CURRICULUM VITAE

John Daniel Bourland, MSPH, PhD, DABR, FAAPM
2023 Chair, Board of Directors, American Association of Physicists in Medicine

ACADEMIC TITLE:

Professor with Tenure
Department of Radiation Oncology
Department of Biomedical Engineering
Department of Physics
Wake Forest University School of Medicine
Graduate School of Arts and Sciences
Wake Forest University

ADDRESS:

Department of Radiation Oncology
Wake Forest University School of Medicine
Medical Center Boulevard
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EDUCATION:

BS	Physics (1978), University of North Carolina, Chapel Hill, NC	1974-1978
MSPH	Medical and Health Physics (1981, Radiological Hygiene) Department of Environmental Sciences and Engineering University of North Carolina, Chapel Hill, NC	1979-1980
Doctoral Study	Radiation Physics, Medical College of VA, Richmond, VA	1982-1983
PhD	Medical and Health Physics (1990, Radiological Hygiene) Minor in Medical Imaging Department of Environmental Sciences and Engineering University of North Carolina, Chapel Hill, NC	1983-1990

PROFESSIONAL LICENSURE:

State of North Carolina, Department of Health and Human Services:

Radiological Services Registrant, Registration No. S-000516	2000-present
Authorized Medical Physicist, Linear Accelerator License, 34-0158-A1	1995-present
Authorized Medical Physicist, Gamma Radiosurgery License, 34-0158-8	1999-present
Authorized Medical Physicist, HDR License, 34-0158-9	1999-present
Principal Investigator, Broad Scope License, 34-0158-1	2013-present

State of Minnesota, US Nuclear Regulatory Commission:

Authorized Medical Physicist, Gamma Radiosurgery License, Mayo Clinic	1990-1995

SPECIALTY CERTIFICATION:

American Board of Radiology, Therapeutic Radiological Physics, ABR ID: P1192 1989

SPECIALTY TRAINING:

Leksell Gamma Knife Certificate, B/C Model, Karolinska Inst, Stockholm, Sweden 1999
Leksell Gamma Knife Certificate, Perfexion™ Model, Washington Hosp, Fremont, CA 2009
Leksell Gamma Knife Training, ICON™ Model, WFBMC, Winston-Salem, NC 2017

Good Laboratory Practices (GLP), QA Resources, Winston-Salem, NC 2018, 2019
Investigation Training, Legal Affairs/Enterprise Risk, WFBMC, Winston-Salem, NC 2019

EMPLOYMENT AND ACADEMIC APPOINTMENTS:

Professor with Tenure (2002), Department of Radiation Oncology 2011-present
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Joint Faculty, Department of Biomedical Engineering 2010-present
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Co-Director (Physics), TRADONC Postdoctoral Training Program 2006-2015
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Core Graduate Faculty, VT-WFU School of Biomedical Eng & Sci 2004-present
Virginia Tech-Wake Forest School of Biomedical Eng and Sciences (SBES)

Head, Section of Physics Research & Education, Dept of Radiation Oncology 2005-2008
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Associate Professor with Tenure (2002), Department of Radiation Oncology 2001-2011
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Director, Medical Physics Emphasis/Graduate Program 1996-2019
Graduate School of Arts and Sciences, Wake Forest University

Graduate Faculty, Department of Physics 1996-present
Wake Forest University, Winston-Salem, NC 27109

Graduate Faculty, Department of Biomedical (Medical) Engineering 1995-present
Wake Forest University, Winston-Salem, NC 27157

Head, Section of Physics, Department of Radiation Oncology 1995-2005
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Assistant Professor, Department of Radiation Oncology 1995-2001
Wake Forest University School of Medicine, Winston-Salem, NC 27157

Senior Associate Consultant and Consultant, Division of Radiation Oncology 1990-1995
Mayo Clinic, Rochester, MN 55905

Assistant Professor of Radiologic Physics and Faculty in Biophysical Sciences 1990-1998
Mayo Medical School and Mayo Graduate School, Rochester, MN 55905

Clinical Physicist and Clinical Instructor, Department of Radiation Oncology 1987-1990
University of North Carolina, Chapel Hill, NC 27599

Clinical Physicist (full- and half-time), Division of Radiation Oncology 1984-1987
University of North Carolina, Chapel Hill, NC 27599

Physics Research Assistant, Division of Radiation Oncology 1983-1986
University of North Carolina, Chapel Hill, NC 27599

Radiation Safety Technician, Health and Safety Office 1981-1982
University of North Carolina, Chapel Hill, NC 27599

Research/Physics Assistant, Division of Radiation Physics 1979-1981
Duke University Medical Center, Durham, NC 27710

COSTEP (Student Trainee), Division of Compliance 1979
Bureau of Radiological Health, US FDA, Rockville, MD 20857

PROFESSIONAL APPOINTMENTS AND ACTIVITIES:

American Board of Radiology (ABR)
- Oral Examiner, Therapeutic Medical Physics 1997-99, 01, 03, 05, 08, 10, 14, 17, 19, present
  - Oral Examiner for Virtual Pilot and 2020 Catch-up Exams March and May, 2021
- Member, Part I Written Examination Committee (General Exam) 2003-2018
  - Chair, Part I Written Examination Committee (General Exam) 2006-2018
- Member, Physics Recertification Committee 1998-2000

Food and Drug Administration (FDA), Rockville, MD
- Radiological Devices Panel, Standing Committee Member 2023-present
- Consultant / Special Government Employee 2005, 2008-14, 2017-21, 2021-22
  - Medical Devices Advisory Committee and Internal Review Committee, Center for Devices and Radiological Health

Dept of Veterans Affairs (VA), VISN 6, Mid-Atlantic MIRECC Advisory Board 2013-2019

Medical/Scientific Advisory Boards (Industry):
- General Electric Healthcare (radiation oncology) 2005-2010
- Radiation Oncology Resources (treatment planning services) 2004-2008
- Varian Medical Systems (*ad hoc*, dynamic adaptive radiation treatment) 2005

Study Sections and Grant Review Committees:
- Arizona Biomedical Research Commission, Grant Review Panel 2007
- Connecticut Charles Goodyear Coop R&D Grant, Yankee Ingenuity Initiative 1996, 2003
- National Institutes of Health, Center for Scientific Review, Ad Hoc Study Sections
  - Special Emphasis Panel ZRG 1 CE-02 2003
  - PAR 08-225: Quantitative Imaging for Eval of Responses to Cancer Therapies 2009
  - Biomedical Imaging Technology-A, BMIT-A 2013
  - Academic-Industrial Partnership, SBIB-J(57) 2014
- Natural Sciences and Engineering, Research Council of Canada 2012
- Ontario Research Fund – Research Excellence Awards 2008
- Fundação para a Ciência e Tecnologia: FCT, I.P., Lisboa, Portugal External Reviewer 2012

Editorial Work:
- *AAPM Website* Editorial Board 2008-2012
- *Health Physics* - Reviewer 1991, 1995, 1999, 2001
- *Int Journal Radiation Oncology, Biology, Physics* - Reviewer 1990-91, 1994, 1996-2017
- *Journal of Applied Clinical Medical Physics* - Reviewer 2004, 2006-07, 2011
- *Journal of Neurosurgery* - Reviewer 1992
- *Medical Physics:* Assoc Editor, Guest/Ad Hoc, Board of Associate Editors 1997-2018
  - Reviewer 1988, 1990-91, 1993-2000, 2003, 2007-2020

Consultancies – Clinical, Educational, Research, Medical-Legal
- Moore Memorial Hospital, Pinehurst, NC 1986
- Steven M. Ziegler, PA, Hollywood, FL 2002
- Gamba & Lombana, PA, Coral Gables, FL 2006
- Patterson Dental, Greensboro and Charlotte, NC 2009, 2010
- McKay Firm, PA, Columbia, SC 2009-2013
- RS&A, Inc, Rural Hall, NC 2011, 2012
- Turner, Reid, Duncan, Loomer & Patton, PC, Springfield, MO 2012, 2017
- KeraNetics LLC, Winston-Salem, NC 2015
- Cipriani & Werner PC, Lemoyne, PA 2016-2017
- Herbalife Nutrition, Kernersville, NC 2018

Egger Wood Products, LLC, Linwood, NC 2021
Lovelace Biomedical, Albuquerque, NM 2023-present

INSTITUTIONAL SERVICE:

Wake Forest University School of Medicine (WFUSM) and Wake Forest University (WFU)

Institutional

Grievance Committee, WFU and WFUSM 2022-present
Robbins Scholarship Committee, Chair 2019, 2021, 2022
Faculty Lead, Irradiator Replacement Program 2021-present
Promotions and Tenure Committee 2012-2018
Vice-Chair, Chair, Past-Chair 2014-2016, 2016-2017, 2017-2018
Appointments, Promotion & Tenure Policy Review Task Force, Chair 2016-2017
Chair, Subcommittee for Enterprise Basic Science Appointments 2022
Subcommittee on Tenure Policy 2022
Faculty Development Committee (*ex officio*, as Chair, Promotions & Tenure) 2016-2017
Faculty Marshal, Commencement, Graduate School (most years) 2014-2019, 2021
General Radiation Safety Committee 2014-2016
Faculty Senate, WFU and WFUSM 2010-2016
President-elect, President, Past-President, At-Large 2012, 12-13, 13-14, 15-16
Faculty Representative Council (*ex officio*, as WFU Senator), WFUSM 2010-2014
Enterprise Imaging Strategic Planning Committee, WFUSM 2011-2012
Task Force Implementation SC, WFU Graduate School (Track 7-BME) 2010-2011
Standard Research Imaging Fee Committee, WFUSM 2009-2011
Institutional Animal Care and Use Committee, WFU and WFUSM 2008-2011
Radioactive Drug Research Committee (*ad hoc*), WFUSM 2008-2010
Co-Director, Developing Imaging Core, Comprehensive Cancer Center WFU 2007-2010
Internal Advisory Board, Brain Tumor Center of Excellence 2004-present
Center for Biomolecular Imaging, WFUSM 2005-2010
Radiation Safety Committee (Medical), WFUSM 2000-2003
Faculty Forum Committee, WFUSM 1996-2001

Departmental

Faculty Lead, MR Simulator Replacement 2018-2022
Co-Director for Physics, T-32 Training Grant, TRADONC Program 2005-2015
Chair, Bioanatomic Imaging & Treatment (BAIT) Committee, Rad Oncology 2004-2021
Director, SBES/WFU Graduate Program in Medical Physics 2000-2020
Radiation Oncology/Comp Cancer Center Building Design Committee 1999-2004

Mayo Clinic

Quality Management Committee, Division of Radiation Oncology 1993-1995
Research Committee, Division of Radiation Oncology 1991-1995
Digital Image Transmission Committee, Dept. of Diagnostic Radiology 1991-1995

University of North Carolina

Chair, Quality Assurance Committee, Department of Radiation Oncology 1988-1990
Radiation Safety Committee, School of Medicine 1987-1990
Graduate Programs Committee, School of Public Health 1986-1987
Radiation Oncology Building Design Committee 1986-1990

PROFESSIONAL MEMBERSHIPS AND SERVICE – LAST FIVE YEARS:

American Association of Physicists in Medicine (AAPM; aapm.org) 1983-present

Elected Offices and Honors:

Chair, Board of Directors	**2023-present**
President	**2022**
President-Elect	**2021**
President-Elect-Designate	**2020**

AAPM Committees and Appointments:

Member, Ex-Officio, Board of Directors	2021-present
Member, Ex-Officio, Executive Committee	2021-present
Member, Ex-Officio, Corporate Advisory Committee	2021-present
Member, Ex-Officio, Finance Committee	2021-present
Member, Ex-Officio, Global Liaisons Committee	2021-present
Member, Ex-Officio, Government Relations Advisory Committee	2021-present
Member, Ex-Officio, Meeting Coordination Committee	2021-present
Member, Strategic Planning Committee of the Board	2021-present
Member, Ex-Officio, Administrative Council	2021-present
Member, Ex-Officio, Education Council	2021-present
Member, Ex-Officio, International Council	2021-present
Member, Ex-Officio, Professional Council	2021-present
Member, Ex-Officio, Science Council	2021-present
Member, Ad Hoc Committee on Impact of COVID-19 on AAPM Meetings	2021-2022
Member, Ad Hoc Committee on Future of AAPM Meetings	2021-2022
Member, Ad Hoc on Publisher Contract Renewal	2021
Int Org for Medical Physics (IOMP): AAPM Delegate	2000-06; 2019-20; 2023-present
Chair, Working Group/Ad Hoc for Review of Journal Editorial Teams/Ops	2019-2020
Medical Physics 3.0 Working Group	2017-2020
Chair, Smart Advocacy Unit	2018-2019
Task Group #285, AAPM Association Management System	2016-2018
International Training and Research Coordination Subcommittee	2017-2019
Subcommittee on the Oversight of MedPhys Match (SDAMPP Liaison)	2015-2018
Journals Business Management Committee	2015-2018
Chair, Editor Review TG: *Medical Physics* and *JACMP* Journals	2017-2020
Medical Physics Board of Associate Editors	2005-10, 2014-2018
Board of Directors (*ex officio*, non-voting, as AIP representative)	2010-2020
Task Group #178, Gamma Stereotactic Radiosurgery Dosimetry & QA	2008-2020

American College of Radiology 1994-2007, 2020-present

Alternate Councilor, Executive Committee, NC Radiological Society	2021-2022

American Institute of Physics (AIP)

Board of Directors (formerly, Board of Governors, 2010 – 2014)	2010-2020
Venture Partnership Fund Committee, Chair	2016-2020

American Society for Radiation Oncology (ASTRO) 1991-2018

Annual Meeting Abstract Reviewer	2009-2020

National Aeronautics and Space Administration (NASA)
- Presenter and Panel Member, Workshop on Standardization of Stressor Models and Research Facility for the CBS Integrated Research Plan — 2021
- Chair, Animal Models and Standardization Panel — 2021

PROFESSIONAL MEMBERSHIPS AND SERVICE: PAST THROUGH 2017

American Association of Physicists in Medicine (AAPM) — 1983-present

Elected Offices and Honors:

- Board of Directors, At-Large Member — 2002 -2004
- Fellow — 2002
- Southeast Chapter-AAPM (AL, GA, MS, NC, SC, TN) — 1996-present
  - President-elect/Program Chair; President; Past-president — 1996-97; 97-98; 98-99
- North Central Chapter-AAPM (MN, ND, SD, WI) — 1992-present
  - President-elect/Program Chair; President — 1993; 1994

AAPM Committees and Appointments:

- Ad Hoc Committee on Medical Physics 3.0 — 2016-2017
- Ad Hoc Committee on AAPM MedPhys Match Program — 2015-2017
- Working Group on Coop Agreements w National/Intl Organizations — 2012-2017
- Ad Hoc Committee on AAPM ADCL Oversight — 2015
- *Medical Physics* Journal Business Management Committee — 2012-2014
- Ad Hoc Committee *Medical Physics* Journal Editor Selection — 2012
- *AAPM Website* Editorial Board — 2008-2013
- Therapy Research Subcommittee — 2005-2010
  - Working Group on New Research Initiatives — 2008-2012
- Therapy Imaging Subcommittee — 2005-2010
  - Working Group-Molecular Imaging in Rad Oncology, Past-Chair) — 2005-2012
- Public Education Committee, Website Subcommittee Past-Chair — 2003-2011
- AAPM/ASTRO Delegate, American Medical Assoc, RUC, Chicago, IL — 2009
- African Affairs Subcommittee of the IAC, Chair, 2000 – 2006 — 2000-2008
- Editorial Office Review Committee, Board of Editors — 2007
- AAPM Delegate, ASTRO Intersociety Radiation Oncology Summit — 2007
- Imaging Physics Committee — 2005-2007
  - Member, Working Group on Imaging for Treatment Assessment — 2005-2007
- Website Review Subcommittee (EMCC) — 2005-2006
- Ad Hoc Search Committee for Website Editor — 2005-2006
- Imaging Research Opportunities Task Group (BIROW IV) — 2005-2006
- *Medical Physics:* Associate Editor — 2005-2010
- Placement Service Subcommittee — 2004-2006
- Headquarters Technology Subcommittee — 2000-2007
- International Affairs Committee and Scientific Exchange Program — 2000-2006
- Radiation Therapy Committee — 1998-2005
  - Molecular Imaging in Radiation Oncology Subcommittee, Chair — 2001-2005
  - Ad Hoc Working Group on Biological/Functional Imaging — 2000-2001
- Electronic Media Coordinating Committee (EMCC), Chair — 1997-2002
- Education and Training of Medical Physicists Committee — 1997-1999
- Hyperthermia Subcommittee, Radiation Therapy Committee — 1996-1999
- Educational Council, At Large Member, Liaison to Science Council — 1994-1999
- Science Council, At Large Member, Liaison from Educational Council — 1994-1999

Subcommittee for "aapm.org", Computer Committee 1994-1996
Hyperthermia Committee 1992-1995
Task Group #41, Remote Afterloading Systems 1989-1992

AAPM Annual Meeting Roles:
President's Symposium Organizer and Moderator 2022
Important Conversations: The Alzheimer's Epidemic, Patient Engagement, ARPA-H and Cancer Moonshot – Three Invited Speakers
Annual Meeting Abstract Reviewer 1995, 1997, 1999-2003, 2008-2021
Symposium Organizer and Moderator for Annual Meeting 2016
Radiation Countermeasures Research and Development
(4 US government guest faculty: NIAID, BARDA, NCI, NASA)
Symposium Co-Organizer and Co-Moderator for Annual Meeting 2012
Joint Symposium with Spanish and Russian medical physics societies
Symposium Organizer and Moderator for Annual Meeting 2010
MR Imaging of Angiogenesis (3 guest faculty)
Symposium Organizer and Moderator for Annual Meeting 2002
Molecular Imaging In Oncology (3 faculty)
Session Co-Chair/Moderator (most years) 1995-present
Typical Sessions: Radiosurgery, Treatment Techniques, Conformal Radiotherapy, Science Council Sessions, Radiation Biology

American College of Radiology 1994-2007, 2020-present
Committee on Education, Commission on Medical Physics 1999-2007
North Carolina Chapter (ACR) 1996-2007, 2020-present
Minnesota Radiological Society (ACR) 1994-1995

American Institute of Physics
Executive Committee, Board of Governors 2012-2014
Advisory Panel on Committees 2011-2013
Publishing Policy Committee 1999-2008

American Society of Radiologic Technologists: Task Force on Hyperthermia 1988-1991

American Society for Therapeutic Radiology and Oncology 1991-2018
Moderator, Session on Stereotactic Radiosurgery and Intra-Operative 2011
Emerging Technologies Subcommittee, Joint Economics Committee 2001-2006

Biomedical Imaging Research Opportunities Workshop (BIROW)
Organizing Committee (BIROW I, II, III, IV) 2002-2006
Moderator, Image-Guided Therapy Session 2002
Moderator, Guiding Therapy by Multi-Modality Imaging Session 2005

Health Physics Society 1979-2007
North Carolina Chapter 1979-2010
North Central Chapter 1993-1999

International Congress on Computers in Radiotherapy (ICCR), XIIth Meeting 1997
Co-Chair, Treatment Planning Session

International Organization for Medical Physics: AAPM Delegate 2000-2006; 2019-2020

International Society for Optical Engineering (SPIE): Meeting Abstracts Reviewer 1996, 1998

National Institutes of Health, Bethesda, MD
National Cancer Institute, Biomedical Imaging and Radiation Research Programs
Workshop: Oncologic Imaging 1997

Workshop: Role of Biological Imaging for Radiation Oncology 2002

National Institute of Allergies and Infectious Diseases, National Cancer Institute, and National Institute of Standards and Technology 2011-2012
Workshop: Radiation Dosimetry Standard Operating Procedures

National Institute of Allergies and Infectious Diseases, Food and Drug Administration, and Biomedical Advanced Research Development Authority 2019
Workshop: Cutaneous Radiation Injury

NC IMRT/IGRT Symposium: 1st, 2nd, 3rd, 4th, and 5th symposiums 2007-2012
Program Committee and/or Session Moderator for all five symposia
Co-Director for 4th Annual Symposium (Oct 2, 2010) hosted by WFUSM
Held jointly with Schools of Medicine of Duke University, East Carolina University, and University North Carolina at Chapel Hill

North American Hyperthermia Group 1987-1997

Radiation Therapy Oncology Group
3D-CRT Committee 1991-1995
Affiliate Site Review: St. Cloud Hospital, St. Cloud, MN 1994
Affiliate Site Review: Christ Hospital and Medical Center, Oak Lawn, IL 1994
Image-guided Retreat 2005
Physics Committee (invited speaker, Tampa, FL meeting) 2007

Radiological Society of North America
Co-Organizer, Moderator, and Faculty 2007-2009
Categorical Course on Oncologic Imaging (8 sessions, 24 faculty)
Scientific Program Committee, Physics Subcommittee 2005-2009
Co-Organizer, Moderator, and Faculty 2003-2005
Course, Molecular/Advanced Imaging in Oncology (4 sessions, 10 faculty)
Chair, Physics-Novel Treatment Session 2004

Society of Directors of Academic Medical Physics Programs (SDAMPP) 2008-present
President-elect, President (2-year term), Board Chair 2012, 2013-14, 2015
Organizer and Moderator, 2012 and 20133 SDAMPP Annual meetings 2012, 2013
Board Member At-Large (3 year term) and charter member 2009-2011

Society of Physics Students 1976-1978
Co-President 1978

Southeast Chapter, American Association of Physicists in Medicine 2010-2011
Co-Director, Moderator and Faculty, Annual Symposium (April 6-8, 2011)
The Practice of Quality Assurance in an Era of Change (15 invited national faculty)

World Conference on Physics and Sustainable Development, Durban, South Africa
Program Committee, Physics and Health 2004-2005

World Congress 2000 Committee, Editorial Board, www.wc2000.org 1999-2000

World Congress on Medical Physics & Biomedical Engineering (Seoul, South Korea)
Co-Director and Moderator, AAPM Refresher Courses (2 sessions, 12 faculty) 2006

CLINICAL INNOVATIONS AND INITIATIVES:

1. Microwave Hyperthermia Program, University of North Carolina 1983
   - Physics, technical and treatment components for a human clinical trial of combined radiation and microwave hyperthermia treatment

2. Radiation Oncology Facility, Gravely Building, University of North Carolina 1986-1990
   - facility planning/design for a 23,000 sq-ft academic radiation oncology facility with 3 vaults, dedicated HDR suite, CT-simulator and smart infrastructure
3. 3D Radiation Treatment Planning, Mayo Clinic 1992
   - implementation of CT- and MR-based 3D radiation treatment planning for megavoltage photons, prior to availability of commercial systems
4. Ultrasound Hyperthermia Program, Mayo Clinic 1992
   - physics, technical and treatment components for large-animal research study of combined intra-operative radiation and ultrasound hyperthermia treatment
5. 3D Radiation Treatment Planning, Wake Forest Baptist Medical Center 1997
   - implementation of CT- and MR-based 3D radiation treatment planning for megavoltage photons, prior to availability of commercial systems
6. Regional Practice Radiation Oncology Facility, Hugh Chatham Memorial Hospital (Elkin, NC) and Wake Forest Baptist Medical Center 1999
   - facility planning/design, physics and quality assurance aspects and physics oversight for a new 1-vault regional practice radiation oncology facility
7. Gamma Knife Radiosurgery Program, Wake Forest Baptist Medical Center 1999-present
   - facility planning/design, quality assurance and physics oversight for implementation of a gamma radiosurgery program, 1 CON
   - 1st in the State of NC and one of busiest programs in the US
   - expert on all 4 classes of gamma radiosurgery units
     - Models: U, 1990; B/C, 1999; Perfexion, 2009; ICON, 2017
8. Comprehensive Cancer Center Facility, Wake Forest Baptist Medical Center 1999-2004
   - facility planning/design and physics oversight for a 55,000 sq-ft academic radiation oncology facility, 2 CONs: 4 vaults, dedicated HDR/Procedures suite, dedicated gamma radiosurgery suite, dedicated PET-CT and 3T MR simulators and smart infrastructure
9. Regional Practice Radiation Oncology Facility, Caldwell Memorial Hospital (Lenoir, NC) and Wake Forest Baptist Medical Center 2005
   - facility planning/design, physics and quality assurance aspects and physics oversight for a new 1-vault regional practice radiation oncology facility
10. Bioanatomic Imaging and Treatment Program, Wake Forest Baptist Medical Center 2004-2006
    - implementation and clinical integration of advanced radiation oncology imaging using dedicated PET-CT and 3T MR simulators in the radiation oncology clinic

HONORS AND AWARDS:

Undergraduate Research Participant, Argonne National Laboratory	1977
Public Health Service Traineeship, University of North Carolina	1979-1980
A. D. Williams Predoctoral Fellowship, Medical College of Virginia	1982-1983
Physics Research Assistantship, University of North Carolina	1983-1986
Best Scientific Exhibit (co-author), 27th Annual Meeting of the AAPM	1985
Alpha Phi Omega, Theta Chapter, Honorary Public Health Society	April 1988
Sigma Xi, Mayo Foundation Chapter, Wake Forest University Chapter	1991-2000
Profiled in *Physics Today* for the field of medical physics	September 1993

Best Paper Award, Southeast Chapter of the AAPM (Ref #9)	2000
Fellow, American Association of Physicists in Medicine	2002
Jimmy O. Fenn Lifetime Achievement Award, Southeast Chapter of the AAPM	2012
Distinguished Service Award, American Board of Radiology	2012
JACMP-AAPM Award of Excellence for Best Medical Imaging Article, 2012 (Ref #53)	2013
Best Paper Award, Southeast Chapter of the AAPM (Ref #62)	2014
Lifetime Service Award, American Board of Radiology	2015
Research Excellence Award, Wake Forest University School of Medicine	2019
Research Excellence Award, Wake Forest University School of Medicine	2020
Research Excellence Award, Wake Forest University School of Medicine	2021

PROFESSIONAL INTERESTS:

Gamma radiosurgery physics, imaging for radiation oncology, small field dosimetry, radiation physics for radiation biology, bioeffects and countermeasures, and medical physics education.

GRANTS: CURRENT AND PENDING:

1. Title: The Primate Studies Core (Core 3) 2020-present
   Source: NIH/NIAID: U19 AI067798 (Duke University, subcontract 131714-5)
   Amount of direct funds: $375,000/yr
   Funding period: 08/01/05-07/31/10; 08/01/31-07/31/15; 08/31/15-07/31/20; 08/01/20-07/31/25
   Principal Investigator: N Chao. Subcontract PI: JM Cline
   Effort on grant: Yrs 1: 5%; Yrs 2-5: 10%; Yrs 6-10: 10%; Yrs 11-15: 5%; Yrs 16-20: 5%
   Salary support: Yrs 1: 5%; Yrs 2-5: 10%; Yrs 6-10: 10%; Yrs 11-15: 5%; Yrs 16-20: 5%
   Role: Co-investigator

2. Title: The Wake Forest Nonhuman Primate Radiation Survivor Cohort 2015-present
   Source: NIH/NIAID: U01 AI150578
   Amount of total funds: Year 1: $1,313,619
   Funding period: 8/01/10-7/31/15; 8/01/15-7/31/20, 08/01/2020 – 07/31/2027
   Principal Investigator: JM Cline
   Effort on grant: Years 1-5: 5%; Years 6-10: 5%; Years 11-15: 5%
   Salary support: Years 1-5: 5%; Years 6-10: 5%; Years 11-15: 5%
   Role: Co-investigator

3. Title: Biodosimetry Validation and Acquisition Program 2018-present
   Source: BARDA/ASELL LLC Contract: HHSO100201700022C
   Subcontract to WFUHS GTS 46582
   Amount of total funds: $748,311
   Funding period: 02/05/18-09/29/19, extended to 09/30/22
   Principal Investigator: R Kowalski
   Sub-contract Principal Investigator: JD Bourland
   Effort on grant: Years 1-3: 5-10%; Years 4-5: 10%
   Salary support: Years 1-3: 5-10%; Years 4-5: 10%
   Role: Principal Investigator, Subcontract

4. Title: Repurposing of a Commercially Available Burn and Wound Trauma Dressing for Use in Mass Casualty Incidents Involving Skin Injury Due to Radiation Exposure 2018-present
   Source: BARDA/Argentum Medical LLC Contract: HHS0100201800022C
   Subcontract to WFUHS GTS 47500

Amount of total funds: $1,800,000: 09/30/18-09/30/19
$797,000: 10/01/19-09/30/21, no-cost extended to 06/30/23
Funding period: 09/30/18-09/29/21
Sub-contract Principal Investigator: JD Bourland
Effort on grant: Years 1-3: 65%; Years 4-5: 35%
Salary support: Years 1-3: 65%; Years 4-5: 35%
Role: Principal Investigator, Subcontract

5. Title: Wake Forest Preclinical Imaging and Irradiation Facility - PRIMIR 2020-present
Source: NIH: 1C06OD030099-01
Amount of total funds: $7,335,679
Funding period: 09/14/20-05/31/25
Principal Investigator: CT Whitlow
Effort on grant: 0%; Salary support: 0%
Role: Co-investigator, Physics

6. Title: Novel Organic Field Transducers 2021-present
Source: Wake Forest Innovations, Commercialization Pathway Award
Amount of total funds: $40,000
Funding period: 08/01/21-07/31/22
Principal Investigator: J Ververs
Effort on grant: 0%; Salary support: 0%
Role: Co-investigator

GRANTS: PAST HISTORY:

1. Title: New techniques for radiation therapy treatment planning 1991-1992
Source: Fraternal Order of the Eagles Cancer Research Fund
Amount of direct funds: $35,000
Funding period: 07/01/91-06/30/92
Principal Investigators: JD Bourland and RA Robb
Effort on grant: 5%; Salary support: 0%
Role: Principal Investigator

2. Title: 3-D image analysis of tumor volumes 1993-1996
Source: NIH/NCI, R01 CA59424-01
Amount of direct funds: $250,000
Funding period: 07/01/93-/6/30/96
Principal Investigator: RA Robb
Effort on grant: 15%; Salary support: 15%
Role: Co-investigator

3. Title: Bio-anatomic radiation treatment planning 1996-2000
Source: NC Baptist Hospitals Developmental Technology Grant A-01-97
Amount of direct funds: $70,000
Funding period: 07/01/96-06/30/00
Principal Investigator: JD Bourland
Effort on grant: 10%; Salary support: 0%
Role: Principal Investigator

4. Title: Bio-anatomic radiation treatment planning: F-18 misonidazole synthesis 1996-2000
Source: Varian Oncology Systems
Amount of direct funds: $10,000

Funding period: 07/01/96-06/30/00
Principal Investigator: JD Bourland and EG Shaw
Effort on grant: 5%; Salary support: 0%
Role: Co-Principal Investigator

5. Title: Bioanatomic radiation treatment planning for brain and lung 2002-2003
Source: Varian Oncology Systems
Amount of direct funds: $70,000
Funding period: 07/01/02-06/30/02
Principal Investigator: JD Bourland
Effort on grant: 20%; Salary support: 20%
Role: Principal Investigator

6. Title: Correlation of tumor biocomplexity with length of survival in glioblastoma multiforme (with Virginia Tech) 2004-2006
Source: WFU Comprehensive Cancer Center PUSH Grant CA 12197-30
Amount of direct funds: $25,000
Funding period: 07/01/04-06/30/06
Principal Investigators: WB Spillman and JD Bourland
Effort on grant: 5%; Salary support: 0%
Role: Co-Principal Investigator

7. Title: Small Animal MRI/MRS Imaging Facility at WFUSM 2005-2008
Source: North Carolina Biotechnology Center
Amount of direct funds: $249,500
Funding period: 02/01/05-01/31/08
Principal Investigators: JM Zhu and MEC Robbins
Effort on grant: 0%; Salary support: 0%
Role: Co-Principal Investigator for Year 3 after grant PI transferred

8. Title: Bioanatomic Imaging and Treatment (BAIT) Support Grant 2006-2008
Source: WFU Comprehensive Cancer Center, PUSH Grant CA
Amount of direct funds: $25,000
Funding period: 07/01/06-06/30/08
Principal Investigator: JD Bourland
Effort on grant: 0%; Salary support: 0%
Role: Principal Investigator

9. Title: High total dose fractionated radiation and bone health: Quantifying bone loss and prevention with risedronate. 2007-2008
Source: Procter and Gamble Pharmaceuticals
Amount of direct funds: $25,000
Funding period: 07/01/07-06/30/08
Principal Investigator: TA Bateman (Clemson University)
Effort on grant: 5%; Salary support: 0%
Role: Consultant

10. Title: Orthovoltage Irradiation Facility at the WFUSM 2007-2008
Source: North Carolina Biotechnology Center Institutional Development Grant
Amount of direct funds: $79,695
Funding period: 02/01/07-07/31/08
Principal Investigator: MEC Robbins
Effort on grant: 0%; Salary support: 0%
Role: Co-investigator

11. Title: Radiation-Induced Bone Loss: An Animal Model 2007-2009
    Source: NIH/NIAMS, R21 AR054889
    Amount of direct funds: $101,019: Subcontract to WFUHS
    Funding period: 09/14/07-08/31/09
    Principal Investigator: TA Bateman. Subcontract PI: MEC Robbins
    Effort on grant: 5%; Salary support: 5%
    Role: Co-investigator

12. Title: A nonhuman primate model of radiation-induced brain injury 2008-2009
    Source: WFUHS IRS, Kulynych Res Fund, and Brain Tumor Center
    Amount of direct funds: $81,000
    Funding period: 5/01/08-11/30/09
    Principal Investigators: SA Deadwyler and MEC Robbins
    Effort on grant: 5%; Salary support: 0%
    Role: Co-investigator

13. Title: Focal irradiation of adult rodent hippocampus: in-field & out-of-field effects 2008-2009
    Source: Kulynych Research Fund, Intramural Research GTS #33697
    Amount of direct funds: $25,000
    Funding period: 6/01/08-5/31/09
    Principal Investigators: D Riddle
    Effort on grant: 5%; Salary support: 0%
    Role: Co-investigator

14. Title: Aggressive, infiltrative high-grade canine primary brain tumors: translational models for studying etiopathogenesis and novel experimental therapies applicable to human patients 2008-2009
    Source: WFU TSI, Translational Team Research Award
    Amount of direct funds: $125,000
    Funding period: 1/01/08-12/31/09
    Principal Investigators: J Rossmeisl and W Debinski
    Effort on grant: 5%; Salary support: 0%
    Role: Co-investigator

15. Title: System for Auto-Segmentation of Male Pelvis Structures from CT Images 2009-2011
    Source: NIH/NCI R01: Subcontract with Morphormics, Inc, Chapel Hill, NC
    Amount of direct funds: Year 1: $47,000; Year 2: $86,500
    Funding period: Year 1: 12/01/09 – 07/31/10; Year 2: 08/01/10 – 07/31/11
    Principal Investigator: EL Chaney. Subcontract PI: JD Bourland
    Effort on grant: 10%; Salary support: 10%
    Role: Principal Investigator

16. Title: Radiation-induced Brain Injury and Cognitive Dysfunction in Aging Rats 2009-2014
    Source: NIH/NCI, R01 CA133483
    Amount of direct funds: $300,000
    Funding period: 7/01/09-6/30/14
    Principal Investigator: D Riddle
    Effort on grant: 5%; Salary support: 0%
    Role: Consultant

17. Title: Keratin-based Treatment for X-ray Induced Cutaneous Radiation Injury 2013-2014
    Source: BARDA: BAA-BARDA-100-SOL-00012
    Keranetics subcontract: GTS 13-40982
    Amount of direct funds: $154,146

Funding period: 09/14/13-09/13/14
Principal Investigator: L Burnett. Subcontract PI: JD Bourland
Effort on grant: 15%; Salary support: 15%
Role: Principal Investigator

18. Title: A Pilot "Proof of Concept" (POC) Non-Clinical Study Using KeraHeal™ as a Mitigator in Yorkshire pigs (Sus Scrofa) to Determine the Potential Efficacy and Safety for a Medical Counter Measure (MCM) that Provides Mitigation of Cutaneous Radiation Injury (CRI). 2012-2015
    Source: BARDA: BAA-BARDA-100-SOL-00012
    Keranetics subcontract: GTS 12-36741
    Amount of direct funds: $1,750,000
    Funding period: 08/01/12-07/31/14
    Principal Investigator: L Burnett. Subcontract PI: M Tytell
    Effort on grant: 20%; Salary support: 20%
    Role: Co-investigator

19. Title: Training Program in Translational Radiation Oncology (TRADONC) 2010-2015
    Source: National Institutes of Health, T32CA113267 2005-2010
    Amount of direct funds: $1,542,555
    Funding period: 07/01/05-06/30/10; 07/01/10-06/30/15
    Principal Investigator: WA Blackstock (originally, MEC Robbins)
    Effort on grant: Years 1-5: 5-10%; Years 6-10: 15%; Salary support: 15% (shared effort)
    Role: Co-director (Physics), and Mentor

20. Title: Radiation Effects in Cynomolgus Monkeys: Suppl Award: CAMKK2 2015-2015
    Source: NIH/NIAID, U19 AI67798-01 (Duke University, subcontract 131714-5)
    Amount of total funds: Year 1: $200,000
    Funding period: 01/01/15-07/31/15
    Principal Investigator: N Chao. Subcontract PI: JM Cline
    Effort on grant: 10%; Salary support: 10%
    Role: Co-investigator

21. Title: Biodosimetry after Radiological and Nuclear Events 2015
    Source: BARDA: Applied Spectral Imaging and Northrop Grumman
    Amount of direct funds: $103,000. Subcontract to WFUHS
    Funding period: 02/01/15-01/31/16
    Principal Investigator: K Damer. Subcontract PI: MB Robinson
    Effort on grant: 10%; Salary support: 10%
    Role: Co-investigator

22. Title: Modulation of Radiation-induced Brain Injury in the Nonhuman Primate 2012-2016
    Source: NIH/NCI, 1R01CA155293-01A1
    Amount of direct funds: $452,786
    Funding period: 05/01/12-04/30/16
    Principal Investigator: SA Deadwyler (originally, MEC Robbins)
    Effort on grant: 7%; Salary support: 7%
    Role: Co-investigator

23. Title: Beta Irradiation of Skin with Silverlon™ Treatment: BISST 2015-2016
    Source: BARDA/Argentum Medical LLC Contract: HHS010020130019CC
    Subcontract to WFUHS GTS 43274
    Amount of direct funds: $560,000
    Funding period: 04/23/15-04/22/16; No cost extension through 08/31/16

Principal Investigator: T Miller
Subcontract Co-PIs: JD Bourland and MB Robinson
Effort on grant: 25%; Salary support: 25%
Role: Co-Principal Investigator

24. Title: Development of Radiation Dosage Parameters for Lymphodepletion with Minimal Myeloablation in Cynomolgus Macaques 2015-2016
Source: Industry Research Collaboration (Pfizer)
Amount of direct funds: $180,600 (F&A = $99,300, total = $281,930)
Funding period: 11/01/15-11/01/16
Principal Investigator: D Caudell
Effort on contract: 10% for 4 months; Salary support: 10% for 4 months
Role: Co-investigator

25. Title: Independent validation of planimetry for assessment of skin injury and healing after vesicant exposure 2016-2017
Source: BARDA/Argentum Medical LLC Contract: HHS010020130019CC
Subcontract to WFUHS GTS 44511
Amount of direct funds: $101,000
Funding period: 06/01/16-05/31/17: No Cost Extension through 10/31/17
Principal Investigator: T Miller
Subcontract Co-PIs: JD Bourland and PA Antinozzi
Effort on grant: 10.8%; Salary support: 10.8%
Role: Co-Principal Investigator

26. Title: Supplement I: Independent validation of planimetry for assessment of skin injury and healing after vesicant exposure 2016-2017
Source: BARDA/Argentum Medical LLC Contract: HHS010020130019CC
Subcontract to WFUHS GTS 44511
Amount of direct funds: $110,233
Funding period: 09/30/16-03/31/17
Principal Investigator: T Miller. Subcontract Co-PIs: JD Bourland and PA Antinozzi
Effort on grant: 9.2%; Salary support: 9.2%
Role: Co-Principal Investigator

27. Title: Gamma-irradiation of human and non-human primate blood samples 2016-2017
Source: BARDA: Northrop Grumman: Subcontract GTS 43942
Amount of direct funds: $135,402
Funding period: 03/08/16-09/30/16; Extension through 09/30/17
Principal Investigator: K Damer. Subcontract PI: JD Bourland
Effort on grant: 10%; Salary support: 10%
Role: Principal Investigator

28. Title: Long-Term Follow-up of the Delayed Effects of Acute Radiation Exposure in Primates 2015-2020
Source: DOD: W81XWH-15-1-0574
Amount of direct funds: $7,892,017
Funding period: 10/01/15-09/30/20
Principal Investigator: JM Cline
Effort on grant: 5%; Salary support: 5%
Role: Co-investigator

CLINICAL PROTOCOL AUTHORSHIP AND PARTICIPATION:

1. Bio-anatomic radiation treatment planning 1996-1997
   CCCWFU 91A97
   Comprehensive Cancer Center, Wake Forest University
   Principal Investigator: JD Bourland

2. Carolina conformal therapy consortium (CCTC): A phase 1 dose escalation study of radiotherapy using three-dimensional (3D) treatment planning for newly diagnosed glioblastoma multiforme (GBM) 1998-2002
   CCCWFU 98-01
   Compehensive Cancer Center, Wake Forest University
   Principal Investigator: EG Shaw
   Co-Investigator: JD Bourland

3. A pilot feasibility study of hybrid PET-CT imaging in patients with cancer of the head and neck treated with definitive chemoradiation 2006-2013
   BG06-007, CCCWFU 60A05; Approval date: 2005
   Comprehensive Cancer Center, Wake Forest University
   Principal Investigator: K Greven
   Co-Investigator: JD Bourland

4. Bioanatomic imaging and treatment database 2006
   CCCWFU 99A06-Master; Approval date: 2006
   Comprehensive Cancer Center, Wake Forest University
   Principal Investigator: JD Bourland

5. Magnetic resonance imaging and radiation treatment for brain tumors 2007
   CCCWFU 99A06-Brain-MR-RT; Approval date: 2006
   Comprehensive Cancer Center, Wake Forest University
   Principal Investigator: JD Bourland

6. Phase II study of RF ablation combined with external beam radiation therapy for patients with medically inoperable non-small cell lung cancer (stage Ia and select Ib) and the predictive value of positron emission tomography 2007-present
   IRB 00001334, CCCWFU 62306-A; Approval date: 01/09/07
   Comprehensive Cancer Center, Wake Forest University
   Principal Investigators: H Clark and JJ Urbanic, WA Blackstock
   Co-Investigator: JD Bourland

7. A retrospective review of the frequency of head CT scans, incidence of positive CT scans for ICH and the subsequent clinical course for patients with hemophilia 2008-2016
   IRB 00006189; Approval date: 06/12/08
   Principal Investigator: J Winslow
   Co-Investigator: JD Bourland

8. Retrospective imaging study of patients with malignant glioma grades III and IV (encompassing years 2000-2008) 2008-2014
   IRB 00006225; Approval date: 08/13/08
   Principal Investigators: BJ Sintay and JD Bourland
   Co-Investigator: SB Tatter

9. Use of 11C-choline PET-CT in the metastatic evaluation of patients with newly diagnosed high risk adenocarcinoma of the prostate 2008-2011
   IRB 00005483; Approval date: 06/19/08
   Principal Investigator: P Garg and DB Fried
   Co-Investigator: JD Bourland

10. Quantitative assessment of the difference between adult and pediatric radiation doses in blunt trauma patients — 2008-2010
    IRB 00006376; Approval date: 08/13/08
    Principal Investigator: J Winslow
    Co-Investigator: JD Bourland
11. Retrospective imaging study of Gamma Knife headframe placement — 2008-2009
    IRB 00007479; Approval date: 10/07/08
    Principal Investigators: D Wiant and JD Bourland
12. Optimization of 3T MR imaging for Gamma Knife radiosurgery — 2010-2011
    IRB 00013068; CCCWFU 99110; Approval date: 06/08/10
    Principal Investigator: JD Bourland
13. ACRIN 6684: Multicenter, Phase II assessment of tumor hypoxia (low oxygen) in glioblastoma brain tumors using the investigational 18F-fluoromisonidazole (Fmiso) agent with PET and MRI scans — 2010-2015
    IRB 00013005; Approval date: 04/21/10
    Principal Investigator: A Mintz
    Co-Investigator: JD Bourland
14. Retrospective review: prostate CT imaging and radiation treatment — 2010-2014
    IRB 00013069; Approval date: 05/07/10
    Principal Investigator: JD Bourland
15. The evaluation of hemorrhage rate of AVMs after Gamma Knife radiosurgery before total obliteration — 2010-2012
    IRB 00013389; Approval date: 09/23/10
    Principal Investigator: K Amponsha
    Co-Investigator: JD Bourland
16. RTOG 0837 / ACRIN 6689: Randomized, Phase II, double-blind, placebo-controlled trial of conventional chemoradiation and adjuvant temozolomide plus cediranib versus conventional chemoradiation and adjuvant temozolomide plus placebo in patient with newly diagnosed glioblastoma — 2010-2012
    IRB 00013586; Approval date: 07/13/10
    Principal Investigator: MD Chan
    Co-Investigator: JD Bourland
17. Imaging modalities to identify pseudoprogression in GBM — 2010-2012
    IRB 00014723; Approval date: 09/27/10
    Principal Investigator: MD Chan
    Co-Investigator: JD Bourland
18. Effects of low dose CT radiation on blood biomarkers of oxidation — 2010-2012
    IRB 00015154; Approval date: 11/01/10
    Principal Investigator: J Winslow
    Co-Investigator: JD Bourland
19. RTOG 1106 / ACRIN 6697: Randomized Phase II trial of individualized adaptive Radiotherapy using during-treatment FDG-PET/CT and modern technology in locally advanced non-small cell lung cancer (NSCLC) — 2012-2015
    IRB 00020601; Approval date: 04/19/12
    Principal Investigator: J Urbanic
    Co-Investigator: JD Bourland

20. Functional MRI (amendment for gamma radiosurgery patients) 2013-2015
    IRB 00002960; Approval date: 2013
    Principal Investigator: J Maldjian
    Co-Investigator: JD Bourland
21. Case report of rare vascular malformation radiosurgical treatment 2013-2016
    IRB 00023081; Approval date: 02/21/13
    Principal Investigator: P Morris
    Co-Investigator: JD Bourland
22. Dose calculation comparison for GK SRS 2013-2015
    IRB 00023398; Approval date: 07/03/13
    Principal Investigator: JD Bourland
    Co-Investigator: JM DiNitto
23. CT image reconstruction algorithms for gamma radiosurgery 2013-2016
    IRB 00023820; Approval date: 09/05/13
    Principal Investigator: JD Bourland
    Co-Investigator: JM DiNitto
24. Pilot study of the CytoRADx system as a biodosimeter 2016-2018
    IRB 00035086; Approval date: 01/05/16
    Principal Investigator: S Mahler
    Co-Investigator: JD Bourland
25. Evaluation of the CytoRADx system as a biodosimeter with human subjects 2018-2020
    IRB 00050563; Approval date: 05/30/18
    Principal Investigator: B Frizzell
    Co-Investigator: JD Bourland

ANIMAL RESEARCH PROTOCOL AUTHORSHIP AND PARTICIPATION:

1. Radiation effects on cynomolgus monkeys 2005-2008
   IACUC A05-155; Approval date: 09/14/05
   Principal Investigator: JM Cline
   Co-Investigator: JD Bourland
2. Efficacy of HGH in irradiated cynomolgus macaques 2007-2009
   IACUC A07-079; Approval date: 04/28/07
   Principal Investigator: JM Cline
   Co-Investigator: JD Bourland
3. Efficacy of HGH in irradiated cynomolgus macaques (low dose rate) 2008-2010
   IACUC A08-021; Approval date: 04/22/08
   Principal Investigator: JM Cline
   Co-Investigator: JD Bourland
4. Neurophysiological recording from nonhuman primate brain: 2008-2009
   Collaboration with whole brain irradiation project
   IACUC A05-136 (amended); Approval date: 08/01/09
   Principal Investigator: SA Deadwyler
   Co-Investigator: JD Bourland
5. Assessing Gamma-Knife irradiation-induced chronic brain injury 2009-2011
   IACUC A09-559; Approval date: 10/06/09
   Principal Investigator: W Zhao

Co-Investigator: JD Bourland

6. Radiosurgical treatment for spontaneous canine and feline intracranial tumors 2010-2012
   IACUC A09-143; Approval date: 01/07/10
   Principal Investigator: JD Bourland
   Co-Investigators: J Rossmeisl, J Robertson (Virginia Tech)

7. Wound healing using keratin biomaterials: Keratin biomaterials for radiation wound treatment 2010-2012
   IACUC A08-149; Amended approval date: 03/08/10
   Principal Investigator: M Van Dyke
   Co-Investigator: JD Bourland

8. Efficacy of HGH in irradiated cynomolgus macaques 2010-2011
   IACUC A10-055; Approval date: 04/28/10
   Principal Investigator: JM Cline
   Co-Investigator: JD Bourland

9. Cognitive and neurobiological effects of brain irradiation in middle-aged female monkeys receiving hormone therapy 2010-2013
   IACUC A09-133 (amended); Approval date: 10/06/10
   Principal Investigator: ML Voytko
   Co-Investigator: JD Bourland

10. Pilot study: Astaxanthin in the prevention of radiation-induced cognitive deficits in breast cancer brain metastasis model 2010-2012
    IACUC A10-088; Approval date: 06/01/10; Termination date: 04/05/12
    Principal Investigator: L Metheny-Barlow
    Co-Investigator: JD Bourland

11. Radiation countermeasures long term response of rhesus macaques 2010-2013
    IACUC A10-196; Approval date: 10/28/10 (terminated 09/17/13)
    Principal Investigator: JM Cline
    Co-Investigator: JD Bourland

12. Modulation of radiation-induced brain injury in the nonhuman primate 2011-2014
    IACUC A11-011; Approval date: 04/11/11
    Principal Investigator: SA Deadwyler
    Co-Investigator: JD Bourland

13. Determination of an optimal subcutaneous dose of MnTnHex-2-PyP5+ in NHPs given after radiation that will achieve the most effective mitigation of lung injury 2011-2014
    IACUC A10-242; Approval date: 04/13/11
    Principal Investigator: JM Cline
    Co-Investigator: JD Bourland

14. Model of schizophrenia in Cynomolgus monkeys. 2012-2014
    IACUC A12-092; Approval date: 10/05/12
    Principal Investigator: S Hemby
    Co-Investigator: JD Bourland

15. Keratin biomaterial for treatment of cutaneous radiation injury: beta irradiation 2013-2016
    IACUC A12-177; Approval date: 01/25/13
    Principal Investigator: M Tytell
    Co-Investigator: JD Bourland

    Amendment for X-ray irradiation; Approval date: 08/15/13 2013-2016

Principal Investigator: JD Bourland
Co-Investigator: M Tytell

16. Radiation countermeasures long term response of rhesus macaques 2013-2016
IACUC A13-117; Approval date: 09/17/13 (replaced A10-196)
Re-approval date: 09/17/15
Principal Investigator: JM Cline
Co-Investigator: JD Bourland

17. A novel nanoparticle platelet analogue for radiation-induced thrombocytopenia 2014-2016
IACUC A13-195; Approval date: 01/06/14; Re-approval date: 01/06/16
Principal Investigator: JM Cline
Co-Investigator: JD Bourland

18. Modulation of radiation-induced brain injury in the nonhuman primate 2015-2017
IACUC 14-039; Approval date: 04/08/15
Principal Investigator: SA Deadwyler
Co-Investigator: JD Bourland

18. Radiosurgery and hypofractionated radiotherapy for pet animals with spontaneous tumors 2014- 2016
IACUC A14-050; Approved 06/03/14 (replaced A09-143)
Principal Investigator: JD Bourland

19. Study of a multisystemic mitigator in nonhuman primates 2014-2016
IACUC A14-157; Approved 12/08/14
Principal Investigator: JM Cline
Co-Investigator: JD Bourland

20. Beta irradiation of skin with Silverlon treatment: BISST 2015-2017
IACUC: A15-044; Approved 04/22/15
Co-Principal Investigators: JD Bourland and MB Robinson

21. Prospective radiation cohort: cardiac and metabolic studies 2015-2018
IACUC: A15-083; Approved 07/06/15
Principal Investigator: JM Cline
Co-Investigator: JD Bourland

22. Development of radiation dosage parameters for lymphodepletion with minimal myeloablation in cynomolgus macaques 2015-2016
IACUC: A15-163; Approved 11/25/15
Principal Investigator: D. Caudell
Co-Investigator: JD Bourland

23. Post-gamma knife local recurrence by pterostilbene 2016-2019
IACUC: A15-201; Approved 03/08/16
Principal Investigator: F Xing
Co-Investigator: JD Bourland

24. Pleiotrophin as a mitigator of hematopoietic injury 2015-2019
IACUC: A16-014; Approved 03/25/16
Principal Investigator: JM Cline
Co-Investigator: JD Bourland

25. GRP and radiation-induced pulmonary fibrosis 2017-2019
IACUC A16-057; Approval date: 05/27/17
Principal Investigator: JM Cline

Co-Investigator: JD Bourland

26. Combinatorial therapy of brain metastasis 2016-2020
IACUC A16-091; Approval date: 07/13/16
Principal Investigator: K Watabe
Co-Investigator: JD Bourland

27. Radiation countermeasures long term response of rhesus macaques 2016-present
IACUC A16-094 (replaces A13-117); Approval date: 06/23/16
Principal Investigator: JM Cline
Co-Investigator: JD Bourland

27. WBI in nonhuman primate 2017-2020
IACUC A17-029; Approval date: 04/05/17
Principal Investigator: R Hampson
Co-Investigator: JD Bourland

28. Cutaneous Radiation Injury in Black (Types III-VI) Skin 2018-2021
IACUC A18-107; Approval date: 09/04/18
Principal Investigator: K Winkfield
Co-Investigator: JD Bourland

29. A Pilot Study to Assess Silverlon in a Porcine Model of CRI 2019-2020
IACUC A18-148; Approval date: 01/16/19
Principal Investigator: JD Bourland

BIOSAFETY RESEARCH PROTOCOL AUTHORSHIP AND PARTICIPATION:

1. Gamma Irradiation of Human Blood Samples 2015-2019
Biosafety Protocol No. 07.2015.100000.000000.674.01
Approval date: 07/15
Principal Investigator: MB Robinson
Co-Investigator: JD Bourland

2. Gamma Irradiation of Human Blood Samples (Re-approval) 2019-present
Biosafety Protocol No. 07.2015.100000.000000.674.01A
Approval date: 04/19
Principal Investigator: JD Bourland

PATENTS:

1. Radiotherapy treatment using medial axis transformation Awarded March 13, 2001
US Patent 6,201,988 B1
Bourland JD and Wu QR

2. Systems and methods for improving image quality Awarded April 11, 2017
in cone beam computed tomography.
US 9,615,807 B2
Bourland JD and Liu J. US Patent Application

3. Radiation Dosimeters and Applications Thereof Awarded January 6, 2022
US Patent 20220001208 A1
O Jurchescu, A Zeidell, T Ren, JD Bourland

DISCLOSURES:

1. Algorithms and software toolset for assessment of shape. 2008

BJ Sintay and JD Bourland

2. Software toolset for virtual headframe placement on digital images to enable stereotactic radiosurgery treatment planning. 2008
D Wiant and JD Bourland

BIBLIOGRAPHY:

Monographs and Textbooks:

1. Glasgow GP, Bourland JD, Grigbsy PW, Meli JA, Weaver KA. American Association of Physicists in Medicine Report No. 41, Remote Afterloading Technology (American Institute of Physics, New York, 1993).
2. Bourland JD (editor). Image-Guided Radiation Treatment, Taylor & Francis, NY, 2012.

Chapters in Books:

1. Shaw EG, Bourland JD, Marshall MG, "Cancers of the Central Nervous System," in Treatment Planning in Radiation Oncology, Khan FM.. Potish RA, Eds. Williams and Wilkins, 1998.
2. Watson G, Marshall MG, Dezarn WA, Bourland JD, Shaw EG. "Central Nervous System Tumors," in Technological Basis of Radiation Therapy, (3rd Edition) Levit SH, Khan FM, Potish RA, Perez C. Eds., Williams & Wilkins, 1999.
3. Bourland JD. "Radiation Oncology Physics," in Clinical Radiation Oncology, Gunderson LL, and Tepper JE, WB Saunders Company, Philadelphia, 2000.
4. Bourland JD. "Radiation Oncology Physics," in Clinical Radiation Oncology, 2nd edition, Gunderson LL, and Tepper JE, WB Saunders Company, Philadelphia, 2006.
5. Bourland JD. "Image-Guided Radiation Treatment," in Advances in Medical Physics-2008, Wolbarst AB, Mossman KL, and Hendee WR. Medical Physics Publishing, Madison, , pp 179-192, 2008.
6. Lawrence MV, Rossi P, Powell D, Ekstrand K, deGuzman A, Munley M, Ellis T, Tatter S, Steiber V, McMullen K, Shaw E, and Bourland JD. "The relationship between radiosurgery conformity indices and acoustic neuroma tumor volume" in Radiosurgery, Vol. 7. McDermott MR. Karger AG, Basel (Switzerland) 2010. (8th Int'l Stereotactic Radiosurgery Society Mtg, San Francisco, 2007)
7. Bourland JD. "Radiation Oncology Physics," in Clinical Radiation Oncology, 3rd edition, Gunderson LL, and Tepper JE, WB Saunders Company, Philadelphia, 2012.
8. Bourland JD. "Radiation Oncology Physics," in Clinical Radiation Oncology, 4th edition, 2015, Gunderson LL, and Tepper JE, WB Saunders Company, Philadelphia.
9. Bourland JD. "Radiation Oncology Physics," in Clinical Radiation Oncology, 5th edition, 2020, Gunderson LL, and Tepper JE, WB Saunders Company, Philadelphia.
A noted chapter on Radiation Oncology Physics in a noted text book on Radiation Oncology, now published for over 20 years.

Chapters in Proceedings:

1. Fatouros PP, Goodman H, Rao GU, Beachley MC, Jani SK, Bourland JD. Absorbed dose and image quality in xeromammography, in Application of Optical Instrumentation in Medicine XI, Proc SPIE 419:37-41, 1983.
2. Bourland JD, Camp JJ, Robb RA. Volume rendering: application in static field conformal radiosurgery, in Visualization in Biomedical Computing, Proc SPIE 1808:584-587, 1992.
3. Bourland JD, Gunderson LL, Petersen IA, Dahl RA, Coster JR, Taylor MD. Intraoperative hyperthermia via IORT electron applicator cones, in Intraoperative Radiation Therapy, Proc 4th International Symposium on IORT, F. W. Schildberg (ed), Essen: Verlag Die Blaue Eule, 1993.

4. Wu QR, Bourland JD, Robb RA. Morphology guided radiotherapy treatment planning and optimization, in Medical Imaging 1996: Image Display, Proc SPIE 2707:180-189, 1996.

5. Wu QR, Bourland JD, Robb RA. Fast 3D medial axis transformation to reduce computation and complexity in radiosurgery treatment planning, in Medical Imaging 1996: Image Processing, Proc SPIE 2710: 562-571, 1996.

6. Persons TM, Webber RL, Hemler PF, Bettermann W, Bourland JD. Brachytherapy volume visualization, in Medical Imaging 2000: Image Display and Visualization. Proc SPIE 3976:45-56, 2000.

7. Ekstrand KE, Bourland JD, Hinson WH. The Output Factors and End Effect Times for the Leksell Gamma Knife. Paper 3760-12263, in CD-ROM Proceedings of the World Congress on Medical Physics and Biomedical Engineering, 2 pages, Chicago, IL, July, 2000.

8. Hampton CJ, Bourland JD. Few-view cone-beam tomographic reconstruction using an amorphous silicon (A-SI) electronic portal imaging device (EPID), in 7th International Workshop on Electronic Portal Imaging - EPI2K2, Vancouver, BC, Canada, June, 2002.

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101. Diz DI, Garcia-Espinosa MA, Shaltout HA, Olson J, Bourland JD, Groban L. Correlation of the brain medullary metabolites N-acetyl aspartic acid and N-acetyl aspartyl glutamate with the age related decline in sensitivity for baroreflex control of heart rate in humans. Proceedings of the High Blood Pressure Research 2011 Scientific Sessions, September, 2011.

102. Ding X, Bourland J, Dolesh W. Localization error in gamma radiosurgery with 3T MR due to fiducial box chemical shift from incorrect liquid filling materials. Med. Phys. 39: 3665 (2012).

103. Ding X, Bourland J, Dolesh W, Best R, Mcgowin I, Liu J, Small field output factor measurement using MAGIC gel dosimeter in 3T MRI. Med. Phys. 39: 3725 (2012).

104. Best R, Gersh J, Wiant D, Bourland J. Gamma Knife Perfexion dosimetry: a Monte Carlo model of one sector. Med. Phys. 39: 3812 (2012).

105. Lucas J, Marshall K, Bourland D, Shaw E, Ellis T, Tatter S, and Chan MD. Predictors of durability of response for stereotactic radiosurgery in the treatment of trigeminal neuralgia. Int J Radiat Oncol Biol Phys 2012 84, Issue 3, Supplement, S37-S38.

106. Ayala-Peacock D, Peiffer AM, Ellis TL, Tatter SB, Urbanic JJ, Bourland JD, Shaw EG, and Chan MD. Predictive factors for distant brain failure after primary radiosurgical management of brain metastases. Int J Radiat Oncol Biol Phys 2012 84, Issue 3, Supplement, S296.

107. Liu J, Bourland J. An analytical model for fast computation of scatter estimation in kV cone-beam CT images. Med Phys 40:125, 2013.

108. McGowin I, Bourland J, Peiffer A, Simpson S, Rawley J, Godwin D. Magnetoencephalography (MEG): quantitative comparison of oscillations and synchronization differences/similarities in post-surgery/pre-irradiation patients and control subjects. Med Phys 40:146, 2013.

109. Liu J, Bourland JD. A fast, analytical pencil beam based method for first order x-ray scatter estimation of kilvoltage cone beam x-rays. Med Phys 41:129, 2014.

110. Dorand JE, Burnett LR, Tytell M, Bourland JD. A Sr-90 irradiation device for the study of cutaneous radiation injury. Med Phys 41:293, 2014.

111. Armato S, Bourland J, Svatos M. Financial Perspectives on Scientific Publishing. Med Phys 43:3693-3694, 2016.

112. Bourland J, Taliaferro L, Hu T, Prasanna P, and Huff J. Radiation Countermeasures Research and Development. Med Phys 43:3768, 2016.

Scientific Exhibits:

1. Bourland JD, Chaney EL, Kirsch M, McMurry HL, Reynolds KL, Rosenman JG, Varia MA. A system for efficient afterloading and removal of interstitial ^{192} Ir ribbons. 27th Annual Meeting of the AAPM, Seattle, WA, August, 1985.

2. Sherouse GW, Chaney EL, Bourland JD, Naves JL, Rosenman JG, Varia MA. Evaluation of image transformation software used with an ink jet printer for hardcopy output of radiotherapy treatment plans superimposed on digital medical images. 27th Annual Meeting of the AAPM, Seattle, WA, August, 1985.

3. Bourland JD, Chaney EL, Kirsch M, McMurry HL, Reynolds KL, Rosenman JG, Varia MA. An integrated system for efficient preparation, afterloading and removal of interstitial Iridium-192 ribbons. 27th Annual Meeting of the ASTRO, Miami Beach, FL, October, 1985 and Annual Meeting of the North Carolina Society of Radiologic Technologists, High Point, NC, May, 1986.

Miscellaneous - Letters:

1. Bourland JD. ICRU 50 Revisited. Health Physics 69:580, 1995.

Miscellaneous - Editorials:

1. Bourland JD. Point-Counterpoint: The PhD degree is a handicap in the job market for clinical medical physicists. Med Phys 27:2641-2643, 2000.
2. Bourland J. American Association of Physicists in Medicine. Oncology Issues 16: 17, 2001.
3. Hopewell JW, Bourland JD, Shaw EG. Mike Robbins 1954-2013. Int J Radiat Biol. 2013 Jun;89(6):482-3.

Miscellaneous - Journal Articles (non-refereed)

1. Sherouse GW, Bourland JD, Chaney EL, Naves JL, Rosenman JG, Varia MA. Evaluation of image transformation software and ink jet printer for output of CT-based treatment plans. J Amer Assoc Med Dosimet XI:31-36, 1986.
2. Bourland JD. Hybrid power. Enterprise Imaging and Therapeutic Radiology Management. 18(2): 50-56, 2008.

Miscellaneous - Book Reviews:

1. Bourland JD. "Practical Radiation Safety Manuals: Manual on Brachytherapy, Manual on therapeutic Uses of Iodine-131, and Manual on High Energy Teletherapy," Health Physics Society Newsletter 21(5):10, 1993.
2. Bourland JD. "The Physics of 3-D Radiation Therapy: Conformal Radiotherapy, Radiosurgery and Treatment Planning," Health Physics 65:566, 1993.
3. Bourland JD. "Radiotherapy Physics. In Practice," Health Physics 67:673-674, 1994.
4. Bourland JD. "3D Radiation Treatment Planning and Conformal Therapy," AJR 168: 28, 1997.
5. Bourland JD. "Molecular Imaging," Med Phys 36(5):1924, 2009.
6. Bourland JD. "Image-Guided Radiation Therapy in Lymphoma Management," Med Phys 39(1):564, 2012.

Miscellaneous - Thesis and Dissertation:

1. Bourland JD. Evaluation of a parallel plate water immersible ionization chamber. Master's Technical Report, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, 1981. Advisors: Farideh Bagne, PhD and Edward L Chaney, PhD
2. Bourland JD. A finite-size pencil beam model for three-dimensional photon dose calculations. Doctoral Dissertation, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, 1990. Advisor: Edward L Chaney, PhD

Miscellaneous - By Title Only:

1. Bourland JD, Reynolds KL, Simons AD, Varia MA. An exposure reducing system for preparation of ^{192}Ir for interstitial implants. Med Phys 12:499, 1985.
2. Wu QR, Bourland JD. An approach based on target shape for optimal treatment planning on the gamma unit. Med Phys 22:906, 1995.
3. Bourland JD, Wu QR. The medial axis transform: a target shape parameter useful for treatment planning. Med Phys 22:907, 1995.
4. Hokanson DA, Bourland JD. Magresigraphs: digitally reconstructed radiographs from MR images and their use in 3D radiation treatment planning. Med Phys 22:907, 1995.
5. Brinkmann DA, Kline RW, Bourland JD. 3D treatment planning on coronal MR images. Med Phys 23:1038, 1996.

6. Persons TM, Bourland, JD. Three dimensional regularized tomosynthetic image restoration. 2001 Diagnostic Works in Progress, AAPM, 2001.

VISITING PROFESSORSHIPS:

1. Bourland JD. "What is Medical Physics?" and "A real-life scientist", North Park College, Chicago, IL, February, 1992.
2. Bourland JD. "Diagnostic radiology and imaging science in the United States," Department of Diagnostic Radiology and "Radiation treatment planning," Department of Radiation Therapy, University of Nairobi and Kenyatta National Hospital, Nairobi, Kenya, March, 1994.
3. Bourland JD. "Dueling Dose Distributions in 3D: Sterad vs. the Gamma Knife," University of Minnesota, Biophysical and Medical Physics Seminar, Minneapolis, MN, January, 1995.
4. Bourland JD. "Dueling Dose Distributions in 3D: Sterad vs. the Gamma Knife," University of Wisconsin, Medical Physics Seminar, Madison, WI, March, 1995.
5. Bourland JD. "Bioanatomic Imaging and Treatment in Radiation Oncology," MD Anderson Cancer Center, Houston, TX, October, 2002.
6. Bourland JD. "Medical Physics 2010," School of Science, Engineering, and Health, Daystar University, Nairobi and Athi River Campuses, Athi River, Kenya, October 7-8, 2010.
7. Bourland JD. "Medical Physics 2010," Department of Physics, Kenyatta University, Nairobi, Kenya, October 12, 2010.
8. Bourland, JD. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, 9 lectures. International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.
9. Bourland JD. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT), 6 lectures. The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.

LECTURES AND ORAL PRESENTATIONS: INVITED

1. Bourland JD. Clinical hyperthermia update. Third Annual Dosimetry Workshop, American Association of Medical Dosimetrists (AAMD) Region V Meeting, Chapel Hill, NC, October, 1984.
2. Bourland JD. Hyperthermia in cancer therapy. 48th Annual Meeting of the North Carolina Society of Radiologic Technologists, High Point, NC, May, 1986.
3. Bourland JD. Patient positioning and immobilization in radiation therapy. 49th Annual Meeting of the North Carolina Society of Radiologic Technologists, High Point, NC, May, 1987.
4. Bourland JD. 3-D treatment planning. North Central Cancer Treatment Group, Rochester, MN, October, 1991.
5. Bourland JD. Workshop on Intraoperative Hyperthermia Techniques, 6th International Congress on Hyperthermic Oncology, Tucson, AZ, April-May, 1992. (invited panelist)
6. Bourland JD. Commencement Address. Radiation Therapy Technology Program, Mayo School of Health-Related Sciences, Rochester, MN, September, 1994.
7. Bourland JD. Basic concepts: nuclear physics. AAPM Radiation Physics Review Course, Boston, MA, July 1995.
8. Bourland JD. Three-dimensional treatment planning and image transmission. Joint Meeting of the Minnesota Radiological Society, NCC-AAPM, and NCC-HPS, Rochester, MN, November, 1995.
9. Bourland JD. Basic concepts: nuclear physics. AAPM Radiation Physics Review Course, Philadelphia, PA, July 1996.

10. Bourland JD. Radiation Oncology: Past, Present and Future. North Carolina ASRT Meeting, Forsyth Technical Community College, August, 1996.
11. Bourland JD. Radiosurgery techniques: shaped static fields, dosimetry comparisons, automated optimized treatment planning. III Congress of the Spanish Radiosurgery Society, Valencia, Spain, October, 1996.
12. Bourland JD. The AAPM Electronic Media Coordinating Committee. 39th Annual Meeting of the AAPM, Milwaukee, WI, July 1997.
13. Bourland JD. Stereotactic radiation treatment approaches and devices. Refresher Course, RSNA, Chicago, IL, December, 1997.
14. Bourland JD. Symposium Faculty: NCI Workshop on Oncologic Imaging, 1997. 40th Annual Meeting of the AAPM, San Antonio, TX, August, 1998.
15. Bourland JD. Stereotactic radiation treatment approaches and devices. Refresher Course, RSNA, Chicago, IL, December, 1998.
16. Bourland JD. Internet-based information for medical physicists. 41st Annual Meeting of the AAPM, Nashville, TN, July, 1999.
17. Bourland JD. Stereotactic radiation treatment approaches and devices. Refresher Course, RSNA, Chicago, IL, December, 1999.
18. Bourland JD. Helical and multi-slice CT in radiation oncology: planning, treatment, and quality assurance. Symposium on Helical and Multi-Slice CT, Southeast Chapter of the AAPM, March, 2000.
19. Bourland JD, Wu QJ. Morphology-guided radiosurgery treatment planning and optimization for multiple isocenters. Annual Meeting of the SEAAPM, Asheville, NC, March 2000. **Invited presentation for *Best Paper Award, Southeast Chapter of the AAPM, 2000*.**
20. Bourland JD. President's Symposium: Molecular and biological imaging for 3D radiation treatment: paradigm shift, pilot study, and imaging science. 43rd Annual Meeting of the AAPM, Salt Lake City, UT July 2001.
21. Bourland JD. Introduction to molecular imaging. Spring Symposium on Molecular Imaging and Intensity Modulation in Radiation Therapy, Southeast Chapter of the AAPM, Knoxville, TN, May, 2002.
22. Bourland JD. Molecular imaging in radiation treatment: Summary. Spring Symposium on Molecular Imaging and Intensity Modulation in Radiation Therapy, Southeast Chapter of the AAPM, Knoxville, TN, May, 2002.
23. Bourland JD. Introduction to molecular imaging. 44th Annual Meeting of the AAPM, Montreal, Canada, July, 2002.
24. Bourland, JD. Extraordinary opportunities in and the changing face of radiation physics research. Annual Meeting of the Society of Chairman of Academic Radiation Oncology Programs (SCAROP), Lake Tahoe, CA, August, 2003.
25. Bourland, JD. Bioanatomic treatment planning. Spring Symposium of the Delaware Valley Chapter, American Association of Physicists in Medicine, Philadelphia, PA, March, 2004.
26. Bourland JD. Physical science and engineering in medicine: the fields of medical physics and biomedical engineering. Laboratories for Learning BioSummer 2004, Winston-Salem Chamber of Commerce, Winston-Salem, NC, June, 2004.
27. Bourland JD. Clinical radiation oncology physics: Is this your home? Symposium for Young Physicists, 46th Annual Meeting of the AAPM, Pittsburgh, PA, August, 2004.
28. Bourland JD. Clinical needs and applications of image-guided therapies. Biomedical Imaging Research Opportunities Workshop, Bethesda, MD, March, 2005.

29. Bourland JD. Positron emission tomography for oncologic imaging and treatment. Refresher Course, 47th Annual Meeting of the AAPM, Seattle, WA, July, 2005.

30. Mah K and Bourland JD (*in absentia*). Refresher Course: Advances in CT and PET imaging for radiation treatment planning., 47th Annual Meeting of the ASTRO, Denver, CO, October, 2005.

31. Bourland JD. Advanced PET imaging in oncology. 91st Scientific Assembly and Annual Meeting of the RSNA, Chicago, IL, November-December, 2005.

32. Bourland JD. Summary: the oncologic target. 91st Scientific Assembly and Annual Meeting of the RSNA, Chicago, IL, November-December, 2005.

33. Bourland JD. Positron emission tomography for oncologic imaging and treatment. Refresher Course, 48th Annual Meeting of the AAPM, Orlando, FL, July, 2006.

34. Bourland JD. Functional imaging for radiotherapy guidance – quantitative biological imaging and the oncologic target. 48th Annual Meeting of the AAPM, Orlando, FL, July, 2006.

35. Fullerton G, Bourland J, Pelizzari C, Ling C, Jaffray D, et al. BIROW – Biomedical imaging research opportunities workshop: Intersociety project to accelerate biomedical imaging discovery and application: Image-guided therapy. 48th Annual Meeting of the AAPM, Orlando, FL, July, 2006.

36. Bourland JD. Positron emission tomography applications in radiation treatment. AAPM Refresher Course, World Congress on Medical Physics and Biomedical Engineering, Seoul, South Korea, August, 2006.

37. Bourland JD. Positron emission tomography for oncologic imaging and treatment. International Conference on Medical Physics, Hangzhou, China, September, 2006.

38. Mah K and Bourland JD. Refresher Course: Advances in CT and PET imaging for radiation treatment planning. 48th Annual Meeting of the ASTRO, Philadelphia, PA, November, 2006.

39. Bourland JD. Image-based clinical trials. 1st NC IMRT/IGRT Symposium: Current Development of IMRT and IGRT in Radiation Oncology, Durham, NC, April, 2007.

40. Bourland J and Jeraj R. Functional/Molecular Imaging: PET for planning/assessment. Therapy Continuing Education Course. 49th Annual Meeting of the AAPM, Minneapolis, MN, July, 2007.

41. Bourland JD. Facility design. AAPM Summer School on Radiation Shielding Design, Collegeville, MN, July, 2007.

42. Bourland JD. Refresher Course: Advances in CT and PET imaging for radiation treatment planning. 49th Annual Meeting of the ASTRO, Los Angeles, CA, October/November, 2007.

43. Bourland JD. Imaging in radiation oncology. Categorical Course in Oncology Imaging, 93rd Scientific Assembly and Annual Meeting of the RSNA, Chicago, IL, November-December, 2007.

44. Bourland JD. Image-guided radiation treatment. Physics Colloquium, North Carolina Agricultural and Technical University, Greensboro, NC, February, 2008.

45. Bourland JD. PET/CT in radiation oncology. SEAAPM Symposium on Emerging Technologies in Radiation Therapy, Birmingham, AL, March, 2008.

46. Bourland JD. Image-guided radiation treatment. AAPM Training Session, Conference of Radiation Control Program Directors, Greensboro, NC, May, 2008.

47. Bourland JD. Positron emission tomography for oncologic imaging and treatment. AAPM Training Session, Conference of Radiation Control Program Directors, Greensboro, NC, May, 2008.

48. Bourland JD. The Gamma Knife™: An image-guided stereotactic radiation treatment device for intra-cranial targets. AAPM Training Session, Conference of Radiation Control Program Directors, Greensboro, NC, May, 2008.

49. Bourland JD. Image-guided radiation treatment. Scholars In Training (SIT) Symposium, 54th Annual Meeting of the Radiation Research Society, Boston, MA, September, 2008.

50. Bourland JD. Refresher Course 208: Advances in CT and PET imaging for radiation treatment planning. 50th Annual Meeting of the ASTRO, Boston, MA, 2008.

51. Bourland JD. Imaging for radiation treatment of brain tumors. Categorical Course in Oncology Imaging, 94th Scientific Assembly and Annual Meeting of the RSNA, Chicago, IL, November-December, 2008.

52. Bourland JD. Plenary Session: Facility Design: Physics Symposium: Therapy Shielding, and Physics and Applications of PET/CT. 95th Scientific Assembly and Annual Meeting of the RSNA, Chicago, IL, November-December, 2009.

53. Bourland JD. Imaging for radiation treatment of brain tumors. Categorical Course in Oncology Imaging, 95th Scientific Assembly and Annual Meeting of the RSNA, Chicago, IL, November-December, 2009.

54. Couch N and Bourland JD. It's ELEMENTary, our Dear Watson! Spring 2010 Meeting of the North Carolina Health Physics Society, Raleigh, NC, March, 2010.

55. Bourland JD. Cancer treatment and technologies. Ms. McGee's 5th Grade Class (Highly Gifted Program), Brunson Elementary School, Winston-Salem/Forsyth County Schools, Winston-Salem, NC, June, 2010.

56. Bourland JD. Radiation Treatment Events: Cases, Causes and Culture of Safety. 2011 Symposium of the Southeast Chapter of the AAPM (SEAAPM), Myrtle Beach, SC, 2011.

57. Hinson WH and Bourland JD. MRI Safety. 2011 Annual Scientific Meeting of the Southeast Chapter of the AAPM (SEAAPM), Myrtle Beach, SC, 2011.

58. Bourland JD. Radiation Sources: External Beam and Isotope. NIAID/NCI/NIST Workshop: Radiation Dose Is More Than A Number. National Institute of Standards and Technology, Gaithersburg, MD, September, 2011.

59. Bourland JD. Large Animal Irradiation. NIAID/NCI/NIST Workshop: Radiation Dose Is More Than A Number! National Institute of Standards and Technology, Gaithersburg, MD, September, 2011.

60. Bourland JD. Radiation oncology physics and medical physics education. Southeast Society of the American Physical Society, Roanoke, VA, October, 2011.

61. Bourland JD. Radiological imaging risk: Joint Commission Sentinel Alert #47. North Carolina Health Physics Society, Raleigh, NC, March, 2012.

62. Bourland JD. Intensity-modulated and image-guided radiation treatment. AAPM-SEFM-AMPR Joint Symposium: *Medical Physics Challenges for Implementation of New Technologies in External Beam Radiotherapy* (joint symposium of the American, Spanish, and Russian medical physics societies). 54th Annual Meeting of the AAPM, Charlotte, NC, July-August, 2012.

63. Bourland JD. Debate Presentation: "Against – IMRT requires IGRT". AAPM-SEFM-AMPR Joint Symposium: *Medical Physics Challenges for Implementation of New Technologies in External Beam Radiotherapy* (joint symposium of the American, Spanish, and Russian medical physics societies). 54th Annual Meeting of the AAPM, Charlotte, NC, July-August, 2012.

64. Bourland JD. From Film to EPID. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

65. Bourland JD. CBCT and MVCT. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

66. Bourland JD. Dose Management in IGRT. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear

Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

67. Bourland JD. CBCT Quality Assurance. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

68. Bourland JD. 4D CT and Gating. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

69. Bourland JD. MRI-Guidance and Multimodality Oncology Imaging. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

70. Bourland JD. Cyber Knife and Gamma Knife. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

71. Bourland JD. Tomotherapy. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

72. Bourland JD. Safety in Radiation Oncology. AAPM-AMPR Joint Course on Medical Physics and Radiotherapy, International Training Center on Medical Physics, Radiation Oncology, and Nuclear Medicine (joint course of the American and Russian medical physics societies), Blokhin Russia Cancer Research Center, Moscow, Russia, November 17-22, 2014.

73. Bourland JD. Physics of Creation. Science for Seminaries Series, School of Divinity, Wake Forest University, August, 2015.

74. Bourland JD. The MedPhys Match: History and Status. Medical Physics Graduate Program, Duke University, October, 2015.

75. Bourland JD. MedPhys Match: 2016 Status. Annual Meeting of the Society of Directors of Academic Medical Physics Programs (SDAMPP), Washington, DC, July 30, 2016.

76. Bourland JD. A Tale of Two Journals: Open-Access and Subscription-Based Journals. Symposium on Financial Perspectives on Scientific Publishing, 58th Annual Meeting of the AAPM, Washington, DC, August, 2016.

77. Bourland JD. Physics and Dosimetry for Radiation Countermeasures Research. Symposium on Radiation Countermeasures Research and Development, 58th Annual Meeting of the AAPM, Washington, DC, August, 2016.

78. Bourland JD. Large Animal Irradiations, Challenges and Strategies. NIAID Dosimetry Harmonization Workshop, Radiation and Nuclear Countermeasures Program, National Institute of Allergy and Infectious Diseases, Rockville, MD, August, 2016.

79. Bourland JD. The History of Automation in Medical Physics. Southeast Chapter of the American Association of Physicists in Medicine (SEAAPM), Annual Meeting, Charleston, SC, February, 2017.

80. Bourland JD. Image Guided Radiotherapy Technologies and Processes. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT). The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.

81. Bourland JD. AAPM Recommendations on IGRT. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT). The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.
82. Bourland JD. Acceptance and Commissioning of IGRT Technologies. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT). The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.
83. Bourland JD. Patient Dosimetry in IGRT. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT). The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.
84. Bourland JD. Multimodality Imaging in Radiation Oncology. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT). The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.
85. Bourland JD. Radiation Safety in IGRT: Case, Causes and Culture of Safety. Joint ICTP-IAEA International Workshop on the Implementation of Image Guided Radiotherapy (IGRT). The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, May 8-12, 2017.
86. Bourland JD. MRI safety in radiation oncology. 59th Annual Meeting of the AAPM, Denver, CO, July-August, 2017. Presented in absentia by colleague D. Jordan
87. Bourland JD, Cline JM, Olson JD. Experience and dosimetry standardization for total body irradiations in research. Council on Ionizing Radiation Measurements and Standards (CIRMS) 2018 Annual Meeting, NIST, Gaithersburg, MD, April 16-18, 2018.
88. Bourland JD. Automation in Radiation Therapy: Past, Present and Future. The history of automation in radiation oncology. MO-A-KDBRA2-1. 60th Annual Meeting of the AAPM, Nashville, TN, July-August, 2018.
89. Bourland JD. Beta Radiation Porcine CRI Model. Cutaneous Radiation Injuries (CRI) Meeting. NIAID, CDER/FDA, and BARDA, NIAID Conference Center, Rockville, MD, May, 2019.
90. Bourland JD. Beta Radiation Porcine CRI Model. Nuclear-Radiation Group, NIAID-BARDA-FDA-NCI Joint Seminar Series, October, 2020.
91. Bourland JD. Medical Physics: Perspectives for the Future. 2020 Annual Meeting of the Great Lakes Chapter of the AAPM, December 2, 2020.
92. Bourland JD. Medical Physics: Perspectives for the Future. Section of Physics, Department of Radiation Oncology, Wake Forest University School of Medicine, January 13, 2021.
93. Bourland JD. Medical Physics: Perspectives for the Future. Section of Physics, Department of Radiation Oncology, Moses Cone Health System, February 22, 2021.
94. Bourland JD. Medical Physics: Perspectives for the Future. Florida Chapter of the AAPM, March 12, 2021.
95. Bourland JD. Medical Physics: Perspectives for the Future. Penn-Ohio Chapter of the AAPM, April 16, 2021.
96. Bourland JD. Research and Radiation Procedure Standardization, Quality Assurance and Quality Control. NASA Workshop on Standardization of Stressor Models and Research Facility for the CBS Integrated Research Plan. May 12, 2021.
97. Bourland JD. Medical Physics: Perspectives for the Future. Colorado Medical Physics Groups, June 2, 2021.
98. Bourland JD. Presentation to NIH ARPA-H Listening Session #9 – Perspectives on ARPA-H on Behalf of the American Association of Physicists in Medicine. August 11, 2021.
99. Bourland JD. Roles for AAPM and ASTRO in Supporting Change and Adaptation. 63rd Meeting of the American Society for Radiation Oncology, McCormick Place West, Chicago, IL, October, 2021.

100. Bourland JD. Medical Physics: Perspectives for the Future. Delaware Valley Chapter of the AAPM, October 29, 2021.

101. Bourland JD. Medical Physics: Perspectives for the Future. Southeast Chapter of the AAPM, January 29, 2022.

102. Bourland JD. Medical Physics: Perspectives for the Future. Southwest Chapter of the AAPM, April 7, 2022.

103. Bourland JD. Medical Physics: Perspectives for the Future. Northwest Chapter of the AAPM, May 6, 2022.

104. Bourland JD. AAPM Welcome: Radiation Skin Injury: A Preclinical Model. 2022 Annual Meeting of the Conference on Radiation Control and Program Directors, Tucson, AZ, May 17, 2022.

105. Bourland JD. Medical Physics: Perspectives and Impact. President's Symposium. 64th Annual Meeting of the AAPM, Washington DC, July, 2022.

106. Bourland JD. Medical Physics: Perspectives for the Future. Midwest Chapter of the AAPM, Chicago, IL, November 12, 2022.

107. Bourland JD. AAPM Welcome, Opening Session for the 2022 Annual Meeting of the Radiological Society of North America, Chicago, IL, November 27, 2022.

108. Bourland JD. The AAPM and the IAEA Rays of Hope Initiative. Roundtable Event on Partnership in Global Cancer Care. International Atomic Energy Agency, Vienna, Austria, December 6, 2022.

    As President and on behalf of the AAPM, I signed the Practical Arrangements agreement with the IAEA along with ten other global cancer-oriented groups, committing to work together to improve access to and implementation of radiotherapy training, research and quality assurance, for the benefit of regions worldwide that have few resources for radiation medicine.

LECTURES, ORAL, AND POSTER PRESENTATIONS: PROFFERED

1. Bourland JD, Bagne F, Wong TZ, Jenneman PV. Evaluation of a water immersible, thin-walled ionization chamber. 22nd Annual Meeting of the AAPM, Minneapolis, MN, July, 1980.

2. Bourland JD, Reynolds KL, Simons AD, Varia MA. An exposure reducing system for preparation of ^{192}Ir for interstitial implants. 27th Annual Meeting of the AAPM, Seattle, WA, August, 1985.

3. Bourland JD, Chaney EL, Kirsch M, McMurry HL, Reynolds KL, Rosenman JG, Varia MA. An integrated system for efficient preparation, afterloading and removal of interstitial Iridium-192 ribbons. 27th Annual Meeting of the ASTRO, Miami Beach, FL, October, 1985.

4. Bourland JD, Sherouse GW, Chaney EL, Reynolds KL, Varia MA. Modeling of dynamic sources in remote afterloading. 29th Annual Meeting of the AAPM, Detroit, MI, July, 1987.

5. Sherouse GW, Bourland JD, Reynolds KL, McMurry HL, Mitchell T, Rosenman JG, Chaney EL. Virtual simulation in a physical world: some practical considerations. World Congress on Medical Physics and Biomedical Engineering, San Antonio, TX, August, 1988.

6. Bourland JD, Varia MA, Sherouse GW, Stancil PE, Stanley LD, Chaney EL, McMurry HL, Tepper JE. Incorporation of emerging technologies into the design of a radiation oncology facility: problems encountered. World Congress on Med Physics and Biomedical Eng, San Antonio, TX, August, 1988.

7. Carey EM, Sherouse GW, Bourland JD, Chaney EL. Water phantom measurements for verifying three dimensional dose calculations for megavoltage photon beams. 31st Annual Meeting of the AAPM, Memphis, TN, July, 1989.

8. Bourland JD, Chaney EL. Finite-size pencil beam model for 3-D photon dose calculations. 31st Annual Meeting of the AAPM, Memphis, TN, July, 1989.

9. Bourland JD, McCollough KP. Static field conformal stereotactic radiosurgery: physical techniques. 33rd Annual Meeting of the ASTRO, Washington, D.C., November, 1991.

10. Bourland JD. Multi-directional, fixed field conformational stereotactic radiology: fact or fiction. Annual Meeting of the NCC-AAPM, La Crosse, WI, May, 1992.

11. Bourland JD, Dahl RA, Coster JR, Taylor MD. Ultrasound-induced intraoperative hyperthermia via intraoperative radiation therapy electron applicator cones. 34th Annual Meeting of the AAPM, Calgary, Alberta, Canada, August, 1992.

12. Bourland JD, Camp JJ, Robb RA. Volume rendering in static field conformal stereotactic radiosurgery. 34th Annual Meeting of the AAPM, Calgary, Alberta, Canada, August, 1992.

13. Kline RW, Anderson JA, Blackwell CR, Bourland JD, Dahl RA, McCollough KP, McCullough EC, Mellenberg DE. Matching five photon beams: update. 34th Annual Meeting of the AAPM, Calgary, Alberta, Canada, August, 1992.

14. Bourland JD, Gunderson LL, Petersen IA, Dahl RA, Coster JR. Intraoperative hyperthermia via IORT electron applicator cones. 4th International Symposium on IORT, Munich, Germany, September, 1992.

15. Bourland JD, Camp JJ, Robb RA. Volume rendering: application in static field conformal radiosurgery. Visualization in Biomedical Computing '92, Chapel Hill, NC, October, 1992.

16. Kisrow K, Bourland JD. Clinical application of 3-D treatment planning. Annual Meeting of the AAMD, June, 1993. (also presented at the Iowa Regional ASRT meeting, 1993, and the Annual Meeting of the ASRT, San Francisco, October, 1994)

17. Bourland JD. A method for radiosurgery with shaped, static fields: update. 1st Congress of the International Stereotactic Radiosurgery Society, Stockholm, June, 1993.

18. Bourland JD, McKean BJ, Kisrow K. Quality assurance in the delivery of 3-D treatment plans. 35th Annual Meeting of the AAPM, Washington, DC, August, 1993.

19. Foote R, Coffey R, Earle J, Shaw E, Swanson J, Davis D, Kelly P, Horner S, Beatty C, Brey R, Robinette M, Bourland D, Kline R, McCullough E, Stevens L, O'Fallon J. Stereotactic radiosurgery using the Gamma Knife for acoustic neuromas. 35th Annual Meeting of the ASTRO, New Orleans, LA, October, 1993.

20. Robb RA, Bourland JD, Camp JJ, Taneja U, Jack CR, O'Neil BP, Earle JD, Scheithauer BW. Tumor volume analysis from 3-D images. PACS in Radiation Oncology 94, Philadelphia, PA, July, 1994.

21. Bourland JD. Specifications for 3D radiation treatment planning systems. 36th Annual Meeting of the AAPM, Anaheim, CA, July, 1994.

22. Wu QR, Bourland JD. Comparison of shaped, static field linac radiosurgery with gamma knife radiosurgery. 36th Annual Meeting of the AAPM, Anaheim, CA, July, 1994.

23. Petersen IA, Herman RC, Bourland JD, Silbert PL, Dahl RA, Gunderson LL. Clinical and electrophysiologic changes in canines after intraoperative radiation (IORT) and intraoperative hyperthermia (IOHT). 5th International Symposium on IORT, Lyon, France, September, 1994.

24. Taneja U, Camp JJ, Bourland JD. Radiation treatment planning and tumor volume analysis. Demonstration, Visualization in Biomedical Computing 1994, Rochester, MN, October, 1994.

25. Bourland JD, Robb RA, Camp JJ, Taneja U, Jack CR, O'Neill BP, Earle JD, Scheithauer BW. A semi-automated approach to quantitative assessment of tumor response. 19th L. H. Gray Conference on Quantitative Imaging In Oncology, Newcastle, UK, April, 1995. Also presented at Annual Meeting of the NCC-AAPM, La Crosse, WI, May, 1995.

26. Hokanson DA, Bourland JD. Magresigraphs: digitally reconstructed radiographs from MR images and their use in 3D radiation planning. 37th Annual Meeting of AAPM, Boston, Ma, July, 1995.

27. Wu QR, Bourland JD. An approach based on target shape for optimal treatment planning on the gamma unit. 37th Annual Meeting of the AAPM, Boston, MA, July, 1995.

28. Bourland JD, Wu QR. The medial axis transform: a target shape parameter useful for treatment planning. 37th Annual Meeting of the AAPM, Boston, MA July, 1995.

29. Bourland JD. Wanderings and future directions in medical physics. Weekly Seminar Series, Department of Physics, Wake Forest University, September, 1995.

30. Wu QR, Bourland JD, Robb RA. Morphology guided radiotherapy treatment planning and optimization. SPIE: Medical Imaging 1996, Conference on Image Display, Newport Beach, CA, February, 1996.

31. Wu QR, Bourland JD, Robb RA. Fast 3D medial axis transformation to reduce computation and Complexity in radiosurgery treatment planning. SPIE: Medical Imaging 1996, Conference on Image Processing, Newport Beach, CA, February, 1996.

32. Bourland JD, Wu QR. Shape-based plan optimization for radiosurgery. Annual Meeting of the SEAAPM, Charleston, SC, April, 1996.

33. Wu QR, Bourland JD. Fast 3D planning and optimization for multi-isocenter radiosurgery. 38th Annual Meeting of the AAPM, Philadelphia, PA, July, 1996.

34. Brinkmann DA, Kline RW, Bourland JD. 3D treatment planning on coronal MR images. 38th Annual Meeting of the AAPM, Philadelphia, PA, July, 1996.

35. Bourland JD. Towards optimal radiation treatment. Connectivity Expo, Piedmont Institute for Research and Technology, Winston-Salem, NC, September, 1996.

36. Bourland JD, Wu QR. Use of shape for automated, optimized 3D radiosurgical treatment planning. 4th International Conference, Visualization in Biomedical Computing, Hamburg, Germany, September, 1996.

37. Bourland JD. Update: Electronic Media Coordinating Committee. Annual Meeting of SEAAPM, Winston-Salem, NC, March, 1997.

38. Bourland JD, Ge Y, Wu QR. Rapid 3D medial axis transformation for automated planning of radiosurgical targets. XIIth Int. Conference on the Use of Computers in Radiation Therapy, June, 1997.

39. Bourland JD. Automated planning of radiosurgical targets by the medial axis transform. LINAC 97, Orlando, FL, December, 1997.

40. Bourland JD. The Chinese Gamma Unit. Annual Meeting of the SEAAPM, Memphis, TN, March 1998.

41. Brinkmann D, Kline R, Bourland J. Automated bone segmentation from MR brain datasets for use in radiotherapy treatment planning. 40th Annual Meeting of the AAPM, San Antonio, TX, August 1998.

42. Dezarn W, Bourland J. Implementation of MLC in a university 3D radiation treatment planning system. 40th Annual Meeting of the AAPM, San Antonio, TX, August, 1998.

43. Hinson WH, Bourland JD. Dose calculations of a 6MV photon beam using a finite-size pencil beam model. 41st Annual Meeting of the AAPM, Nashville, TN, July, 1999.

44. Hinson WH, Bourland JD. Spectral measurements of a 6MV photon beam for finite-size pencil beam dose calculations. 41st Annual Meeting of the AAPM, Nashville, TN, July, 1999.

45. Persons TM, Webber RL, Hemler PF, Bettermann W, Bourland JD. Brachytherapy volume visualization. SPIE Medical Imaging 2000: Image Display and Visualization, Newport Beach, CA, February, 2000.

46. Bourland JD, Shaw EG, Adler LP, Harkness BA, Burdette JH. Bio-anatomic 3D radiation treatment planning: concept and pilot study. World Congress on Medical Physics and Biomedical Engineering, Chicago, IL, July, 2000.

47. Bourland RE, Bourland JD. Analysis of brain tumor target volumes. World Congress on Medical Physics and Biomedical Engineering, Chicago, IL, July, 2000.

48. Ekstrand KE, Bourland JD, Hinson WH. The output factors and end effect times for the Leksell Gamma Knife. World Congress on Medical Physics and Biomedical Engineering, Chicago, IL, July, 2000.

49. Persons TM, Bourland, JD. Three dimensional regularized tomosynthetic image restoration. 43rd Meeting of the AAPM, Salt Lake City, UT, July 2001.

50. Hampton CJ, Bourland JD. Few-view cone-beam tomographic reconstruction using an amorphous silicon (A-SI) electronic portal imaging device (EPID). 7th International Workshop on Electronic Portal Imaging - EPI2K2, Vancouver, BC, Canada, June, 2002.

51. Hinson WH, Kearns WT, deGuzman AF, Bourland JD. Spectral comparison of high energy photon beams. 44th Annual Meeting of the AAPM, Montreal, Canada, July, 2002.

52. Munley MT, Kearns WT, Hinson WH, Lee WR, Stieber VW, Blackstock AW, Bourland JD, Shaw EG. Bioanatomic IMRT treatment planning with dose function histograms. 44th Annual Meeting of the ASTRO, New Orleans, LA, October, 2002.

53. Ramsey, AF, Blurton M, Ekstrand K, Lovato J, Stieber V, Huang T, Bourland J, deGuzman A, Branch C, Ellis T, Tatter S, Shaw E. Edema following Gamma-Knife® radiosurgery for intracranial meningiomas. 44th Annual Meeting of the ASTRO, New Orleans, LA, October, 2002.

54. Shaw EG, Stieber V, Tatter S, Ellis T, Hinson W, Kearns W, Bourland JD, Munley M, Lesser G, Stanton C. A phase I dose escalating study of intensity modulated radiation therapy (IMRT) for the treatment of glioblastoma multiforme (GBM). 44th Annual Meeting of the ASTRO, New Orleans, LA, October, 2002.

55. Ekstrand K, Hinson W, Kearns W, deGuzman A, Bourland JD, Stieber V. A Leksell-BRW adapter for linac radiosurgery as an adjunct to Gamma Knife treatment. 45th Annual Meeting of the AAPM, San Diego, CA, August, 2003.

56. Hampton C, Munley M, Bourland J. Cone-beam megavoltage computed tomography using ART-type reconstruction methods. 45th Annual Meeting of the AAPM, San Diego, CA, August, 2003.

57. Rivard MJ, Goetsch SJ, Drzymala RE, Bourland JD, DeWerd LA, Gibbons JP, Ibbott GS, Kunungi KA, Moskvin V, Walker LD. A working group for improving consistency of quality assurance, treatment planning, and clinical implementation for Gamma Knife® stereotactic radiosurgery. 12th International Meeting of the Leksell Gamma Knife Society, Vienna, Austria, May, 2004.

58. Stieber VW, Ellis TL, Bourland JD, Tatter SB, Huang TW, Ekstrand KE, deGuzman AF, Munley MT, McMullen KP, Branch C, Shaw EG. Glossopharyngeal neuralgia treated with Gamma Knife® radiosurgery: treatment outcome and failure analysis. 12th International Meeting of the Leksell Gamma Knife Society, Vienna, Austria, May, 2004.

59. Schindler MK, Bourland JD, Riddle DR. Unilateral irradiation of the rat hippocampus using the Leksell Gamma Knife®. 35th Annual Meeting of the Society for Neurosciences, Washington, DC, November, 2005.

60. Schindler MK, Bourland JD, Riddle DR (2005) Unilateral irradiation of the rat hippocampus using the Leksell Gamma Knife®. Western NC Chapter of the Society for Neuroscience Poster Day, December, 2005. **First Place, Best Poster Award.**

61. Bourland JD, Flowers KI, Huey KH, Shaw EG. Dedicated PET-CT and MR-simulators in a state-of-the-art radiation treatment facility. 48th Annual Meeting of the AAPM, Orlando, FL, July, 2006.

62. Bourland JD, Shaw EG. Concepts for a program in bioanatomic treatment. World Congress on Medical Physics and Biomedical Engineering, Seoul, South Korea, August, 2006 (poster).

63. Atwood T, Bourland JD, Robbins MEC, and Zhu J-M. In vivo MR spectroscopy provides sensitive imaging biomarkers for radiation-induced brain injury. International Conference on Medical Physics, Hangzhou, China, September, 2006.

64. Lawrence MV, Bourland JD. Radiosurgery conformity indices and acoustic neuroma volumes. International Stereotactic Radiosurgery Society, 8th Bi-Annual Congress, San Francisco, CA, June, 2007.

65. Havnen A, Munley M, Bourland J. A model to evaluate the spatial and dosimetric resolutions of IMRT for desired high-gradient dose distributions. 49th Annual Meeting of the AAPM, Minneapolis, MN, July, 2007. (poster)

66. Kearns WT, Bourland JD, Hinson WH, Hampton CJ, Munley MT. Implementation and special considerations for dedicated PET/CT simulation in radiation oncology. 49th Annual Meeting of the AAPM, Minneapolis, MN, July, 2007. (poster)

67. Hinson WH, Kearns WT, deGuzman AF, Bourland JD. Photon spectral characteristics of dissimilar 6MV linear accelerators. 49th Annual Meeting of the AAPM, Minneapolis, MN, July, 2007. (poster)

68. Munley MT, et al. 3T MRI and its effect on delineating metastases for Gamma Knife planning. 14th Annual Meeting of the Leksell Gamma Knife™ Society, Quebec, Canada, May 2008.

69. deGuzman AF, et al. Integrating a 3T magnetic resonance scanner into a busy Gamma Knife center for treatment planning. 14th Annual Meeting of the Leksell Gamma Knife™ Society, Quebec, Canada, May 2008.

70. Sintay BJ, Bourland JD. Tumor shape analysis using Poisson's equation. 50th Annual Meeting of the AAPM, Houston, TX, July, 2008. (poster)

71. Lawrence MV, Bourland JD. Positron emission tomography phantom studies for radiation therapy target delineation. 50th Annual Meeting of the AAPM, Houston, TX, July, 2008. (poster)

72. Wiant DB, Rossmeisl JH, Robertson JL, Bourland JD. Ex post facto addition of headframes to DICOM image sets for radiosurgery treatment planning. 50th Annual Meeting of the AAPM, Houston, TX, July, 2008. (poster)

73. Atwood TF, Zhu J-M, Bourland JD. Bioanatomic MR imaging for characterization of brain tumor and radiation response in the rat brain. 50th Annual Meeting of the AAPM, Houston, TX, July, 2008. (**3rd Place Oral Presentation, Young Investigators Symposium**)

74. Zhu X, Bourland JD, Yuan Y, Zhuang T, O'Daniel J, Thongphiew D, Wu QJ, Das SK, Yoo S, and Yin FF. Tradeoffs of integrating real-time tracking into IGRT for prostate cancer treatment. 51st Annual Meeting of the AAPM, Anaheim, CA, July, 2009 (poster).

75. Ding X, Kraft R, Bruke A, Carroll D, Torti S, Bourland J. Magnetic resonance temperature imaging guided laser-induced thermal therapy with multi-walled carbon nanotubes. 51st Annual Meeting of the AAPM, Anaheim, CA, July, 2009.

76. Jensen CA, Chan MD, McCoy TP, Shaw EG, McMullen KP, Ellis TL, Munley MT, Bourland JD, De Guzman AF, Tatter SB. Adjuvant radiosurgery after resection of a brain metastasis allows for the delay or elimination of whole brain radiotherapy. 51st Meeting of the American Society for Radiation Oncology, Chicago, IL, November, 2009.

77. Attia A, Chan M, Seif D, Russell GB, Bourland JD, Deguzman A, Ellis T, McMullen K, Tatter S, Shaw EG.Treatment of atypical meningiomas with gamma knife radiosurgery: the role of conformality index and margin dose. 51st Meeting of the American Society for Radiation Oncology, Chicago, IL, November, 2009.

78. Aubuchon AC, Chan M, Lovano J, McMullen K, Ellis T, Tatter S, Bourland J, Deguzman A, Munley M, Shaw E. Dorsal root entry zone dose predicts efficacy and toxicity for patients receiving a second radiosurgical treatment for recurrent trigeminal neuralgia. 51st Meeting of the American Society for Radiation Oncology, Chicago, IL, November, 2009.

79. Bourland JD. Radiation "errors" in imaging and treatment: cases, causes, and national policies for quality assurance and safety. Annual Meeting of the Southeast Chapter, American Association of Physicists in Medicine, Augusta, GA, March, 2010.

80. Sawyer T, Robb R, Foote R, Yokoyama S, Bourland J. Change-based image quantification for cancer diagnosis. Imaging for Treatment Assessment in Radiation Therapy (ITART-2010), Baltimore, MD, June, 2010.

81. Sawyer T, Robb R, Foote R, Yokoyama S, Bourland J. Change-based image quantification for tailoring radiation therapy and chemotherapy to individual patients. Imaging for Treatment Assessment in Radiation Therapy (ITART-2010), Baltimore, MD, June, 2010.

82. Wiant D, Gersh J, Hampton C, Baydush, Bourland J. CBCT total variation based image reconstruction from limited projections. 52nd Annual Meeting of the AAPM, Philadelphia, PA, July, 2010.

83. Bennett MC, Wiant D, Gersh J, Dolesh W, Ding X, Best R, Bourland JD. Causes and prevention of MR-induced skin heating for patients with attached headframes for gamma radiosurgery. 52nd Annual Meeting of the AAPM, Philadelphia, PA, July, 2010.

84. Bennett MC, Wiant D, Gersh J, Best R, Bourland JD. A method for dose calculation and collision detection in Gamma Plan pre-planning mode. 52nd Annual Meeting of the AAPM, Philadelphia, PA, July, 2010.

85. Ding X, Bourland J, Singh R, Bruke A, Hatcher H, Olson J, Carroll D, Kraft R, Torti S, Torti F. MR relaxation properties for Fe-containing MWCNTs and potential for combined MR imaging and tumor ablation therapy. 52nd Annual Meeting of the AAPM, Philadelphia, PA, July, 2010.

86. Ding X, Olsen J, Best R, Bennett M, McGowin I, Dorand J, Link K, Bourland JD. High resolution polymer gel dosimetry for small beam irradiation using a 7T micro-MRI scanner. IC3DDose: The 6th International Conference on 3D Radiation Dosimetry, Hilton Head Island, SC, August, 2010.

87. Marshall KM, Chan MD, Ellis GL, Aubuchon A, Balamucki CJ, Bourland JD, McCoy TP, McMullen KP, Shaw EG, Tatter SB. Predictive variables for successful treatment of trigeminal neuralgia with radiosurgery. 52nd Meeting of the American Society for Radiation Oncology, San Diego, CA, October-November, 2010.

88. Lowell DA, Shaw EG, Bourland JD, de Guzman AF, Ekstrand KE, Ellis TL, McMullen KP, Munley MT, Tatter SB, Chan MD. Analysis of toxicity in patients with collagen vascular diseases or multiple sclerosis treated with gamma knife radiosurgery for intracranial tumors. 52nd Meeting of the American Society for Radiation Oncology, San Diego, CA, October-November, 2010.

89. McMullen KP, Harris S, Lovato J, Ellis TL, Tatter SB, Urbanic J, Bourland JD, Shaw EG, Chan MD. Salvage radiosurgery for patients with small cell lung cancer after previous whole brain radiations. 52nd Meeting of the American Society for Radiation Oncology, San Diego, CA, October-November, 2010.

90. Novotny J, Bhatnager JP, Johansson J, Vanek NK, Bourland JD, Neyman G, Chung HT, Park JH, Huq MS. Assessment of variation in Elekta solid water calibration phantom and its impact on the Leksell Gamma Knife calibration. International Stereotactic Radiosurgery Society, Paris, France, July, 2011.

91. Best B, Bennett M, Gersh J, Wiant D, Bourland J. Monte Carlo Modeling of the Gamma Knife Perfexion: SU-D-BRB-02. 53rd Annual Meeting of the AAPM, Vancouver, BC, CA, July-August, 2011.

92. Bourland J, Robbins M, Deadwyler S. Whole Brain Irradiation Technique for Radiation-Induced Cognitive Impairment: SU-E-T-321. 53rd Annual Meeting of the AAPM, Vancouver, BC, CA, July-August, 2011.

93. Ding X, Bourland J, Best R, Bennett M, McGowin I, Olsen J, and Dorand J. Small Beam Dosimetry Using MAGIC Gel with a 7T Micro-MRI Scanner: SU-E-J-80. 53rd Annual Meeting of the AAPM, Vancouver, BC, CA, July-August, 2011.

94. Best R, Bennett M, Gersh J, Wiant W, Bourland J. Measuring Dose Distribution Accuracy in Stereotactic Radiosurgery and Gamma Knife Treatment Using MR Or CT Imaging: SU-E-T-116. 53rd Annual Meeting of the AAPM, Vancouver, BC, CA, July-August, 2011.

95. Diz DI, Garcia-Espinosa MA, Shaltout HA, Olson J, Bourland JD, Groban L. Correlation of the brain medullary metabolites N-acetyl aspartic acid and N-acetyl aspartyl glutamate with the age related decline in sensitivity for baroreflex control of heart rate in humans. Procs of the High Blood Pressure Research 2011 Scientific Sessions, September, 2011.

96. Ding X, Bourland J, Dolesh W. Localization error in gamma radiosurgery with 3T MR due to fiducial box chemical shift from incorrect liquid filling materials: SU-E-J-56. 54th Annual Meeting of the AAPM, Charlotte, NC, July-August, 2012.

97. Ding X, Bourland J, Dolesh W, Best R, Mcgowin I, Liu J, Small field output factor measurement using MAGIC gel dosimeter in 3T MRI: SU-E-T-99. 54th Annual Meeting of the AAPM, Charlotte, NC, July-August, 2012.

98. Best R, Gersh J, Wiant D, Bourland J. Gamma Knife Perfexion dosimetry: a Monte Carlo model of one sector: SU-E-T-468. 54th Annual Meeting of the AAPM, Charlotte, NC, July-August, 2012.

99. Liu J, Bourland J. An analytical model for fast computation of scatter estimation in kV cone-beam CT images. 55th Annual Meeting of the AAPM, Indianapolis, IN, August, 2013.

100. McGowin I, Bourland J, Peiffer A, Simpson S, Rawley J, Godwin D. Magnetoencephalography (MEG): quantitative comparison of oscillations and synchronization differences/similarities in post-surgery/pre-irradiation patients and control subjects. 55th Annual Meeting of the AAPM, Indianapolis, IN, August, 2013.

101. Dorand JE, Tytell M, Burnett L, Bourland JD. Dosimetric characterization of planar strontium-90 □ sources for an *in vivo* investigation of cutaneous radiation injury. 59th Annual Meeting of the Radiation Research Society, New Orleans, LA, September, 2013.

102. Dorand JE, Tytell M, Burnett L, Bourland JD. A mobile beta irradiation device for assessment of cutaneous radiation injury: dosimetric and radiation safety aspects. Fall Meeting of the North Carolina Health Physics Society, Concord, NC, October, 2013.

103. Liu J, Bourland JD. A fast, analytical pencil beam based method for first order x-ray scatter estimation of kilvoltage cone beam x-rays. 56th Annual Meeting of the AAPM, Austin, TX, July/August, 2014.

104. Dorand JE, Burnett LR, Tytell M, Bourland JD. A Sr-90 irradiation device for the study of cutaneous radiation injury. 56th Annual Meeting of the AAPM, Austin, TX, July/August, 2014.

105. Thakur P, Dugan G, Bourland JD, Olson J, Cline JM, Sunday ME. Single Dose of Gastrin-Releasing Peptide mAb 24 Hours Post-Thoracic Radiation Extends Survival and Reduces Pulmonary Fibrosis in Rhesus Monkey Survivors. 63rd Annual Meeting of the Radiation Research Society, Cancun, Mexico, October, 2017.

106. Farris M, McTyre E, Okoukoni C, Dugan G, Johnson B, Blackstock W, Bourland J, Cline M, Willey J, Munley M. Rapid loss of vertebral bone after total chest irradiation. TU-C930-GePD-F4-4. 60th Annual Meeting of the AAPM, Nashville, TN, July-August, 2018.

107. Pen O, Bourland J, Antinozzi P. Analytical and Monte-Carlo modeling of a unique beta source in relation to skin surface dosimetry. TU-J430-CAMPUS-F3-1. 60th Annual Meeting of the AAPM, Nashville, TN, July-August, 2018.

108. Ren T, Bourland J. Efficient method for combining flatbed scanner calibration and lateral response correctionin a single scan for radiochromic film dosimetry. WE-C1000-GePD-F7-2. 60th Annual Meeting of the AAPM, Nashville, TN, July-August, 2018.

109. Ren T, Bourland J. Temperature effect during radiation exposure period for radiochromic film dosimetry using flatbed scanner densitometer. WE-C1000-GePD-F7-6. 60th Annual Meeting of the AAPM, Nashville, TN, July-August, 2018.

110. Ren T, Bourland J. An improved sensitometric calibration function for radiochromic film dosimetry. PO-GePV-T-145. 61st Annual Meeting of the AAPM, San Antonio, TX, July, 2019.

111. Pen O, Bourland J. Monte Carlo modeling of beta radiation to morphological structures of the skin. PO-GePV-T-384. 61st Annual Meeting of the AAPM, San Antonio, TX, July, 2019.

112. Ren T, Bourland J. Triple-channel dosimetry with the channel weighted perturbation method. TU-C1000-GePD-F4-1. 61st Annual Meeting of the AAPM, San Antonio, TX, July, 2019.

113. Woods K, Olson J, Cline J, Bourland J, Sheng K. A 3D-printer, CT-generated monkey phantom with tissue and bone equivalent materials. WE-J-304-3. 61st Annual Meeting of the AAPM, San Antonio, TX, July, 2019.

114. Zeidell A, Ren T, Filson D, Haneef H, Bourland J, Anthony J, Jurchescu O. Device fabrication and characterization of OFET-RAD for dosimetric response of megavoltage x rays. PO-GeP-T-304. 62nd Annual Meeting of the AAPM, Vancouver, CANADA, July, 2020 (Virtual Meeting).

115. Ren T, Prajapati S, Dorand J, Bourland J. Source characteristics and loading pattern for a unique beta irradiation device for preclinical research of cutaneous radiation injury. PO-GeP-T-732. 62nd Annual Meeting of the AAPM, Vancouver, CANADA, July, 2020 (Virtual Meeting).

TEACHING RESPONSIBILITIES-INTRAMURAL:

University of North Carolina at Chapel Hill
Trainees: Postdoctoral, Graduate, Undergraduate, & Technology Students:

Resident Physicians, Dept of Radiation Oncology, UNC School of Medicine 1987-1990
Lecturer for portions of radiation therapy physics course

Dental Fellows, UNC School of Dentistry 1986-1987
Lecturer on radiation therapy physics:
ORAD 205, *Advanced Diagnostic and Therapeutic Radiology*

Graduate Students, UNC School of Public Health 1985-1988
Lecturer and teaching assistant:
ENVR 167, *Introduction to Medical Physics*

Medical Students, UNC School of Medicine 1985-1987
Teaching assistant, radiation oncology laboratory course (MS II)

Radiation Therapy Technology Students, North Carolina Memorial Hospital 1984-1990
Lecturer, radiation therapy physics; Research advisor for five students

Mayo Foundation
Trainees: Postdoctoral, Graduate, Undergraduate, & Technology Students

Resident Physicians, Dept of Radiation Oncology, Graduate School of Medicine 1990-1995
Ten-hour orientation physics course, portions of radiation physics course

Graduate Students, Mayo Graduate School, Biomedical Imaging Program 1991-1995
Roles are either Advisor or Committee Member

1. PhD Committee member for K Holton (PhD, Biomedical Imaging, 1994) 1992-1993
2. PhD Advisor for QR Wu (PhD, Biomedical Imaging, 1996) 1992-1996
   Treatment Planning Optimization for Leksell Gamma Knife Radiosurgery
   Current position: Professor, Rad Oncology, Duke Univ, Durham, NC
3. PhD Advisor for DH Brinkmann (PhD, Biomedical Imaging, 1998) 1994-1998
   The Utilization of Magnetic Resonance Imaging in Radiation Therapy Treatment Planning
   Current position: Head of Physics, Rad Oncology, Mayo Clinic, Rochester, MN

Undergraduate Students, Mayo Graduate School 1993, 1994
Project supervisor for two medical physics summer students

Radiation Therapy Technology Students, Mayo School of Health-Related Sciences 1990-1995
Lecturer for portions of radiation therapy physics course

High School Student, Mayo Graduate School and Rochester, MN, Public Schools 1993
Mentor for one honors student

Classroom Instruction: Mayo Graduate School

Department of Physiology and Biophysics/Biomedical Imaging
Teacher for BPHY 8150, *Radiation Therapy Physics* (4.0 hours) 1993

Wake Forest University
Trainees: Postdoctoral, Graduate, and Undergraduate

Postdoctoral Fellows, Department of Radiation Oncology, School of Medicine (WFUSM)
Roles are Mentor or other designation

1. Mentor for WA Dezarn, PhD, Radiation Physics Fellow 1996-1998
   Research Topic: *3D Radiation Treatment Planning Tools*
   Current position: Assoc Professor, Radiation Oncology, WFUSM
2. Co-Supervisor (with J-M Zhu) for XD Guo, PhD, MRI Physics Fellow 2004-2006
   Research Topic: *7T MR Small Animal Imaging*
   Current position: unknown
3. Co-Mentor (Physics) for B Lally, MD, TRADONC Fellow 2005-2007
   Research Topic: *Lung Cancer Treatment Response*
   Current position: Radiation Oncologist, Penn Medicine, Doylestown, PA
4. Mentor for D Wiant, PhD, TRADONC Fellow 2007-2010
   Research Topic: *Improved PET Image Reconstruction Algorithms*
   Current position: Medical Physicist, Moses Cone Hlth Sys, Greensboro, NC
5. Mentor for M Bennett, PhD, TRADONC Fellow 2009-2012
   Research Topic: *MR Imaging in Radiation Oncology*
   Residency: Radiation Therapy Physics, Univ FL Proton Ctr, Jacksonville, FL
   Current position: Physicist, NW Medical Physics, Anchorage, AK
6. Mentor for J DiNitto, PhD, TRADONC Fellow 2012-2014
   Research Topic: *Specialized CT reconstruction algorithms and dosimetry*
   Current position: Staff Scientist, Medical Imaging, Siemens Medical Systems
7. Clinical Mentor for R Andrews, DVM, Postdoctoral Fellow, Path/Comp Med 2014-2015
   Rotation Topic: *Radiation Oncology Physics and Clinical Practice*
   Current position: Asst Professor, Radiation Oncology (Biology), WFUSM

Resident Physicians, Department of Radiation Oncology, WFUSM 1995-present
Clinical training, research advising, lectures

8. Physics Mentor for Natalie Alphonse-Sullivan, MD, Physician Resident 2019
   Topic: *Radiation Oncology Physics*
   Current position: Radiation Oncologist, Private Practice, GA

Graduate Students, WFU School of Graduate Arts and Sciences, and 1996-present
VT-WFU School of Biomedical Engineering and Sciences
Roles are either Advisor or Committee Member

4. PhD Advisor for WH Hinson (PhD, Physics, 1999) 1996-1999
   Linear Accelerator Beam Spectrum Measurement through Attenuation
   Current position: Professor, Radiation Oncology, WFUSM
5. PhD Advisor for TM Persons (PhD, Medical Engineering, 2001) 1998-2001
   Three Dimensional Tomosynthetic Image Restoration for Brachytherapy Source Localization
   Current position: Chief Scientist, US Government Accountability Office
6. PhD Advisor for CJ Hampton (PhD, Biomedical Engineering, 2003) 2000-2003
   Iterative Reconstruction Methods for Treatment-Beam Megavoltage Computed Tomography
   Residency: Radiation Therapy Physics, Washington University, St Louis
   Current position: AVP/Chief Physicist, Levine Cancer Inst/Carolinas Hlth Sys
7. MS Advisor for C Singleton (MS, Physics, 2003) 2002-2004
   Radiation Surface Dose with the Dignicap Hypothermic Cap During Whole-Brain Radiation Treatment
   Current position: Medical Physicist, Mem Health Univ Med Ctr, Savannah, GA
8. PhD Committee Member for H Li (PhD, Biomedical Engineering, 2004) 2003-2004
   Investigating CAD: Medical Image Analysis in CT Colonography
   Post-graduate position: Scientist/Engineer, Boston Scientific, Natick, MA

9. MS Committee Member for T Atwood (MS, Biomedical Engineering, 2005) 2004-2005
   Quantitative Magnetic Resonance Spectroscopic Evaluation of Radiation-Induced Brain Injury in a Rat Model (PhD, 2008, see below)
10. MS Committee Member for X Li (MS, Biomedical Engineering, 2005) 2004-2005
    MR Diffusion Tensor Imaging: Technical Implementation and Its Preliminary Application to an Animal Model
    Post-graduate position: unknown
11. PhD Advisor for M Olex, MS (withdrew, Biomedical Engineering) 2005-2006
    Current position: Medical Physicist, Carilion Clinic, Roanoke, VA
12. PhD Advisor for A Havnen-Smith (PhD, Biomedical Engineering, 2007) 2003-2007
    Spatial and Dosimetric Resolution for Intensity-Modulated Radiation Treatment of Targets Containing Biological Subvolumes
    Residency: Radiation Therapy Physics, University of Chicago
    Current position: Medical Physicist, Mayo Clinic, Northfield, MN
13. MS Committee Member for Y Cai (MS, Biomedical Engineering, 2007) 2006-2007
    A New Method for Distortion Correction for Echo Planar MRI Imagery
    Post-graduate position: MRI Research Associate, UNC, Chapel Hill, NC
14. MS Advisor for K Broadnax (MS, Physics, NC A&T Univ, 2007) 2006-2007
    Dosimetry for Whole-Body 6 MV Irradiation of Cynomolgus Monkeys
    Post-graduate position: Physicist (civilian), NAVAIR, Patuxent River, MD
15. PhD Committee Member for M Schindler (PhD, Neurosci, 2008; MD, 2009) 2005-2008
    Aging Dependent Changes in the Normal Brain Tissue Response to Irradiation: New Translational Models of Whole Brain and Focal Brain Irradiation
    Post-graduate position: Neurology Resident, McGill University
    Current position: Clinical Fellow, Translational Neurorad, NINDS, NIH
16. PhD Advisor for M Lawrence (PhD, Biomedical Engineering, 2008) 2004-2008
    PET Phantom Studies for Radiation Therapy Target Delineation
    Fellowship: Radiation Oncology, UNC, Chapel Hill, NC
    Current position: Clinical Physicist, Radiation Oncology, UNC, Chapel Hill, NC
17. PhD Advisor for BJ Sintay (PhD, Biomedical Engineering, 2008) 2005-2008
    Using Poisson's Equation to Characterize Brain Tumor Shape
    Current position: Chief Medical Physicist, Moses Cone Hlth Sys, Greensboro, NC
18. PhD Advisor for T Atwood (PhD, Biomedical Engineering, 2008) 2006-2008
    Bioanatomic MRI of Brain Tumors in Animal Models: Implications for Radiation Therapy Treatment Planning and Assessment of Treatment Response
    3rd Place Oral Presentation, AAPM 2008 Young Investigators Symposium
    Residency: Radiation Therapy Physics, Stanford University
    Current position: Associate Prof, Rad Med/Applied Sci, UC San Diego, CA
19. MS Advisor for R Best (MS, Physics, 2010; continuing to PhD, see below) 2007-2010
    Monte Carlo Modeling for Gamma Knife Dose Characterization
20. MS Advisor for L Ding (MS, Physics, 2009; continuing to PhD, see below) 2008-2009
    Feasibility Study: Multi-Application, Multi-Walled Nanotubes for Magnetic Resonance Temperature Image Guided Laser Induced Thermal Therapy
21. PhD Advisor for R Best (PhD, Physics, 2012) 2007-2012
    A Complete Dosimetric Model of the Gamma Knife Perfexion™ Using Penelope Monte Carlo Codes
    Residency: Radiation Therapy Physics, University of Virginia
    Current position: Physicist, Radiotherapy Clins of Georgia, Lawrenceville, GA
22. PhD Advisor for L Ding (PhD, Physics, 2012) 2009-2012
    High Field MRI-based Gel Dosimetry for Small Radiation Fields
    Residency: Radiation Therapy Physics, Univ of Pennsylvania

Current position: Lead Proton Physicist, Wllm Beaumont Hosp, Detroit, MI

23. PhD Advisor for J Dorand (PhD, Physics, 2014) 2010-2014
A Sr-90 Irradiation Device for the Study of Cutaneous Radiation Injury from a Radiological Incident
Residency: Radiation Oncology Physics, Mayo Clinic
Current position: Medical Physicist, ProCure Proton Ctr, Somerset, NJ
24. PhD Advisor for I McGowin (PhD, Physics, 2015) 2010-2015
Head Motion Evaluation and Correction in Magnetoencephalography
Current position: Clinical Physicist, Forsyth Mem Hosp, Winston-Salem, NC
25. PhD Advisor for J Liu (PhD, Physics 2015) 2011-2015
X-ray Scatter Computation and Simulation in Cone Beam Computed Tomography
Current position: Resident, Rad Oncology Physics, Fox Chase Cancer Ctr
26. PhD Committee Member for J Grim (PhD, Physics, 2012) 2012
Experimental and Computational Studies of Nonlinear Quenching in Materials Used as Radiation Detectors
Current position: Research Scientist, Naval Research Lab
27. PhD Committee Member for JS Moore (PhD, Biom/Veterinary Sciences, 2013) 2013
(Virginia-Maryland Regional College of Veterinary Medicine)
A Translational Study Evaluating the Uses of Diagnostic & Therapeutic Practices Established in Human Malignant Melanoma in Equine Malignant Melanoma
Current position: Equine veterinarian
28. PhD Committee Member and Chair for MC Walb (PhD, Physics, 2016) 2014-2016
Low Dose Dosimetry and Radiation Response in Rodent Models
Current position: Resident, Radiation Oncology Physics, Mayo Clinic
29. PhD Committee Member for RJ DeBo (PhD, Molecular Medicine, 2017) 2014-2017
Molecular, Cellular and Cardiovascular Effects of Total Body Irradiation in Non-human Primate Models
30. PhD Committee Member for C Nguyen (PhD, Biomed Engineering, 2017) 2015-2017
Advanced Statistical Process Control Techniques for Analysis of Medical Linear Accelerator Performance
Current position: Computer/Research Scientist, MD Anderson Cancer Center
29. PhD Committee Member for C Okoukoni (PhD, Biomedical Eng, 2017) 2016-2017
Quantifying Acute Radiation Therapy Induced Bone Loss Using Clinical Imaging
Current position: Resident (Physician), NY-Presbyterian Hospital
30. PhD Advisor for R Tong (PhD, Physics, 2021) 2016-2021
Considerations on Two Types of Solid-State Dosimeters for Ionizing Radiation
Current position: TBD
31. PhD Advisor for O Pen, MS (PhD, Biomedical Engineering, 2019) 2016-2019
Effect of Beta Radiation Dose Distribution on the Expression of Epidermal Necrosis and Vascular Changes
Current position: Medical Physicist, Atrium Health,Charlotte
32. PhD Committee Member for X Dong (PhD, Biomed Engineering, 2019) 2016-2019
Material-Specific Computed Tomography for Molecular X-Imaging in Biomedical Research
Current position: Industry Research Scientist, XSense.ai
33. PhD Committee Member for WN Crowe (PhD, Biomed Engineering, 2021) 2017-2021
Mechanisms and Interventions for Breast Cancer Metastases to the Brain
Current position: Assist Professor, Dept of Engineering, Wake Forest Univ
34. Ad Hoc PhD Committee Member for B Thompson (PhD, Molec Med, 2020) 2017-2018
Radiation Dosimetry and Imaging for Liver Metastases
35. MS Committee Member for R Todd (MS, Biomed Engineering, 2019) 2018-2019

Assessment of Global Longitudinal Strain and Global Circumferential Strain using Cardiovascular Magnetic Resonance in Cancer Patients Receiving Chemotherapy
Current position: Marketing Coordinator, Heart Imaging Technologies

36. MS Committee Member for D Kim (MS, Biomed Engineering, 2019) 2018-2019
Effects of Repetitive Non-Concussive Head Impact Exposure on Default Mode Network Connectivity among Youth Football Players
Current position: PhD Candidate, UC-Davis
37. MS Committee Member for TH Kuhn (MS candidate, BME) 2020
MRI-based analysis of head impacts for youth football players
38. MS Committee Member for J Napolitano (MS candidate, BME/MedPhys) 2021-present
39. PhD Committee Member for C Arledge (PhD candidate, BME) 2021-present

Medical Students, School of Medicine
Advisor for three medical students (two first-year, one second-year) 2001-2004

Postgraduate Trainees
Mentor for M Ahmidouch, BS (Wake Forest Univ), Physics Research Asst 2018-2020
Current position: Medical Student, Univ North Carolina at Chapel Hill

Undergraduate Students, WFU Summer Programs, Graduate School of Arts and Sciences
Advisor for MJ Jones (Catawba College) Summer, 2000
Advisor for IH Campbell (Virginia Tech) Summer, 2004
Advisor for M Watkins (East Carolina University) Summer, 2008
Advisor for L Fajardo (Florida International University) Summer, 2009
Co-Advisor for K Muhanji (Guilford College) Summer, 2009
Advisor for Z Congress (NC State University) Summer, 2015
Advisor for MB Wright (Baylor University) (BME REU Program) Summer, 2016

Classroom Instruction: WFU Graduate School of Arts and Sciences, and VT-WFU School of Biomedical Engineering and Sciences (SBES)

Department of Biomedical Engineering (BMES)
Lecturer, BMES 750 *Medical Imaging I* (3.0 hrs) (MT Munley, Director) 2004
Teacher, BMES 750, *Medical Imaging I* (3.0 hrs) 2006
Teacher, BMES 770/PHYS 770, *Radiation Therapy Physics* (3.0 hrs) odd yrs, 2004-19
(cross-listed as PHYS 691, *Special Topics – Radiation Therapy Physics*)

Department of Physics (PHYS)
Teacher for PHYS 215, *Modern Physics* (3.0 hours) SS II, 2009; SS I, 2012
Teacher for PHYS 771/BMES 771, *Radiological Physics* (3.0 hrs) even yrs, 2010-16; 17-19

Department of Cancer Biology (CABI)
Lecturer for CABI 707, *Topics in Cancer* (1.0 hrs) 2004, 06, 08, 10, 12, 14
(Principles of Radiation Physics, seminar, every 2 years, Oncology Core Curriculum)

TEACHING RESPONSIBILITIES-EXTRAMURAL:

American Association of Physicists in Medicine
Faculty, Therapy Physics Review Course: Basic Concepts: Nuclear Physics 1995, 1996
Faculty, Annual Meeting Refresher Course: PET for onc imaging & treatment 2005-2007
Faculty, Summer School on Radiation Shielding Design, Collegeville, MN 2007

American Society of Therapeutic Radiation Oncology
Faculty, Annual Meeting Refresher Course: Advances in CT and PET imaging for radiation treatment planning (with K. Mah in 2005, 06, 08) 2005-2008

Radiological Society of North America
- Faculty, Refresher Course: Stereotactic rad treatment approaches and devices 1997-1999
- Faculty, Co-Organizer, and Moderator 2003-2005
  - Course on Molecular/Advanced Imaging in Oncology (4 sessions, 10 faculty)
- Faculty, Co-Organizer, and Moderator 2007-2009
  - Categorical Course on Oncologic Imaging (8 sessions, 24 faculty)