

Thomas N. Padikal, Ph.D.

Diplomate, American Board of Radiology

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OBJECTIVES

Serve patients and medical community through exceptional clinical and medical physics services, research and education. Be a contribution to humanity through exceptional service.

EXPERIENCE and EXPERTISE: SCIENTIFIC

- Radiology: Skilled in the principles and operation of computed tomography and magnetic resonance imaging, shielding design, PET, PET-CT, ACR accreditation and evaluation of fetal and patient dosimetry.
- Nuclear Medicine: Experienced in the principles and operation of radionuclide and molecular imaging, gamma cameras, SPECT imaging and positron emission tomography.
- Radiation Oncology: Experienced in Radiation Oncology including 3D, 2D, IMRT (dynamic, and step and shoot), HDR brachytherapy for prostate, breast and other tumors, LDR brachytherapy including prostate seed implants, treatment planning, photodynamic therapy, CT simulation, Computer controlled radiation therapy, clinical physics, dosimetry, calibrations, shielding design, commissioning and acceptance testing of medical equipment such as linear accelerators, planning systems, CT, simulators, etc.
- Physics: Knowledgeable in the principles and operation of high energy linear accelerators, radiation dosimetry systems, radiation therapy planning systems, simulators, CT scanners, MRI, klystrons, magnetrons, high voltage devices and radiation detectors. Proficient in the principles of radiation transport, interaction of radiation with matter, NMR, radiation biology, computer simulation of radiation transport in uniform and non-uniform media.
- Regulatory: Familiar with Nuclear Regulatory Commission regulations and many state regulations. Listed as an approved consultant in several states.
- Teaching: Extensive teaching experience in medical imaging (CT, MRI, Ultrasound, Radiography and Nuclear Imaging) ♦ Resident Teaching ♦ Introductory College Physics (e.g. Resnick & Halliday, Gartenhouse, etc) ♦ Radiation Dosimetry/Radiation Transport ♦ Radiation Protection and Radiation Safety.
- Administrative: Supervisory and management experiences of physicists, engineers, therapists, dosimetrists
- Clinical Physics Statistics: *HDR cases*: over 1,500 ♦ *HDR Prostate*: over 250 ♦ *HDR Breast*: over 20 ♦ *LDR cases*: over 2,500 ♦ *Prostate Seed Implants*: Over 250 ♦ *LDR Gynecological cases*: Over 2,000 ♦ *IMRT Cases*: Over 175 ♦ *3D plans*: Over 10,000 ♦ *2D plans*: Over 25,000 ♦ *Photodynamic Therapy*: Over 20 ♦ *Intra-Vascular Brachytherapy*: Over 15
- In Vivo Quantum Biology: Start a new scientific discipline ♦ Several hundred clients and sessions world-wide ♦ in vivo Quantum Biology Practitioners world-wide: 26

BOARD CERTIFICATION

AMERICAN BOARD of RADIOLOGY since 1977 – Specialty: Medical Physics.

EDUCATION

Degree	Field	Year	Institution
Ph.D.	Physics (<i>Quantum Optics</i>)	1975	University of Cincinnati
M.S.	Physics (<i>High Energy Physics</i>)	1973	University of Cincinnati
M.S.	Physics (<i>Nuclear Physics</i>)	1971	Cleveland State University
M.Sc.	Classical Physics and Electronics	1969	University of Kerala, India
B.Sc.	Physics, Chemistry, Mathematics	1967	University of Kerala, India

PROFESSIONAL EXPERIENCE

Position	Years
<i>Assistant Professor of Radiology</i> The George Washington University Medical Center, Washington, D.C.	1975 – 1978
<i>Cancer Expert</i> , Radiation Oncology Branch National Cancer Institute, National Institutes of Health, Bethesda, MD	1978 – 1981
<i>Director of Medical Physics</i> , Divine Providence Hospital Williamsport, PA	1981 – 1995
<i>Medical Physicist</i> Cancer Treatment Centers of America, Tulsa, OK	1995 – 1999
<i>Clinical Associate Professor</i> , Radiation Oncology Thomas Jefferson University Hospital, Philadelphia, PA	2002 – 2004
<i>President and CEO</i> Applied Physics Services, Inc., Philadelphia, PA	1983 – Present

PUBLICATIONS

A. BOOKS / BOOK CHAPTERS

- *Championing Your Well-Being: Lessons and Practices of the most unwavering Quantum Biology Practitioners and Intuits* (Balboa Press 2012)
- *A Physicist's Desk Reference* (American Institute of Physics 1989). A celebrated reference book published by the American Institute of Physics. Author of the chapter on Medical Physics is: Thomas Padikal, Ph.D.
- *Medical Physics Data Book* (American Association of Physicists in Medicine 1982). A sold-out reference book published by the American Association of Physicists in Medicine as the National Bureau of Standards Handbook 138. Editor: Thomas Padikal, Ph.D.
- *Medical Physics Data Book* (American Association of Physicists in Medicine 1982) Author of the chapter on General Physics: Thomas Padikal, Ph.D.
- *Physics Vade Me Cum* (Herbert L. Anderson, Ph.D.: Chief Editor, American Institute of Physics 1983) A reference book published by the American Institute of Physics on its fiftieth anniversary. Author of the chapter on Medical Physics: Thomas Padikal, Ph.D.
- *Proceedings of the Fourth Annual Symposium on Computer Applications in Medical Care* (Washington, D.C.1980) Editor, Medical physics section: Thomas Padikal, Ph.D.
- *Radiation Therapy Planning* (N. Bleehen, Editor, Dekker 1983) Authors of the chapter on *Treatment Planning in Primary Breast Cancer*. Allen Lichter, M.D. and Thomas Padikal, Ph.D.

- *Radiation Therapy planning, ibid.* Authors of the chapter on *The Role of Computed Tomography in Treatment Planning*. Joel Tepper, M.D., and Thomas Padikal, Ph.D.

B. SCIENTIFIC JOURNAL ARTICLES

- Understanding and Managing Stress: Perspectives from *in vivo* Quantum Biology (Journal of Precision Medicine, Aug 2017)
- Acceptance Testing of Medical Imaging Equipment: CT and MRI (Applied Radiology, Nov 1991)
- Quality Assurance of Mobile CT scanners (Applied Radiology, Feb 1987)
- Experience with a CT Based Treatment Planning System (Proceedings of the Fourth Annual Symposium on Computer Applications in Medical Care, Nov. 1980, Washington, D.C.)
- Electron Contamination of a High Energy X-ray Beam (Physics in Medicine and Biology, Nov. 1978)
- Utilization of the Computerized Tomography Scanner in Interstitial Dosimetry (Radiology, June 1980)
- Quality Assurance in Mobile Computed Tomography (Medical Imaging, May 1983)
- Determination of the Size Distribution of Human Albumin Microspheres by the Forward Scattering of Monochromatic Light (Medical Physics, Jan 1976)
- Computational Inaccuracy of Irregular Field Dosimetry (Medical Physics, Feb 1978)
- Field Uniformity Correction - Benefits or Pitfalls? (Journal of Nuclear Medicine, July 1976)
- The Need for Treatment Planning Program Verification (Proceedings of the Second Annual Symposium on Computer Applications in Medical Care, 1978)
- A System for Electron Therapy Dosimetry Surveys with Thermoluminescence Dosimeters (Int J Appl Rad, Vol.33, 1980)
- Stability of Teletherapy Beam Symmetry with Gantry Angle (Radiology, May 1981)
- Dose to Lung in Primary Breast Irradiation (Int J Rad Onc Biol Phys, Vol 9, 1983)
- Quantitative Assessment of Field Uniformity for Gamma Cameras (Radiology, Jan. 1976)
- Experience with a Pair of Matched Silicone Diodes for Constancy Checks on Teletherapy Equipment (Radiology, Nov. 1978)
- The Importance of Correct Photo-peak Setting in Nuclear Medicine Imaging Procedures (J Nuclear Medicine Technology, Sept 78)
- The time course of radioprotection by WR 2721 in mouse skin (Int J Radiat Oncol Biol Phys, 1982)
- A Shared Facility in a Medical Research Institution (J Medical Systems, Vol.2, No.3, 1978)
- Localization in Interstitial Dosimetry Utilizing the CT Scanner (J of Computed Tomography, Vol 3, 1979)
- Liver Size Determination in Pediatrics Using Sonographic and Scintigraphic Techniques (Radiology, Nov. 1975)
- The Design and Fabrication of an Automated Real Time Patient Position and Dose Monitoring System (Proceedings of the Fifth International Conference on Medical Physics, Jerusalem, Aug 1979)
- Experience with a Mobile CT Scanner (Proceedings of the World Congress on Medical Physics, Hamburg, 1982)
- On the Use of Transmitted and Scattered Radiation for Monitoring Patient Position and Dose Constancy (Proceedings of the Fifth International Conference on Medical Physics, Jerusalem, Aug. 1979)
- A Technique for Field Matching in Primary Breast Irradiation (Int. J. Radiation Oncology, Biol. Phys., Feb 1983)
- An Analysis of Some Dosimetric Uncertainties in Radiation Therapy (Medical Dosimetry, Vol 13, 1988)

C. PUBLISHED ABSTRACTS

- Physical Aspects of Total Skin Electron Irradiation with a Mevatron XII (Medical Physics, Vol 7, 1980)
- Characterization of the AFRRRI Electron Beam for Intra-operative Radiobiology Research (Int J Rad Onc, Vol.5, 1979)

- Tolerance of Canine Anastomoses and Retroperitoneal Structures to Intraoperative Radiation Therapy (Int. J Rad Onc Bio Phys, Vol. 6, 1980)
- Treatment Planning in Breast Irradiation: The Influence of Technique on Lung Dose and Dose to Opposite Breast (Int. J Rad Onc Bio Phys, Vol. 6, 1980)
- Effect of Patient Specific Physical Measurements on Absorbed Dose (Int. J Rad Onc Bio Phys, Vol. 4, 1978)
- The Use of Computerized Tomography in Interstitial Dosimetry (Int. J Rad Onc Bio Phys, Vol. 4, 1978)

D. PRESENTATIONS AT PROFESSIONAL MEETINGS

Numerous oral and poster presentations at national and international meetings: over 150

COMMITTEE ACTIVITIES

1. RSNA Quantitative Imaging Biomarkers Alliance (QIBA) 2014 – present.
2. Peer Reviewer, MRI, American College of Radiology 1998 – present
3. Professional Information and Clinical Relations Committee, AAPM, 1986-88
4. Radiation Therapy Committee, Science Council, AAPM, 1979-1983
5. Training of Radiologists Committee, Educational Council, AAPM, 1979-1983
6. Member, Project Advisory Group, Bureau of Radiological Health, HEW, 1977-78
7. Physics Liaison, CALGB, 1976-77
8. Contributor of questions to ABR examinations 1977- 1993
9. Reviewer, Medical Physics, 1978- 1993
10. Rules Committee, AAPM, 1986-1988

PROFESSIONAL SOCIETIES

1. American Association of Physicists in Medicine
2. American College of Radiology
3. American Institute of Physics
4. American Society of Therapeutic Radiology and Oncology

SEMINARS AND SHORT COURSES

Faculty, Magnetic Resonance Imaging, 1986 – present
 Faculty, Nuclear Cardiology, 1980 - 1990
 Faculty, X-ray Computed Tomography, 1982 - present
 Numerous other Faculty Assignments for Continuing Education Courses
 Faculty/ Workshop Leader, Science and Spirituality: At Odds? Or in Harmony? since 1991
 Numerous presentations to schools and societies on Medical Imaging
 Over 100 presentations on In Vivo Quantum Biology and Well-Being

OTHER INTERESTS AND MISCELLANEOUS ITEMS

Trained 25 Radiology Residents gain certification by the American Board of Radiology
 Trained 5 Physicists in Medical Physics
 Trained 5 Dosimetrists in Radiation Oncology
 Trained and/or assisted 5,000 CT Technologists secure certification
 Trained and/or assisted 3,000 MRI Technologists secure certification
 Trained and/or assisted 400 Cardiologists secure NRC license in Nuclear Cardiology

Several Marathons and Bike races including Tour de Tucson and Mongolia.
NASA Astronaut Candidate for 16 years.
Advanced Open Water SCUBA Diver . PADI Certified
Instrument Rated Airplane Pilot . Licensed by Federal Aviation Administration
Currently in the process of earning a Helicopter License.
Reviewer of MRI in USA . American College of Radiology
Expert . US Nuclear Regulatory Commission
Founder: Institute of Medical Imaging Technology, Inc.
Founder: Applied Physics Services, Inc.
Co-Founder: North American Communications, Inc.
Co-Founder: Opti-Script, Inc.
Founder: Science and Life, Inc. A 501 (C) (3) Charity
Founder: in vivo Quantum Biology, a branch of Quantum Biology, SCQB and SCQD
Faculty: Longest running series of Online Classes in MRI, CT, Quantum Biology and Cosmology



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