

CURRICULUM VITAE

Joseph M. Modrick, Ph.D.

I. EDUCATIONAL AND PROFESSIONAL HISTORY

A. List of institutions attended, board certification, licensure

8/1983-5/1989	B.S.	University of Northern Iowa	Cedar Falls IA
8/1989-5/1996	M.S.	University of Iowa	Iowa City IA
8/1996-11/2000	M.S.	University of Wisconsin	Madison WI
8/1996-11/2000	Ph.D.	University of Wisconsin	Madison WI

Board certification:

June 2004	American Board of Radiology [Therapeutic Radiological Physics]
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B. Professional and Academic Positions

8/1989-5/1996	Teaching Assistant, Department of Physics & Astronomy, The University of Iowa	Iowa City IA
8/1994-5/1996	Research Assistant, Department of Radiation Oncology, The University of Iowa	Iowa City IA
8/1996-11/2000	NIH NRSA Pre-doctoral trainee, Department of Medical Physics, University of Wisconsin	Madison WI
12/2000-7/2002	Research Clinical Physicist, Department of Radiation Oncology, The University of Michigan	Ann Arbor MI
7/2002-2005	Assistant Professor, Department of Radiation Oncology, The University of Iowa	Iowa City IA

C. Honors and Awards

1987	Elected member Sigma Pi Sigma (National Physics Honor Society)
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II. TEACHING

A. Teaching assignments on semester by semester basis (least to most recent)

10/2002	HDR In Service training for Radiation Therapist High dose rate radiotherapy training and review for radiation therapist. Continuing hands-on training for therapist.
Spring 2003	Radiation Physics lectures to the residents
5/2003	HDR In Service training for Radiation Therapists Special procedure – HDR Tandem & Ovoid
10/2003	HDR In Service training for Radiation Therapists Special procedure – HDR MammoSite
11/2003	HDR In Service training for Radiation Therapist Required annual safety training
Spring 2004	Radiation Therapy Physics lectures for therapy students and residents
11/2004	HDR In Service training for Radiation Therapist High dose rate radiotherapy training and review for radiation therapist. Continuing hands-on training for therapist.

B. Students supervised (name, degree objective, outcome)

RuiGuo Lui	Ph.D. Department of Physics & Astronomy, graduated May 2004
Earl Nixon	M.S. Department of Biomedical Engineering, enrolled Spring 2005
Jason Slattery	M.S. Department of Physics & Astronomy, graduated August 2005

C. Other contributions to institutional programs

2002-present	Radiation Oncology Chart Rounds
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III. SCHOLARSHIP

A. Publications or creative works (least to most recent)

1. Modrick JM, Thomadsen BR, Mackie TR. Photon dose kernels for brachytherapy source convolution dose calculation. *Med. Phys.* 1998;25:A170.
2. Modrick JM, Mackie TR, Thomadsen BR. Convolution/superposition dosimetry for diagnostic beam spectra. *Med. Phys.* 1999;26:1174.
3. Modrick JM, Mackie TR, Thomadsen BR. EGS4 energy deposition kernels at low photon energy including the molecular coherent scattering form factor. XIII ICCR 2000: Springer-Verlag; 2000.
4. Modrick JM, Mackie TR, Thomadsen BR. Energy deposition kernels at low Photon Energy Including Coherent Scatter. World Congress on Medical physics and biomedical engineering, IEEE; 2000.
5. Modrick JM, Mackie TR, Thomadsen BR. Generalized convolution/superposition algorithm for brachytherapy dosimetry. *Med. Phys.* 2001;28:1279.
6. Zhou C, Inanc F, Modrick JM. Distortions induced by radioactive seeds into interstitial brachytherapy dose distributions. *Med. Phys.* 2004;31:3393-3405.
7. Liu R, Wagner TH, Buatti JM, *et al.* Geometrically based optimization for extracranial radiosurgery. *Phys. Med. Biol.* 2004;49:987-996.

B. Areas of Research Interest and Current Projects

1. Calculational dosimetry with an emphasis on superposition/convolution and Monte Carlo methods.
2. Mega voltage x-ray image quality assessment and improvement using amorphous silicon flat panel technology.
3. Image guided radiation therapy including intensity modulation.

C. Published reviews of Scholarship

D. Grants Received

E. Invited Lectures, Conference Presentations, Visiting Professorships

1. Joint Experimental and Theoretical Physics Seminar, Modrick JM, "The Aharonov-Bohm Effect", Department of Physics & Astronomy, University of Iowa, 1992.

2. Joint Experimental and Theoretical Physics Seminar, Modrick JM, "String Theory Methods in Quantum Chromodynamics", Department of Physics & Astronomy, University of Iowa, 1994.
3. MS Degree Oral Defense, Modrick JM, "String Theory Methods for Loop Amplitude Calculations in Quantum Chromodynamics", Department of Physics & Astronomy, University of Iowa, 1994.
4. Student Presentation, Modrick J, Mackie T, Thomadsen B, "Convolution/Superposition Dosimetry for Diagnostic Spectra", North Central Chapter AAPM Semi-Annual Meeting, Mayo Clinic, Rochester, MN, 7 May 1999.
5. Poster Presentation, Modrick J, Mackie T, Thomadsen B, "Convolution/Superposition Dosimetry for Diagnostic Beam Spectra", 1999 AAPM Annual Meeting, Nashville, TN, Diagnostic Imaging Poster Session.
6. Poster Presentation, Modrick JM, Mackie TR, Thomadsen BR, "EGS4 Energy Deposition Kernels at Low Photon Energy including the Molecular Coherent Scattering Form Factor", XIII International Conference on the Use of Computers in Radiation Therapy, Heidelberg, Germany, May 2000.
7. Oral Presentation, Modrick JM, Mackie TR, Thomadsen BR: "Energy Deposition Kernels at Low Photon Energy including Coherent Scatter", presented at the World Congress on Medical Physics and Biomedical Engineering, 2000 AAPM Annual Meeting, Chicago, IL, July 2000.
8. Oral Presentation, Modrick JM, Mackie TR, Thomadsen BR: "Generalized Convolution/superposition Algorithm for Brachytherapy Dosimetry", 2001 AAPM Annual Meeting, Salt Lake City, UT, July 2001.
9. Oral Presentation, Modrick JM, Balter JM, Lam KL: "Minimal MU Requirements for Patient Setup and Treatment Portal Verification using A Varian PortalVision aS500 EPID", 7th International Workshop on Electronic Portal Imaging EPI2K2, University of British Columbia, Vancouver, BC, Canada, June 2002.
10. Oral Presentation, Modrick JM: "Calculational Dosimetry in Therapeutic Radiological Physics", Holden Comprehensive Cancer Center Forum, University of Iowa Hospitals & Clinics, Iowa City, IA, December 2002.
11. Oral Presentation, Modrick JM: "Practical Issues in Electronic Portal Imaging", Iowa Society of Therapeutic Radiation Oncology (ISTRO) Annual Spring Meeting, Iowa City, IA, June 2003.

F. Pending Decisions

IV. SERVICE

A. Memberships in Professional Organizations

<i>1994-2000</i>	American Association of Physicists in Medicine – Student Member
<i>1996-2000</i>	American Association of Physicists in Medicine – North Central Chapter
<i>2001-current</i>	American Association of Physicists in Medicine – Full Member

B. Clinical assignments since last promotion