For Multiple-Myeloma. *Experimental Hematology* 1993;21:1117-1117.
11. Giap HB, Macey DJ, Boyer A, and **Bayouth JE**. Evaluation Of A New Postreconstruction Attenuation Correction Method For Quantitative Spect. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P192-P192.
12. Macey DJ, **Bayouth JE**, Giap HB, and Boyer AL. Design Of A Spect Based 3-D Treatment Planning Program For Radionuclide Therapy. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P127-P127.
13. Macey DJ, **Bayouth JE**, Kasi LP, Podoloff DA, and Champlin RE. Design Of A Treatment Planning Strategy For Bone-Marrow Ablation With Radionuclide Therapy. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P218-P218.
14. **Bayouth JE**, Macey DJ, Kasi LP, Dimopoulos MA, and Champlin RE. Estimation Of Red Marrow Doses From Ho-166 Administered For Bone-Marrow Ablation. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P161-P161.
15. Kasi LP, Macey D, Imam S, **Bayouth JE**, Dimopoulos M, Podoloff D, Bhadkamkar V, Garlich J, McMillan K, Simon J, and Champlin R. Ho-166dotmp - A New Agent For Bone-Marrow Ablation. *Journal Of Nuclear Medicine* 1993;34:P33-P33.
16. **Bayouth JE**, Macey DJ, Kasi LP, and Fossella FV. Pharmacokinetics And Toxicity Of Samarium-153-Edtmp Administered For Bone Pain. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P134-P134.
17. **Bayouth JE**, Macey DJ, Desai FR, and Kasi LP. Planar Gamma-Camera Imaging Of Ho-166. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1993;34:P180-P180.
18. Macey DJ, **Bayouth JE**, and Boyer AL. Validation Of A Dose Point Kernel Convolution Technique For I-131 Internal Dosimetry. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1994;35:P160-P160.
19. Macey DJ, Grant EJ, Giap HB, **Bayouth JE**, Danna SJ, Sirisriro R, and Podoloff DA. A New Approach For Attenuation Correction In Conjugate View Image Quantitation Of I-131. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1994;35:P143-P143.
20. Podoloff DA, Bhadkamkar VA, Kasi LP, Macey DJ, **Bayouth JE**, Williams PA, and Champlin R. Phase I/II Study Of Holmium-166-Dotmp For Bone-Marrow Ablation In Multiple-Myeloma Prior To Bone-Marrow Transplantation (Bmt). *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1994;35:P37-P37.
21. Grant EJ, Macey DJ, **Bayouth JE**, and Giap HB. A Triple Energy Window Scatter Subtraction Approach For Quantitative Anger Camera Imaging Of I-131. *Journal of Nuclear Medicine: official publication, Society of Nuclear Medicine* 1994;35:P142-P143.
22. Chenery S, **Bayouth JE**, Kalend AM, Wong P, Spalek G, Lee C, and Main W. Comparison of beam data for a prototype robotic stereotactic radiosurgery system. *Medical Physics* 1995;22:906.
23. Macey DJ, **Bayouth JE**, Grant EJ, and Podoloff D. Improved anger camera imaging and quantitation of In-111 using a quadruple energy window method for scatter subtraction. *Medical Physics* 1995;22:917.
24. **Bayouth JE**, and Steinberg TH. Virtual Wedge™ implementation on a treatment planning system. *Medical Physics* 1997;24:1078.
25. LaRose D, **Bayouth JE**, and Kanade T. Interactive 6-DOF 2D/3D Registration Using Transmission Imaging. *Medical Physics* 1999; 26:1107.
26. Morrill S, **Bayouth JE**, and Mehta S. A comparison of inverse IMRT treatment plans. *Medical Physics* 2001;28.

27. Smith A, **Bayouth JE**, Zhou S, Pena J, Endres EJ, and Hatch S. Dose calculation differences for intracavitary brachytherapy using conventional ICRU guidelines and 3D treatment planning systems. American Brachytherapy Society. Vancouver, Canada; 2001.
28. Mitra R, **Bayouth JE**, and Das I. Start-up characteristics and dosimetry of small monitor unit (MU) segments in step and shoot IMRT delivery for two types of digital linear accelerators. *Medical Physics* 2001;28:1202.
29. Smith A, **Bayouth JE**, and Zhou S. Utilization of asymmetric jaws in the creation of virtual penumbra generators for decreasing matchline dose inhomogeneity in mono-isocentric technique. *International Journal of Radiation Oncology, Biology, Physics* 2001;51:379-380.
30. Mehta S, **Bayouth JE**, and Pena J. Utilizing intensity modulation and inverse treatment planning to overcome dose inhomogeneities in pelvic radiation of patients with hip prostheses. *International Journal of Radiation Oncology, Biology, Physics* 2002;54:321-322.
31. Culp L, **Bayouth JE**, Endres EJ, Smith A, and Colman M. Craniospinal irradiation - use of new technology to achieve dose uniformity. *International Journal of Radiation Oncology, Biology, Physics* 2002;54:239.
32. **Bayouth JE**, and Morrill S. Study of IMRT dose model inadequacies. *Radiotherapy and Oncology: Journal of the European Society for Therapeutic Radiology and Oncology* 2002;64:S318-319.
33. **Bayouth J**, and Morrill S. MLC dosimetric characteristics for small field and IMRT applications. *Medical Physics* 2002;29:1267-1267.
34. Chan RH, **Bayouth JE**, Wendt D, Morrill SM, Endres EJ, and Pena JM. Differences in lung volumes and gross tumor volumes using spiral CT and CT scan with free breathing in patients with lung cancer. *Cancer Journal* 2002;8:501-501.
35. Chan RH, Pena JM, Wendt D, Endres EJ, **Bayouth JE**, and Morrill SM. A robust, simplified and cost-effective technique for virtual simulation and filmless digitally reconstructed radiographs in radiation oncology. *Cancer Journal* 2002;8:506-506.
36. Smith AB, Deleon-McQuatters T, **Bayouth JE**, Pena JM, Endres EJ, and Hatch SS. Three dimensional planning significantly improves dose homogeneity of pelvic sidewall boost plans following intracavitary brachytherapy in management of cervical carcinoma. *Cancer Journal* 2002;8:498-498.
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107. Wayn Y, Gajdos S, Tendulkar R, Vassil A, **Bayouth JE**, Xia P. Application of non flat beams for breast radiotherapy using direct aperture optimization. *Medical Physics* 2010; 37:3215.
108. Sun W, **Bayouth JE**, Buatti JM, Maley JE, Anjerson CM. Interobserver and intermodality variability in GTV delineation on simulation CT FDG-PET and MR images of head and neck cancer. *Multidisciplinary Head and Neck Cancer Symposium*. 2010.

B. Areas of Research Interest and Current Projects

Research interests

Intensity Modulated Radiation Therapy (IMRT):

- Treatment w/o Flattening Filter

Image Guided Radiation Therapy (IGRT)

- Four-dimensional radiotherapy: Image Acquisition, Planning, Verification, and Treatment Delivery
- On-line Image Guidance for Precision Therapy
- Magnetic Resonance Imaging in Radiation Therapy
- Positron Emission Tomography Based Treatment Planning

Quality Assurance of Radiation Therapy

- Reproducibility of Molecular and Functional Imaging

Investigator Initiated Clinical Trials (principal investigator)

- Quantifying Radiation-Induced Changes in Pulmonary Function in Irradiated and Non-Irradiated Lung Tissue
- Evaluation of change in the lumpectomy cavity during radiation therapy by weekly ultrasound and by daily ultrasound during the radiation boost (IRB 200602784)

Investigator Initiated Clinical Trials (co-investigator)

- A phase I study of fractionated radiation therapy combined with 2-deoxyglucose for treatment of squamous cell carcinoma of the head and neck (IRB 200311079)
- Retrospective analysis of CT scan parameters impact on radiation dose calculations performed for treatment planning (IRB 200703763)
- Verification of MRI imaging technique and output (IRB 200709709)

National Sponsored Clinical Trials (co-investigator)

- ACSOG Z4032: A randomized phase III study of sublobar resection versus sublobar resection plus brachytherapy in high risk patients with non-small cell lung cancer (NSCLC), 3 cm or smaller (IRB 200607707)
- RTOG 0212: A phase II/III randomized trial of two doses (phase III-standard vs. high) and two high dose schedules (phase II-once vs. twice daily) for delivering prophylactic cranial irradiation for patients with limited disease small cell lung cancer (IRB 200505727)
- RTOG 0625: A randomized phase II trial of bevacizumab with irinotecan or bevacizumab with temozolomide in recurrent glioblastoma (IRB 200706711)
- RTOG 0415: A phase III randomized study of hypofractionated 3D-CRT/IMRT versus conventionally fractionated 3D-CRT/IMRT in patients with favorable-risk prostate cancer (IRB 200707710)
- RTOG 0515: A comparative study of gross tumor volume definition with or without PET fusion for patients with non-small cell lung carcinoma (IRB 200707712)
- RTOG 0235: Positron emission tomography pre- and post-treatment assessment for locally advanced non-small cell lung carcinoma (IRB 200707713)

C. Published Reviews of Scholarship

None.

D. Grants Received**Present**

Carver Collaborative	02/01/2009 – 01/31/2011
University of Iowa Carver College of Medicine	\$50,000 current year direct
Quantifying Radiation Induced Changes in Pulmonary Function in Irradiated and Un-Irradiated Lung Tissue	

1 U01 CA140206-01 Co-investigator	07/01/09 – 06/30/14
NIH	\$500,000 1st year direct
Quantitative Imaging to Assess Response in Cancer Therapy Trials	

Past**Development of an Inverse Treatment Planning System for Stereotactic Radiosurgery Using the Accuray Neurotron 1000 Cyberknife®**

Source:	Shadyside Hospital, Pittsburgh, PA	Period of Funding:	1998
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Development of an Image Processing System for Frameless Stereotactic Radiosurgery Using the Accuray Neurotron 1000 Cyberknife®

Source:	Shadyside Hospital, Pittsburgh PA	Period of Funding:	1998
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Hardware and Software – Tools for comparison of dose distributions

Source:	ADAC Laboratories, Milpitas CA	Period of Funding	2000
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Development of IMRT

Source: Siemens Medical Systems, Concord CA Period of Funding 2002

Hardware and Software - IMRT Training Course

Source: Philips Medical Systems Period of Funding 2002-04

Software (IMFAST)

Source: Siemens Medical Systems, Concord CA Period of Funding 2002-04

IMRT Training Course

Source: Philips Medical Systems Period of Funding 2002

IMRT Training Course

Source: Philips Medical Systems Period of Funding 2003

Hardware and System Platform Upgrades – IMRT Training Course

Source: Philips Medical Systems Period of Funding 2003-04

ASTRO Training Grant for Medical Physics Residency

Source: American Society for Therapeutic Radiology and Oncology Period of Funding 2003-04

Siemens Research Grant: Exhibit A, Clinical Evaluation of COHERENCE Physicist Workspace

Source: Siemens Medical Solutions USA, Inc. Period of Funding 2005

Siemens Research Grant: Exhibit B, 4DCT in Radiotherapy: Image Acquisition, Planning, Verification, and Treatment Delivery

Source: Siemens Medical Solutions USA, Inc. Period of Funding 2005

Siemens Research Grant: Exhibit C, On-line Image Guidance for Precision Therapy

Source: Siemens Medical Solutions USA, Inc. Period of Funding 2005

Consultant on SBIR Grant: Benchmark Datasets for Photon Beam Algorithm Verification

Source: National Cancer Institute/Sun Nuclear Corporation Period of Funding 2006-08

Siemens Research Grant: Clinical Applications of Linear Accelerator Without Flattening Filter

Source: Siemens Medical Solutions USA, Inc. Period of Funding 2007-09

E. Invited Lectures, Conference Presentations, Visiting Professorships**Invited Lectures**

1. Bayouth JE. IMRT Quality Assurance. Siemens User Meeting Round Table Discussion. Charleston, South Carolina, 2000.
2. Bayouth JE. IMRT--Texas Style. Allegheny General Hospital, Pittsburgh, Pennsylvania; 2001.
3. Bayouth JE. IMRT--Texas Style. The Robotics Institute Seminar Series. Carnegie Mellon University, Pittsburgh, PA; 2001.
4. Bayouth JE. State of the Art Radiation Therapy: Intensity Modulated Radiation Therapy. Invited Lecturer, John Muir Medical Center. Concord, California; 2003.
5. Bayouth JE. State of the Art Radiation Therapy: Intensity Modulated Radiation Therapy. Invited Lecturer, Mt. Diablo Medical Center. Walnut Creek, California; 2003.
6. Bayouth JE. CT Simulation. ASTRO's Siemens User Meeting Round Table Discussion. Denver, Colorado; 2005.
7. Bayouth JE. Model Based Segmentation Appetizers from Iowa. Philips User Meeting – American Association of Physicists in Medicine Annual Meeting. Orlando, Florida; 2006.

8. Bayouth JE. Respiratory-Gated Extracranial Radiosurgical Target Localization. Siemens International User Meeting – European Society for Therapeutic Radiology and Oncology. Leipzig, Germany; 2006.
9. Bayouth JE. Model-Based Segmentation – Philips Medical. ASTRO. Philadelphia, Pennsylvania; 2006.
10. Bayouth JE. Image-Guided Radiation Therapy: Update. Oncure Medical Corporation, Medical Advisory Board. Jacksonville, Florida; 2006.
11. Bayouth JE. Motion Management in Radiation Therapy. Oncure Medical Corporation, Medical Advisory Board. Jacksonville, Florida; 2006.
12. Bayouth JE. Image Guided Radiation Therapy. Allegheny General Hospital, Department of Radiation Oncology. Pittsburg, Pennsylvania; 2007.
13. Bayouth JE. 4D Radiotherapy – Imaging and Planning, University of Iowa, Department of Radiation Oncology Siemens Workshop. Iowa City, Iowa; 2007.
14. Bayouth JE. Postprocessing on the Multimodality Workplace, University of Iowa, Department of Radiation Oncology Siemens Workshop. Iowa City, Iowa; 2007.
15. Bayouth JE. Image-Guided Therapy Using Mega Voltage Cone Beam, AAMD Annual Meeting, New Orleans, Louisiana; 2007.
16. Bayouth JE. Impact of Imaging in Radiation Oncology, Holden Comprehensive Cancer Center, Iowa City, Iowa; 2007.
17. Bayouth JE. Image-Guided Radiotherapy Using Mega Voltage Cone Beam, Palmerston North Hospital, Palmerston North, New Zealand; 2007.
18. Bayouth JE. Image-Guided Radiotherapy Using Mega Voltage Cone Beam, Prince of Whales Hospital, Sydney, Australia; 2007.
19. Bayouth JE. Image-Guided Radiotherapy Using Mega-Voltage Cone Beam, Tokyo, Japan; 2007.
20. Bayouth JE. Image-Guided Radiotherapy Using Mega-Voltage Cone Beam, Trinity Hospital, Moline, Illinois; 2007.
21. Bayouth JE. Simulation and Motion Management, AAPM, Houston, Texas; 2008.
22. Bayouth JE. Physics QA Issues and Challenges in Complex Treatment Planning, 2009 Advances in Technology: Practical Aspects on IMRT and Proton Therapy Symposium, Chandler, Arizona; 2009.
23. Bayouth JE. *, ASTRO IMRT Symposium, Los Angeles, CA; 2009.
24. Bayouth JE. *, SunNuclear QA Symposium, Orlando, FL; 2009.
25. Bayouth JE. *, SE Chapter of AAPM, Chapel Hill, NC; 2009.
26. Bayouth JE. *, OSC Radiotherapy Future (Siemens), Germany; 2009.
27. Bayouth JE. *, ASTRO IGRT Symposium, Miami, FL; 2009.
28. Bayouth JE. *, AAPM Delaware Chapter Symposium, Baltimore, MD; 2010.
29. Bayouth JE. *, AAPM Safety in Radiation, Miami, FL; 2010.
30. Bayouth JE. *, ESTRO, Barcelona, Spain; 2010.
31. Bayouth JE. Quality assurance and patient safety: response to issues raised in NYT, ISTRO, Iowa City, IA; 2010.
32. Bayouth JE. *, Penn OH Chapter of AAPM, Cleveland, OH; 2010.
33. Bayouth JE. CAMPEP Self-Study Workshop, AAPM, Anaheim, California; 2009.
34. Bayouth JE. Strengths and Limitations of Anatomical and Spectroscopic MRI in Radiation Oncology Treatment Planning. AAPM, Anaheim, California; 2009.
35. Bayouth JE. Preparing for the Future: What You Need to Know to Become a Qualified Medical Physicist. AAPM, Philadelphia, Pennsylvania; 2010.

Conference Presentations

1. Bayouth JE. A Simplified Approach to Forward Planning IMRT. Southwest Regional Chapter of the AAPM Fall Meeting. San Antonio, TX; 2000.

2. Bayouth JE. X-Ray/CT Registration at Interactive Speeds Using the Transgraph. The Southwest Regional Chapter of the AAPM Bi-Annual Meeting. Galveston, TX; 2001.
3. Bayouth JE. A Simplified Approach to Forward Planning IMRT. M.D. Anderson Cancer Center Physics Symposium. Houston, Texas; 2001.
4. Bayouth JE. A Simplified Approach to Forward Planning IMRT. Siemens Users Meeting. Melbourne, Australia; 2001.
5. Bayouth JE. IMRT Treatment Planning Approaches - A Comparison of Corvus and Pinnacle. ADAC Users Meeting. Salt Lake City, Utah; 2001.
6. Bayouth JE. Six Degrees of Freedom Image Registration for Motion Compensation in Robotic Radiosurgery/Radiotherapy. University of Maryland, Baltimore, Maryland; 2001.
7. Bayouth JE. MLC Quality Assurance Techniques for IMRT Applications. The Southwest Regional Chapter of the AAPM Bi-Annual Meeting. New Orleans, Louisiana; 2001.
8. Bayouth JE. Application of IMRT at UTMB with Siemens Linear Accelerators. European Society for Therapeutic Radiation and Oncology's IMRT Workshop. Seville, Spain; 2001.
9. Bayouth JE. IMRT for Head and Neck Patients at UTMB. Siemens IMRT Symposium. Montreal, Canada; 2002.
10. Bayouth JE. Addressing the Uncertainty Clinical Target Volume Position, and IMRT Treatment Planning Comparisons. American Association of Medical Dosimetrists: Region II Meeting. St. Louis, Missouri; 2003.
11. Bayouth JE. Technical Issues Surrounding the Treatment of Prostate Cancer With Radiation Therapy. College of Engineering Imaging Group. University of Iowa. Iowa City, Iowa; 2004.
12. Bayouth JE. Data Acquisition for Treatment Planning Systems. 45th Annual Meeting of the American Association of Physicists in Medicine (AAPM). San Diego, California; 2003.
13. Bayouth JE. Study of IMRT Dose Model Inadequacies. The Southwest Regional Chapter of the AAPM Bi-Annual Meeting. Houston, Texas; 2003.
14. Bayouth JE. High Field Strength MRI in Radiotherapy. Siemens Educational Symposium for the Canadian Association of Radiation Oncologists. Victoria, British Columbia, Canada; 2005.
15. Bayouth JE. MRI in Radiotherapy. Missouri-River Valley Chapter – American Association of Physicists in Medicine Fall Symposium. University of Iowa Hospitals & Clinics. Iowa City, Iowa. 2005.
16. Bayouth JE. Got the DVH Blues? Annual Meeting of the American Association of Medical Dosimetrists. San Diego, California; 2005. [CME credit provided]
17. Bayouth JE. Multimodality Imaging in Radiation Therapy. Annual Meeting of American Association of Medical Dosimetrists. San Diego, California; 2005. [CME credit provided]
18. Bayouth JE, Creation of Contours & Setting Your Dose Objectives/237 Things You Should Know. 3rd Annual AAMD Region I & NW – AAPM Meeting, Stevenson, Washington. 2006.
19. Bayouth JE, DVH Interpretation. 3rd Annual AAMD Region I & NW – AAPM Meeting, Stevenson, Washington. 2006.
20. Bayouth JE. Basics of IMRT. American Association of Medical Dosimetrists Annual Meeting. Vancouver, Canada. 2006.
21. Bayouth JE. Challenges Presented By Advanced Radiation Therapy Treatment Planning. American Association of Medical Dosimetrists Annual Meeting. Vancouver, Canada. 2006.
22. Bayouth JE. Cost Efficient Utilization of New Technology for Precise Tumor Targeting. American Radium Society Meeting. Amsterdam, The Netherlands. 2007.
23. Bayouth JE. MLC Performance and Reliability Requirements for IMRT. Quality Assurance of Radiation Therapy and the Challenges of Advanced Technologies Symposium. Dallas, Texas. 2007.
24. Bayouth JE. Image Guided Therapy Using Megavoltage Cone Beam. AAMD Annual Meeting. New Orleans, Louisiana. 2007.
25. Bayouth JE. 4D Imaging and Treatment Delivery. NZIMRT Conference. Palmerston North, New Zealand. 2007.
26. Bayouth JE. Multimodality Imaging in Radiation Therapy. NZIMRT Conference. Palmerston North, New Zealand. 2007.

27. Bayouth JE. Image-Guided Radiotherapy Using MV Cone Beam. NZIMRT Conference. Palmerston North, New Zealand. 2007.
28. Bayouth JE. SRT of Lung Tumors: 4D Imaging, Planning, Localization and Gated Delivery. 2007.
29. Bayouth JE. Quantitative MR Imaging for Targeting in Radiation Therapy. ISTRO. Iowa City, Iowa. 2007
30. Bayouth JE. IMRT: Many Things You Should Know (Contours, Objectives and DVH Interpretation). VII Annual Course on Advances in Radiotherapy. Hospital SirioLibanes. San Paulo, Brazil. 2007.
31. Bayouth JE. 4D Imaging and Treatment Delivery. VII Annual Course on Advances in Radiotherapy. Hospital SirioLibanes. San Paulo, Brazil. 2007.
32. Bayouth JE. Image-Guided Radiotherapy with Mega Voltage Cone Beam: How Did It Change My Practice?. VII Annual Course on Advances in Radiotherapy. Hospital SirioLibanes. San Paulo, Brazil. 2007.

F. Pending decisions

IV. SERVICE

A. Memberships in Professional Organizations

1997-1999	Member, Penn-Ohio Chapter of the AAPM
1998	President Elect, Penn-Ohio Chapter of the AAPM
1999	President, Penn-Ohio Chapter of the AAPM
1999-2004	Member, Southwest Regional Chapter of the AAPM
2002	President Elect, Southwest Regional Chapter of the AAPM
2003	President, Southwest Regional Chapter of the AAPM
2001-2003	Member, Assessment of Technology Subcommittee—AAPM
2002-current	Member, American Society for Therapeutic Radiology and Oncology (ASTRO)
2002-current	Member, European Society for Therapeutic Radiology and Oncology (ESTRO)
2004-current	Member, Missouri River Valley Chapter of the AAPM
2004-current	Member, Radiation Physics Committee of the Research Council (ASTRO)
2005	President Elect, Missouri River Valley Chapter of the AAPM
2006	President, Missouri River Valley Chapter of the AAPM
2007	Member, Tumor Imaging Program, Holden Comprehensive Cancer Center

Review panels

2002	Reviewer (meeting abstracts), American Association of Physicists in Medicine
2003	Reviewer (meeting abstracts), American Association of Physicists in Medicine
2004	Reviewer, Department of Defense, Panel for Prostate Cancer Research Program – Radiation Oncology
2005 - present	Reviewer, Carver College of Medicine Seed Grants (Collaborative and Translational Seed Grants)

2006	Reviewer (meeting abstracts), American Association of Physicists in Medicine
2007 - present	Reviewer, Radiological Society of North America (Research and Education Foundation – Study Section)

Review Panels: Journals

Associate Editor, Medical Physics

Collegiate committees

2005-present	Carver College of Medicine Research Committee
2005	<i>ad hoc</i> UIHC Review Committee to review Department of Otolaryngology—Head and Neck Surgery
2004-present	Radiation Oncology Medical Resident Selection Committee
2005-present	Radiation Oncology Physics Resident Selection Committee
2006-present	Reviewer, Carver College of Medicine Student Fellowship Reviews
2006-present	Radiation Oncology Faculty Mentoring Committee (Joe Modrick, PhD; Min Yao, MD; Sudershan Bhatia, MD; R. Alfredo Siochi, Ph.D.)

National committees

2000-2004	Co-chair, AAPM Task Group 67: Benchmark Datasets for Photon Beams
2001-2003	Member, AAPM Assessment of Technology Subcommittee
2003-2009	Member, Radiation Physics Committee—ASTRO
2003-2005	Member, Health Economics Committee—ASTRO
2004-present	Member, AAPM Workgroup on Treatment Planning
2006-present	Member, AAPM Subcommittee on Medical Physics Training and Promotion
2006-present	Chair, AAPM Working Group: Coordination of Medical Physics Residency Programs
2007-present	Member, ASTRO Evaluation Subcommittee of Emerging Technology Committee
2007-2010	Member, AAPM Task Group 142: QA of Medical Accelerators
2007-present	Member, AAPM Medical Physics Education of Physicians
2007-2009	Member, AAPM Task Group 131: Medical Physics Training in Developing Countries in the Region
2007-present	Member, Commission on Accreditation of Medical Physics Educational Programs, Residency Education Program Review Committee
2008-2010	Member, AAPM Task Group 179: Quality Assurance for Image-guided Radiation Therapy Utilizing CT-based Technologies
2008-present	Chair, AAPM Subcommittee on Medical Physics Training and Promotion
2008-present	Member, AAPM Task Group 174: Utilization of 18F-Fluorodeoxyglucose Positron Emission Tomography (FDG-PET) in Radiation Therapy
2007-2009	Member, Working Group on Response to Radiation Incidents

<i>2008-present</i>	Member, AAPM Task Group 180: Modeling and Accounting for the Imaging Guidance Radiation Doses to Radiotherapy Patients in Treatment Planning
<i>2010-present</i>	Member, AAPM Board of Directors; Board member at large
<i>2010-present</i>	Member, AAPM Board of Directors; Guest Vice Chair, Education Council
<i>2010-present</i>	Member, AAPM Education Council; Chair of Education and Training of Medical Physicists
<i>2010-present</i>	Council Vice-Chair, AAPM Education Council
<i>2010-present</i>	Member, Finance Committee
<i>2009-2010</i>	Member, AAPM Task Group 168: Evaluation of Formation of Society of Directors of Academic Medical Physics Programs
<i>2010-present</i>	Member, AAPM Task Group 198: An Implementation Guide for TG-142: QA of Medical Linear Accelerators
<i>2010-present</i>	Chair, AAPM Education and Training of Medical Physics Committee
<i>2010-present</i>	Chair, AAPM Task Group 207: Medical Nuclear Physics in Diagnostic Imaging
<i>2010-present</i>	Co-chair, AAPM Task Group 210: Conventional LINAC Acceptance Testing

National services

2002	Symposium moderator, American Association of Physicists in Medicine
2003	Symposium moderator, American Society of Therapeutic Radiology and Oncology
2003	Symposium moderator, American Association of Physicists in Medicine
2005	Symposium moderator, American Association of Physicists in Medicine
2006	Symposium moderator, American Association of Physicists in Medicine
2008	Symposium moderator, American Association of Physicists in Medicine

Relevant community involvement

2005-2008	Leader, Orthodox Christian Fellowship St. Raphael of Brooklyn, Iowa City, Iowa
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National Clinical Trials Research

1. Designated UIHC RTOG physicist, responsible for conducting national trials in accordance with the specified requirements, including credentialing for specified protocols, such as 3D and IMRT protocols.
2. Designated UIHC physicist for multiple cooperative groups, including NSABP, COG, and CALGB, ensuring compliance with the specified requirements, credentialing, and RT form submissions to QARC.

Academic

1. Created the Medical Physics Residency Program at the University of Iowa, securing extramural funding through grant support.

2. Oral Examiner for Board Certification, The American Board of Radiology, Therapeutic Radiologic Physics.
3. Item Writer, The American Board of Radiology, Therapeutic Radiologic Physics.

A. Clinical assignments since last promotion

Clinical Service

1. Clinical physics support for all radiation therapy services, including central nervous system, pediatric, breast, gynecologic, thoracic, abdominal, prostate, and head and neck.
2. Clinical physics support for special procedures, including stereotactic radiosurgery, intensity modulated radiation therapy, and brachytherapy.
3. Expanding 3-dimensional treatment planning into all clinical services; developing and clinically implementing Virtual Simulation, an electronic based treatment planning review system, Forward Planning IMRT, and Inverse Planning IMRT.
4. Established a new contract for physics support provided by our group to two satellite hospitals: Mercy Hospital (Clinton, IA) and Great River Medical Center (Burlington, IA).
5. Treatment planning, calibration, and quality control of linear accelerators.
6. Leadership role in the development of departmental workflow and an electronic chart.
7. Lead department transfer to CEIGRT: Integration of advanced imaging technology, treatment planning, radiation therapy delivery equipment, and electronic data management
8. Commissioning of 4 linear accelerators, stereotactic radiosurgery system, and total body irradiation in the newly created Center of Excellence.
9. Commissioning of respiratory-gated 4D Radiation Therapy: computed tomography, positron-emission tomography, and gated treatment deliver on the linear accelerator.
10. Quality control of treatment planning systems.
11. Quantitative delineation of PET standardized uptake values for radiotherapy treatment planning.