

COLLEGE OF MEDICINE CURRICULUM VITAE

John E. Bayouth, Ph.D.

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 and Licensure

American Board of Radiology (Therapeutic Radiological Physics)	<i>certified</i> June 1997
Texas Board of Examiners	<i>through</i> 2004

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- <i>current</i>	Associate Professor (Clinical), Department of Radiation Oncology The University of Iowa Hospitals & Clinics, Iowa City, Iowa
2004- <i>current</i>	Director of Medical Physics, Department of Radiation Oncology The University of Iowa Hospitals & Clinics, Iowa City, Iowa

C. Other contributions to institutional programs

Year	Contribution	hrs/year
1999-2004	Radiation Oncology Case conference	100
2005-present	Radiation Oncology Case conference	50
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.

National education related presentations

1. Bayouth JE. Got the DVH Blues? Annual Meeting of the American Association of Medical Dosimetrists. San Diego, California; 2005. [CME credit provided]
2. Bayouth JE. Multimodality Imaging in Radiation Therapy. Annual Meeting of American Association of Medical Dosimetrists. San Diego, California; 2005. [CME credit provided]

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.
2. Rosenblum MG, Macey DJ, Podoloff DA, Kasi LP, **Bayouth J**, 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.
3. **Bayouth JE**, and Macey DJ. Dosimetry considerations of bone-seeking radionuclides for marrow ablation. *Medical physics* 1993;20:1089-1096.
4. **Bayouth JE**, and Macey DJ. Quantitative Imaging Of Ho-166 With An Anger Camera. *Physics in Medicine and Biology* 1994;39:265-279.
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.
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.
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.
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.

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.
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.
11. **Bayouth JE**, Wendt D, and Morrill SM. MLC quality assurance techniques for IMRT applications. *Medical physics* 2003;30:743-750.
12. **Bayouth JE**, and Morrill SM. MLC dosimetric characteristics for small field and IMRT applications. *Medical physics* 2003;30:2545-2552.
13. Culp LR, Pou AM, Jones DV, **Bayouth J**, and Sanguineti G. A case of radiation recall mucositis associated with docetaxel. *Head & Neck* 2004;26:197-200.
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.
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.
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 Rontgengesellschaft* 2005;181:431-441.
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.
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.

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.

Electronic publications

1. **Bayouth JE**, Celi JC, Hoban P, Marles A, Siochi RAC, and Yang J. An Introduction to IMRT: www.oncolink.org; 2004.

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 J**, 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 J**, 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, Sirisiro 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. *American Association of Physicists in Medicine*. Nashville, Tennessee; 1999.
26. LaRose D, **Bayouth JE**, and Kanade T. Evaluating 2D/3D registration accuracy. 14th International Congress on Computer Assisted Radiology and Surgery. San Francisco, California; 2000.
27. LaRose D, **Bayouth JE**, and Kanade T. Transgraph: interactive intensity based 2D/3D registration of X-ray and CT data. *SPIE Medical Imaging*. San Diego, California; 2000.
28. Morrill S, **Bayouth JE**, and Mehta S. A comparison of inverse IMRT treatment plans. *Medical physics* 2001;28.
29. 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.
30. 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.
31. 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.
32. 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.
33. 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.
34. **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.
35. **Bayouth J**, and Morrill S. MLC dosimetric characteristics for small field and IMRT applications. *Medical physics* 2002;29:1267-1267.
36. 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.
37. 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.
38. 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.
39. Cavey ML, Pena J, Endres EJ, **Bayouth JE**, and Hatch S. Improved dose homogeneity with forward planning IMRT (f-IMRT) for intact breast and axillary/supraclavicular field irradiation. *Breast cancer research and treatment* 2003;82:S40-S40.
40. **Bayouth J**, Zhou S, and Morrill S. Analysis of variation in H&D curve creation for EDR2 film dosimetry. *Medical physics* 2003;30:1450-1450.
41. **Bayouth J**. Data acquisition for beam modeling. *Medical physics* 2003;30:1377-1377.
42. Morrill S, **Bayouth J**, and Wendt D. A TAR-based system for automatic IMRT dose verification. *Medical physics* 2003;30:1417-1417.

43. **Bayouth J**, Followill D, Nelson A, Ibbott G, and Morrill S. Dosimetric effect of a hip prosthesis when delivering intensity modulated radiation therapy (IMRT): a phantom study. *Radiotherapy and Oncology: Journal of the European Society for Therapeutic Radiology and Oncology* 2003;68:S105-S105.
44. **Bayouth J**, Pena J, Culp L, Brack C, and Sanguineti G. Feasibility of IMRT to cover pelvic nodes while escalating the dose to the prostate gland: dosimetric and acute toxicity data on 24 consecutive patients. *Radiotherapy and Oncology: Journal of the European Society for Therapeutic Radiology and Oncology* 2003;68:S77-S77.
45. Cavey M, **Bayouth JE**, Colman M, Endres EJ, and Sanguineti G. Is dose escalation to the prostate feasible while treating the pelvic nodes with IMRT? ICCR. Seoul, Korea; 2004.
46. Sanguineti G, Cavey M, Endres E, and **Bayouth J**. Inadequacy of 4-field box technique to meet rectal dose objectives during dose escalation to the prostate. *International Journal of Radiation Oncology, Biology, Physics* 2004;60:S476-S477.
47. Sanguineti G, Sosa M, Culp L, Endres E, and **Bayouth J**. Is it feasible to spare part of the mucosa with IMRT and does it matter? *International Journal of Radiation Oncology, Biology, Physics* 2004;60:S517-S518.
48. **Bayouth J**, Cavey M, Colman M, Endres E, and Sanguineti G. IMRT to escalate the dose to the prostate while treating the pelvic nodes. *Medical physics* 2004;31:1720-1720.
49. Cavey M, Sanguineti G, Endres E, and **Bayouth J**. Advantage of IMRT as compared to 4-field box technique to treat the pelvic nodes while escalating the dose to the prostate. *Radiotherapy and Oncology: Journal of the European Society for Therapeutic Radiology and Oncology* 2004;73:S399-S400.
50. Sanguineti G, Sosa M, Endres E, Pou A, and **Bayouth J**. Hyperfractionated IMRT (HF-IMRT) alone for locally advanced oropharyngeal carcinoma: a phase I study. *Radiotherapy and Oncology: Journal of the European Society for Therapeutic Radiology and Oncology* 2004;73:S300-S301.
51. **Bayouth J**, Morgan P, Uchida T, Brack C, Orihuela E, and Sanguineti G. Prostate motion associated with differential filling of bladder and rectum during external beam radiotherapy. *Radiotherapy and Oncology: Journal of the European Society for Therapeutic Radiology and Oncology* 2004;73:S290-S290.
52. Yao M, Nguyen T, Dornfeld KJ, Tan H, Wacha J, **Bayouth JE**, and Buatti JM. Prognostic significance of FDG PET for head and neck cancer treated with IMRT. *International Journal of Radiation Oncology, Biology, Physics* 2005;63:S149-S150.
53. Saba O, **Bayouth J**, and Hoffman E. Comparison of breath-hold and free breathing approaches for 4DCT data acquisition. *Medical physics* 2005;32:1899-1899.

B. Areas of Research Interest and Current Projects

Research interests

Intensity Modulated Radiation Therapy (IMRT):

- Forward and Inverse Treatment planning techniques
- Field sequencing
- Quality assurance

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

Quality Assurance of Radiation Therapy

- Benchmark Photon Beam Data For Improved Accuracy in Radiotherapy
- Image Guided Patient And Linear Accelerator QA Using An Electronic Portal Imaging System

C. Published Reviews of Scholarship

D. Grants Received

As principal investigator (PI)

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

Source: Shadyside Hospital, Pittsburgh, PA
 Direct Funds: \$8,000 Period of Funding: 1998

Development of an Image Processing System for Frameless Stereotactic Radiosurgery Using the Accuray Neurotron 1000 Cyberknife®

Source: Shadyside Hospital, Pittsburgh PA
 Direct Funds: \$8,000 Period of Funding: 1998

Hardware and Software – Tools for comparison of dose distributions

Source: ADAC Laboratories, Milpitas CA
 Direct Funds: \$175,000 Period of Funding: 2000

Development of IMRT

Source: Siemens Medical Systems, Concord CA
 Direct Funds: \$30,000 Period of Funding: 2002

Hardware and Software - IMRT Training Course

Source: Philips Medical Systems
 Direct Funds: \$600,000 Period of Funding: 2002

Software (IMFAST)

Source: Siemens Medical Systems, Concord CA
 Direct Funds: \$46,000 Period of Funding: 2002

IMRT Training Course

Source: Philips Medical Systems
 Direct Funds: \$27,500 Period of Funding: 2002

IMRT Training Course

Source: Philips Medical Systems
 Direct Funds: \$27,500 Period of Funding: 2003

Hardware and System Platform Upgrades – IMRT Training Course

Source: Philips Medical Systems
 Direct Funds: \$115,000 Period of Funding: 2003

ASTRO Training Grant for Medical Physics Residency

Source: American Society for Therapeutic Radiology and Oncology
 Direct Funds: \$12,000 Period of Funding: 2005

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

Source: Siemens Medical Solutions USA, Inc.
 Direct Funds: \$19,780 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.
 Direct Funds: \$91,000 Period of Funding: 2005

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

Source: Siemens Medical Solutions USA, Inc.

Direct Funds: \$82,290 Period of Funding 2005

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

Source: National Cancer Institute/Sun Nuclear Corporation

Direct Funds: \$13,500 Period of Funding 2005

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.

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. Utilizing IMRT to Overcome Dose Inhomogeneities in Pelvic Radiation of Patients with Hip Prostheses. The Southwest Regional Chapter of the AAPM Bi-Annual Meeting. Dallas, Texas; 2002.
10. Bayouth JE. IMRT for Head and Neck Patients at UTMB. Siemens IMRT Symposium. Montreal, Canada; 2002.
11. 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.
14. Bayouth JE. Data Acquisition for Treatment Planning Systems. 45th Annual Meeting of the American Association of Physicists in Medicine (AAPM). San Diego, California; 2003.
15. Bayouth JE. Study of IMRT Dose Model Inadequacies. The Southwest Regional Chapter of the AAPM Bi-Annual Meeting. Houston, Texas; 2003.

17. Bayouth JE. High Field Strength MRI in Radiotherapy. Siemens Educational Symposium for the Canadian Association of Radiation Oncologists. Victoria, British Columbia, Canada; 2005.
18. 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.
19. 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.
20. Bayouth JE, DVH Interpretation. 3rd Annual AAMD Region I & NW – AAPM Meeting, Stevenson, Washington. 2006.

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
2005	President Elect, Missouri River Valley Chapter of the AAPM
2006	President, Missouri River Valley Chapter of the AAPM

Review panels

2002	Reviewer (meeting abstracts), American Association of Physicists in Medicine
2003	Reviewer (meeting abstracts), American Association of Physicists in Medicine
2005	Reviewer, Carver College of Medicine Seed Grants (Collaborative and Translational Seed Grants)

Collegiate committees

2005-present	Carver College of Medicine Research Committee
2005-present	<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

National committees

2000-2002	Co-chair, AAPM Task Group 67: Benchmark Datasets for Photon Beams
2002-2003	Member, AAPM Assessment of Technology Subcommittee
2003-current	Member, Radiation Physics Committee—ASTRO
2003-current	Member, Health Economics Committee—ASTRO
2004-present	Member, AAPM Workgroup on Treatment Planning

National service

2002	Symposium moderator, American Association of Physicists in Medicine
2003	Symposium moderator, American Association of Physicists in Medicine
2006	Symposium moderator, American Association of Physicists in Medicine

Relevant community involvement

2005-present	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, securing extramural funding through grant support.

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.
1. 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.
2. Established a new contract for physics support provided by our group to Mercy Hospital Radiation Oncology Department in Clinton, Iowa.
4. Treatment planning, calibration, and quality control of linear accelerators.
5. Leadership role in the development of departmental workflow and an electronic treatment record
6. Lead department transfer to CEGIRT: Integration of advanced imaging technology, treatment planning, radiation therapy delivery equipment, and electronic data management
7. Commissioning of 4 linear accelerators, stereotactic radiosurgery system, and total body irradiation in the newly created Center of Excellence.
8. Commissioning of 4D computed tomography
9. Quality control of treatment planning systems.