Curriculum Vitae and Bibliography
Cynthia H. McCollough, PhD --- Revised 7.20.2012

PERSONAL INFORMATION

Place of Birth: [redacted]

Citizenship: [redacted]

Work Address: Mayo Clinic
200 First Street SW
Rochester, MN 55905
[redacted]

Email Address: [redacted]

Home Address: [redacted]

Additional Information: [redacted]

PRESENT ACADEMIC RANK AND POSITION

Consultant - Department of Radiology, Mayo Clinic, Rochester, Minnesota	03/01/1994 - Present
Associate Member - Mayo Clinic Cancer Center, Rochester, Minnesota	2003 - Present
Full Faculty Privileges in Biomedical Engineering - Mayo Graduate School, College of Medicine, Mayo Clinic	03/07/2007 - Present
Professor of Medical Physics - College of Medicine, Mayo Clinic	10/01/2008 - Present
Professor of Biomedical Engineering - College of Medicine, Mayo Clinic	12/01/2011 - Present

EDUCATION

Hope College [redacted]
BS, Physics

University of Wisconsin, Madison [redacted]
MS, Medical Physics

University of Wisconsin, Madison [redacted]
PhD, Medical Physics

Additional Education

Diagnostic Medical Physics Review Course 07/1991
American Association of Physicsts in Medicine
San Fransisco, California

Acceptance Testing and Quality Control of Diagnostic X-Ray Imaging Equipment 07/1991
American Association of Physicists in Medicine 1991 Summer School
Santa Cruz, California

The Physics of Magnetic Resonance Imaging 08/1992
American Association of Physicists in Medicine 1992 Summer School
Banff, Alberta, Canada

Medical CT and Ultrasound: Current Technology and Applications 06/1995
American Association of Physicists in Medicine 1995 Summer School
New London, Connecticut

Early-Career Women Faculty Professional Development Seminar 12/1996
Association of American Medical Colleges
Santa Fe, New Mexico

Imaging in Radiotherapy 06/1998
American Association of Physicists in Medicine 1998 Summer School
Madison, Wisconsin

The 7 Habits of Highly Effective People 01/1999
Mayo Leadership Education Program hosted Franklin Covey Course
Rochester, Minnesota

Medical Physics Consultation on Radiation Exposure: Measuring, Calculating & Reporting Radiation Risk American College of Radiology Physics Symposium Nashville, Tennessee	07/1999
Spiral and Multi-Slice CT: Physical Principles and Medical Physics Responsibilities Southeast Chapter of the American Association of Physicists in Medicine Spring Symposium Asheville, North Carolina	03/2000
Image-based Treatment Process: Practical Methods for Clinical Medical Physicists American College of Medical Physics Workshop Whistler, British Columbia, Canada	05/2000
2nd Annual International Symposium on Multidetector-Row CT Stanford University San Francisco, California	06/2000
Hands on Workshop for Physicists on Multi-Slice CT M.D. Anderson Cancer Center Houston, Texas	01/2001
3rd Annual International Symposium on Multidetector-Row CT Stanford University San Francisco, California	06/2001
Accreditation Programs and the Medical Physicist American Association of Physicists in Medicine 2001 Summer School Seattle, Washington	06/2001
4th Annual International Symposium on Multidetector-Row CT Stanford University San Francisco, California	06/2002
5th Annual International Symposium on Multidetector-Row CT Stanford University San Francisco, California	06/2003
6th Annual International Symposium on Multidetector-Row CT Stanford University San Francisco, California	06/2004

7th Annual International Symposium on Multidetector-Row CT 06/2005
Stanford University
San Francisco, California

8th Annual International Symposium on Multidetector-Row CT 06/2006
Stanford University
San Francisco, California

9th Annual International Symposium on Multidetector-Row CT 06/2007
Stanford University
San Francisco, California

10th Annual International Symposium on Multidetector-Row CT 05/2008
Stanford University
Las Vegas, Nevada

11th Annual International Symposium on Multidetector-Row CT 05/2009
Stanford University
San Francisco, California

12th Annual International Symposium on Multidetector Row CT 05/2010
International Society for Computed Tomography
San Francisco, California

13th Annual International Symposium on Multidetector Row CT 06/2010
International Society for Computed Tomography
San Francisco, California

14th Annual International Symposium on Multidetector Row CT 06/2012
International Society for Computed Tomography
San Francisco, California

BOARD CERTIFICATION(S)

American Board of Radiology

Diagnostic Radiological Physics 1995 - Present

HONORS/AWARDS

Scholarship - American Business Women's Association [redacted]

Ralph J. Eggleston Memorial Scholarship [redacted]

State of Michigan Competitive Scholarship [redacted]

Bertelle-Arkell-Barbour Scholarship [redacted]

Dean's List [redacted]

Presidential Scholar - Hope College [redacted]

History Award - Phi Alpha Theta History Honor Society [redacted]

Member - Pi Mu Epsilon National Mathematics Honor Society [redacted]

Member - Sigma Pi Sigma (Physics Honor Society) [redacted]

John H. Kleinheksel Mathematics Award [redacted]

Member - Mortar Board National Honor Society [redacted]

Summa Cum Laude - Hope College [redacted]

Member - Phi Beta Kappa Honor Society [redacted]

Scientific Senior Research Award - Sigma Xi, The Scientific Research Society [redacted]

Alumni Research Foundation Graduate Fellowship - University of Wisconsin [redacted]

Editor's Recognition Award with Distinction - Radiology 01/1991

Editor's Recognition Award for Distinction in Reviewing - Radiology 12/1992

Editor's Excellence Award for Outstanding Scientific Research - Journal of Computer Assisted Tomography 01/1995

Silver Medal (*Hara et al.) - American Roentgen Ray Society 01/1996

First Time Presenter Award (*Hara et al.) - Society of Gastrointestinal Radiologists 03/1996

American Digestive Health Foundation Student Abstract Prize (*Hara et al.) - American Gastroenterological Association 05/1996

Distinguished Roster of Scientific Advisors - Radiological Society of North America 01/1998 - Present

Excellence in Diagnostic Imaging: Customer Focus Award (Mayo Radiology) - Diagnostic Imaging Magazine	12/1999
Certificate of Merit (*Bruesewitz et al.) - Radiological Society of North America	12/1999
First Place Prize for Research Presentation - Society of Uroradiology	03/2000
Distinguished Committee Service Award (Commission on Medical Physics) - American College of Radiology	10/2000
Certificate of Merit (*Bruesewitz et al.) - Radiological Society of North America	12/2000
Editor's Recognition Award for Reviewing with Distinction - Radiology	12/2000
Editor's Recognition Award for Reviewing with Distinction - Radiology	12/2001
Editor's Recognition Award for Reviewing with "Special Distinction" - Radiology	01/2003
Magna Cum Laude (*Bruesewitz et al.) - Radiological Society of North America	12/2003
Certificate of Merit (Atwell et al.) - Radiological Society of North America	01/2004 - 12/2004
Best Poster in Clinical Research of Vascular Disease (Vrtiska et al.) - 3rd Mayo Vascular Symposium	09/2004
Second Place Prize for Research Presentation (Vrtiska et al.) - Society of Uroradiology, 2005 Abdominal Radiology Course	01/2005
First place poster award (Atwell et al.) - 7th International Somatom CT User conference	05/2005
Certificate of Merit (*Primak et al.) - Radiological Society of North America	11/2005
RSNA Research Trainee Prize Recipient (*Zhang et al.) - Radiological Society of North America	12/2005

RSNA Research Trainee Prize Recipient (*Primak et al.) - Radiological Society of North America 11/2006

Fellow - American Association of Physicists in Medicine 01/2007

Certificate of Merit (*Rego et al.) - Radiological Society of North America 01/2007

Fellow - American College of Radiology 01/2008

Consociate Member - National Council on Radiation Protection and Measurements 01/2009 - Present

Summa Cum Laude (Best Scientific Exhibit, Black et al.) - 109th Annual American Roengen Ray Society Meeting 01/2009

Best Scientific Presentations Award (Raupach et al.) - European Congress of Radiology 01/2009

Reese-Hartman Award, Carmen Award for Excellence in Research - Mayo Clinic 09/2009

3rd Vice President of RSNA - Radiological Society of North America, Chicago, Illinois 2011

Best Translational Science Poster (Hough et al.) - Society of Computed Body Tomography and Magnetic Resonance, Washington, District of Columbia 10/2011

Best of Current Clinical Trials (Hough et al.) - European Congress of Radiology 2012

First Place Scientific Paper Award (Froemming et al.) - Society of Uroradiology Annual Meeting, Scottsdale, Arizona 2012

PREVIOUS PROFESSIONAL POSITIONS AND MAJOR APPOINTMENTS

Laboratory Assistant - Department of Physics, Hope College, Holland, Michigan [redacted]

Research Assistant - Department of Physics, Hope College, Holland, Michigan [redacted]

Physics and Mathematics Tutor - Academic Skills Center, Hope College, Holland, Michigan [redacted]

Intern - Division of Engineering, General Electric, Holland, Michigan	[redacted]
Research Assistant - Department of Medical Physics, University of Wisconsin, Madison, Madison, Wisconsin	[redacted]
Substitute Lecturer - Department of Medical Physics, University of Wisconsin, Madison, Madison, Wisconsin	[redacted]
Teaching Assistant - Department of Medical Physics, University of Wisconsin, Madison, Madison, Wisconsin	[redacted]
Senior Associate Consultant - Diagnostic Radiology, Department of Radiology, Mayo Clinic, Rochester, Minnesota	1991 - 1994
Instructor of Medical Physics - College of Medicine, Mayo Clinic	04/01/1991 - 07/01/1993
Teaching/Examining Privileges in Biophysical Sciences - Mayo Graduate School, College of Medicine, Mayo Clinic	09/18/1991 - 10/15/1991
Associate Faculty Privileges in Biophysical Sciences - Mayo Graduate School, College of Medicine, Mayo Clinic	10/16/1991 - 08/09/1998
Assistant Professor of Medical Physics - College of Medicine, Mayo Clinic	07/01/1993 - 07/01/1999
Associate Faculty Privileges in Biomedical Engineering - Mayo Graduate School, College of Medicine, Mayo Clinic	08/10/1998 - 07/06/1999
Associate Professor of Medical Physics - College of Medicine, Mayo Clinic	07/01/1999 - 09/30/2008
Teaching/Examining Privileges in Biomedical Engineering - Mayo Graduate School, College of Medicine, Mayo Clinic	07/07/1999 - 03/06/2007

PROFESSIONAL & COMMUNITY MEMBERSHIPS, SOCIETIES AND SERVICES

Professional Memberships & Services

American Association for Women Radiologists

Member	01/1997 - 12/2006

American Association of Physicists in Medicine

Member	01/1986 - Present
Ad Hoc Committee Member	07/09/2012 - 12/31/2012

Ad Hoc Committee Member on External Communications.

Annual Meeting Committee

Member	01/2003 - 12/2004
Continuing Education Course Co-Director	01/2003 - 12/2005
Continuing Medical Education (CME) Course Director	01/2007 - 12/2008
Director	2011

Board of Directors

Elected Representative for General Membership	01/1999 - 12/2001

Education Council

Member	01/1996 - 12/2000
Vice Chair	01/1998 - 12/2000

Executive Committee

Member	01/1998 - 12/2000

Multimedia Educational Materials Publication Task Group

Member	01/1996 - 12/2000

Imaging Physics Committee

Voting Member	09/26/2011 - Present

Computed Tomography Subcommittee

Member 01/2005 - Present

Vice Chair 01/2011 - Present

Task Group #111 Future of CT Dosimetry

Member 07/2006 - 12/2010

Task Group #220 Patient Size Metrics for CT

Chair 07/2011 - Present

Task Group #23 CT Dosimetry

Chair 01/2001 - 12/2007

Member 01/2001 - 12/2007

Task Group No. 102 CTDI Values for Various CT Scanners

Member 01/2005 - 12/2006

Task Group No. 110 CT Noise Metrics

Member 01/2005 - 12/2006

Task Group No. 200 CT Dosimetry Phantoms and the Implementation of AAPM Report No. 111

Member 05/2010 - Present

Task Group No. 204 Development and Dissemination of Pediatric CT Dose Correction Factors

Member 05/2010 - 12/2011

Working Group on Standardization of CT Nomenclature and Protocols

Chair 05/2010 - Present

International Electrotechnical Commission (IEC)

Delegate 2002 - Present

Medical Physics Editorial Board

Member 01/2007 - Present

Medical Physics Education of Physicians Committee

Chair 01/1999 - 12/2000

Member 01/1999 - 12/2002

Consultant, Past Chair 01/2000 - 12/2002

Radiation Effects and Protection Lecture for Medical Students Task Group

Member 01/1998 - 12/2000

Radiobiology Teaching Slides Task Group

Member 01/1998 - 12/2000

Physics Tutorial for Residents Subcommittee

Member 01/1993 - 12/1997

Chair 01/1995 - 12/1996

Radiological Society of North America (RSNA) Education Coordination Subcommittee

Member 01/1994 - 12/1996

Science Council

Co-Chair 2011 - Present

Task Group No. 66 Quality Assurance for CT Simulations

Consultant 01/2001 - 12/2001

Technology Assessment Committee

Member 2012 - Present

Training of Radiologists Committee

Member 01/1993 - 12/1999

Chair 01/1996 - 12/1999

Visual Teaching Aids for Radiology Residents Task Group

Member 01/1995 - 12/1998

American Board of Radiology

Member 01/1997 - 12/2001

Radiology Physics Written Exam Committee

Test Questions Contributor 01/1997 - 12/2001

Test Questions Evaluator 01/1997 - 12/2001

Member 01/1997 - 12/2001

American College of Radiology

Member 01/1991 - Present

Committee on CT Accreditation

Member 01/1998 - Present

Cardiac CT Subcommittee

Member 01/2006 - Present

Physics Subcommittee

Member 01/1998 - Present

Chair 01/1998 - 12/2007

Committee on Education (Commission on Medical Physics)

Member 01/1998 - 12/2000

Subcommittee on Revisions to CT Equipment Testing Standard

Member 2002

American Heart Association

Member 01/2001 - Present

Council on Cardiovascular Radiology and Intervention

Interdisciplinary Working Group

Member 01/2001 - Present

Scientific Council

Advisory Panel on Imaging Sciences

Member 06/2003 - Present

American National Standards Institute

Member 01/2001 - Present

Diagnostic Imaging Technical Advisory Group for IEC 62B

Member 01/2001 - Present

U.S. National Committee

Member 01/2001 - Present

American Thoracic Society

Committee on the Assessment of Thromboembolic Disease in Pregnancy

Committee Member 11/2007 - Present

Conference of Radiation Control Program Directors

Member 01/2000 - Present

Health Physics Society

Member 01/1991 - Present

Institute of Physics and Engineering in Medicine

Overseas Affiliate Member 01/2003 - Present

International Electrotechnical Commission

Maintenance Team 30 (X-Ray Computed Tomography)

Member 01/2001 - Present

Minnesota Radiological Society

Member 01/1991 - Present

Physics Committee

Member 01/1991 - 12/1995

Member 01/2003 - Present

National Council on Radiation Protection and Measurements

Council Member 01/2003 - 12/2009

Emeritus Member 01/2010 - Present

Scientific Committee 4-3

Consultant 2011

North Central Chapter of the American Association of Physicists in Medicine

Member 01/1991 - Present

Radiological Society of North America

Member 01/1991 - Present

Scientific Session Moderator 01/1994 - Present

Abstract Reviewer 01/2002 - 12/2006

Consultant to the Editor of Radiology 01/2007 - Present

Abstract Reviewer 01/2010 - Present

3rd vice president of RSNA

Member 01/2011 - 12/2011

Program Committee

Physics Subcommittee

Member 01/2001 - 12/2007

Member 01/2010 - Present

RadLex CT Committee

Member 01/2007 - Present

Refresher Course Committee

Member 01/1995 - 12/1996

Research and Education Fund

Grant Reviewer 1998

Technical Exhibits Meeting Notes Committee

Member 01/1991 - 12/1996

Chair 01/1992 - 12/1996

Sigma Xi, The Scientific Research Society

Member 01/1991 - Present

Society of Cardiovascular Computed Tomography

Founding Member 11/2005 - Present

US Food and Drug

Technical Electronic Product Radiation Safety Standards Committee of the Medical Devices Advisory Committee

Member 2012

Study Sections

National Institutes of Health Study Sections

Academic-Industrial Partnerships (ZRG1 SBIB-U)

Member 02/2009

Biomedical Imaging Technology (BMIT-A)

Member 06/2011

Member 10/2011

Member 07/01/2012 - Present

BMIT/MEDI Member Conflict (ZRG1 SBIB-N)

Member 10/2008

Challenge Grant (ZRG1 SBIB-V)

Member 06/2009

JOURNAL RESPONSIBILITIES

Journal Editorial Responsibilities

Journal of Cardiovascular Computed Tomography

Editorial Board Member	01/2008 - Present

Medical Physics

Guest Associate Editor	01/1999 - 12/2006
Associate Editor	01/2007 - Present
Editorial Board Member	01/2007 - Present

Radiology

Editorial Board Member	01/2003 - 12/2007
Associate Editor	10/2003 - 12/2007
Consultant to the Editor	01/2008 - Present

Journal Other Responsibilities

Academic Radiology

Scientific Reviewer	01/1994 - 12/2005

American Journal of Roentgenology

Scientific Reviewer	01/1991 - Present

Editorial Advisory Panel: Technology Assessment, Efficacy and Quality Assurance

Reviewer	01/1998 - 12/2005

European Journal of Radiology

Scientific Reviewer	01/2007 - Present

Health Physics

Scientific Reviewer	01/1999 - Present

Investigative Radiology

Scientific Reviewer	01/2006 - Present

Journal of Computer Assisted Tomography

Scientific Reviewer	01/1996 - Present

Journal of the American Medical Association

Guest Scientific Reviewer	1996
Guest Scientific Reviewer	2009

Mayo Clinic Proceedings

Scientific Reviewer	01/2006 - Present

Medical Physics

Scientific Reviewer	01/1993 - Present

Radiation Protection and Dosimetry

Reviewer	2011 - Present

Radiology

Scientific Reviewer 01/1991 - Present

EDUCATIONAL ACTIVITIES

Curriculum/Course Development

Diagnostic Radiological Physics Course 01/1991 - 01/1999
Coordinator
Mayo Graduate School of Medicine
Rochester, Minnesota

First-Year Residents' Physics Orientation 01/1991 - 01/1999
Coordinator
Mayo Graduate School of Medicine
Rochester, Minnesota

Radiology Physics Review Course 01/1991 - 01/1999
Coordinator
Mayo Graduate School of Medicine
Rochester, Minnesota

Laboratory Methods in Biomedical Imaging 01/1992 - Present
BPhy 5000 (1 credit)
Mayo Graduate School
Rochester, Minnesota

The Physics and Technical Principles of Medical Imaging 01/1992 - Present
BPhy 5800 (3 credits)
Mayo Graduate School
Rochester, Minnesota

Readings in Biophysical Sciences 01/1993 - Present
BPhys 8853 (1 credit)
Mayo Graduate School
Rochester, Minnesota

Quantitative Biology II: Biomedical Imaging (guest lecturer) 01/1998 - Present
BME 8853 (1 credit)
Mayo Graduate School
Rochester, Minnesota

The Image-Based Treatment Process: Practical Methods for 05/2000
Clinical Medical Physics
Course Co-Director
American College of Medical Physics Annual Workshop
Whistler, British Columbia, Canada

Update Course on Computed Tomography Continuing Education Course Course Co-Director American Association of Medical Physicists Annual Meeting San Diego, California	2003 - 2005
Computed Tomography Continuing Education Course Course Director American Association of Medical Physicists Annual Meeting Minneapolis, Minnesota	07/2007
Computed Tomography Continuing Education Course Course Director American Association of Medical Physicists Annual Meeting Houston, Texas	07/2008
Scan Parameter Optimization American Association of Physicists in Medicine CT Dose Summit Atlanta, Georgia	04/2010
Interdisciplinary Program on Scan Parameter Optimization for Imaging Physicians, Technologists, and Physicists American Association of Physicists in Medicine CT Dose Summit Denver, Colorado	10/2010
Diagnostic Imaging Symposium on Risk (Director) Joint Meeting of the American Association of Physicists in Medicine and the Canandian Organization of Medical Physics Vancouver, Canada	08/2011
Medical Imaging Using Ionizing Radiation: Optimization of Dose and Image Quality Course Director American Association of Physicists in Medicine Summer School San Diego, California	06/2012
Radiation Risk in Diagnostic Radiology: A Critical Analysis of What We Do and Don't Know Symposium Director American Association of Medical Physicists 54th Annual Meeting Charlotte, North Carolina	07/2012

Teaching

Digital Subtration Angiography and its Applications in Cardiac Imaging Department of Diagnostic Radiology Seminar Mayo Graduate School of Medicine Rochester, Minnesota	08/1990
The Physics and Technical Aspects of Dual-Energy Digital Subtraction Angiography Department of Diagnostic Radiology Seminar Mayo Graduate School of Medicine Rochester, Minnesota	08/1990
Dual-Energy Digital Subtraction Angiography and its Applications Biodynamic Research Unit Seminar Mayo Clinic Rochester, Minnesota	04/1991
Quantitative Assessment of Regional Left-Ventricular Function Using Dual-Energy Digital Subtraction Angiography Medical Physics Seminar Mayo Clinic Rochester, Minnesota	04/1991
The Physics of Computed Tomography CT Technologist In-Service Mayo School of Health-Related Sciences Rochester, Minnesota	11/1992
Understanding Spiral CT CT Technologist In-Service Mayo School of Health-Related Sciences Rochester, Minnesota	01/1994
Understanding Spiral CT CT Technologist In-Service Mayo School of Health-Related Sciences Rochester, Minnesota	04/1995
Understanding X-ray CT McCollough CH Division of Radiation Oncology Staff Conference, Mayo Clinic Rochester, Minnesota	08/1998

Design and Performance of New Multiscan CT Technology: GE LightSpeed vs. CTi CT Technologist In-Service Mayo School of Health-Related Sciences Rochester, Minnesota	10/1998
Design and Performance of the New GE Light Speed CT Scanner Department of Diagnostic Radiology Seminar Mayo Graduate School of Medicine Rochester, Minnesota	01/1999
CT Technology Updates Foundation Medical Physics Staff Retreat Rochester, Minnesota	08/2001
Radiation Dose and Multi-slice CT Foundation Medical Physics Staff Retreat Rochester, Minnesota	08/2001
CT Dose Reduction and Protocol Optimization CT Technologist In-Service Mayo School of Health-Related Sciences Rochester, Minnesota	09/2001
Principles and Implementation of CT Technique Charts CT Technologist In-Service Mayo School of Health-Related Sciences Rochester, Minnesota	12/2001
Patient Dose and Multi-detector CT Neuroradiology Staff Conference Mayo Clinic College of Medicine Rochester, Minnesota	05/2002
16 vs. 64 Slice CT Scanning: Technical Aspects and Patient Benefits Medical Physics Seminar Mayo Clinic College of Medicine Rochester, Minnesota	02/2005
CT Physics and Technology Course CT Technologist In-Service Program Mayo Clinic College of Medicine	2007 - 2008

Ongoing Weekly CT Physics Lectures. 2007
CT Technologist In-Service.
Mayo School of Health-Related Sciences
Rochester, Minnesota

Dual Source and Dual Energy CT: Physics Principles and Clinical Applications. 03/2007
Radiology Noon Conference
Mayo Clinic College of Medicine
Rochester, Minnesota

Dual Energy CT for GU Applications. 04/2007
Abdominal Division Special Lecture.
Mayo Clinic College of Medicine
Rochester, Minnesota

The Pregnant Patient 2008 - Present
RSNA SAMs (self-assessment modules)
Radiological Society of North America
Chicago, Illinois

Peds Hot Topic - Radiation and ALARA 01/29/2008
Radiology Noon Conference
Mayo Clinic College of Medicine
Rochester, Minnesota

Technical Innovations and Resources in CT Imaging 03/20/2009
CTSA Grand Rounds
Mayo Clinic College of Medicine, Gonda SL-208
Rochester, Minnesota

Radiation in Medical Imaging: Communicating benefits and risks to our patients 06/02/2010
Medical Grand Rounds
Mayo Clinic College of Medicine, Gonda SL-208
Rochester, Minnesota

Radiation Risk and Risk Perception in Medical Imaging 04/2011
Biomedical Engineering Seminar
Mayo Clinic College of Medicine; Mann Hall, Medical Sciences Building
Rochester, Minnesota

Mentorship

[redacted] (Summer Intern) 1991

[redacted] (Diagnostic Medical Physics Resident) 1991 - 1992
Current Status: Associate Professor, Mayo Clinic

[redacted] (High School Student) 1992

[redacted] (Graduate Student) 1992 - 1993
Description: Lab Rotation

[redacted] Diagnostic Medical Physics Resident) 1992 - 1994
Current Status: Diagnostic Medical Physicist

[redacted] (Graduate Student) 1992 - 1996
Description: Lab Rotation

[redacted] (Summer Intern) 1993

[redacted] J (Masters Student) 1993 - 1994

[redacted] (Graduate Student) 1993 - 1994
Description: Lab Rotation

[redacted] (Masters Student) 1994 - 1996
Current Status: Professor, Mayo Clinic

[redacted] (Diagnostic Medical Physics Resident) 1994 - 1996
Current Status: Professor of Medical Physics, Mayo Clinic

[redacted] (Diagnostic Medical Physics Resident) 1994 - 1996
Current Status: Professor of Electrical Power & Control Engineering, University of Warwick

[redacted] (Summer Intern) 1995

[redacted] (High School Student) 1996

[redacted] (Summer Intern) 1996

[redacted] (Summer Intern) 1996

[redacted] (Diagnostic Medical Physics Resident) 1996 - 1998
Current Status: Associate Professor, University of Washington

[redacted] (Summer Intern) 1998

[redacted] (Diagnostic Medical Physics Resident) 1998 - 2000
Current Status: Medical Physicist, Marshfield Clinic

[redacted] (Graduate Student) 1998 - 2002
Description: Lab Rotation

[redacted] (Diagnostic Medical Physics Resident) 2000 - 2002

[redacted] (Postdoctoral Trainee) 2001

[redacted] (High School Student) 2002

[redacted] (Diagnostic Medical Physics Resident) 2002 - 2003
Current Status: Assistant Professor of Medical Physics, Mayo Clinic

[redacted] (Postdoctoral Fellow) 2004 - 2006
Current Status: Assistant Clinical Specialist/Assistant Professor, University of Minnesota

[redacted] (Postdoctoral Fellow) 2004 - 2008
Current Status: CT Physicist, Siemens Medical Solutions

[redacted] (Medical Student) 2005 - 2008

[redacted] (Postdoctoral Fellow) 2006

[redacted] (Postdoctoral Fellow) 2006 - 2007

[redacted] (Summer Intern) 2007

[redacted] (Summer Intern) 2007

[redacted] (Postdoctoral Fellow) 2007 - 2009

[redacted] (High School Student) 2007

[redacted] (Postdoctoral Fellow) 2007 - Present

[redacted] (Summer Intern) 2008

[redacted] (Summer Intern) 2008

[redacted] (Summer Undergraduate Research Fellow) 2008

[redacted] (Diagnostic Medical Physics Resident) 2008
Current Status: Instructor in Medical Physics, Mayo Clinic

[redacted] (Postdoctoral Fellow) 2008

[redacted] (Graduate Student) 2008 - 2012
Description: Primary Thesis Advisor
Current Status: Graduate student in Medical Physics

[redacted] (Visiting Student) 2008

[redacted] (Summer Intern) 2009

[redacted] (Summer Student) 2009
Description: Lab Rotation

[redacted] (Research Associate) 2009 - Present

[redacted] (Postdoctoral Fellow) 2009 - Present
Current Status: Professor, Stanford University

[redacted] (Postdoctoral Fellow) 2009 - Present

[redacted] (Summer Intern) 2010

[redacted] (Mayo M.D./Ph.D. Student) 2010 - 2011
Description: Lab rotation

[redacted] (Visiting Student) 2010

[redacted] (Summer Intern) 2010

[redacted] (Medical Student) 2010

[redacted] (Visiting Student) 2010

[redacted] (Postdoctoral Fellow) 2011 - Present

[redacted] Postdoctoral Fellow) 2011 - Present

[redacted] (Graduate Student) 2011 - Present
Description: Thesis Committee Member

[redacted] (Summer Undergraduate Research Fellow) 2011

[redacted] (Summer Student) 2011

[redacted] (Mayo Ph.D. Student) 2011
Description: Lab rotation

[redacted] (Summer Student) 2011

[redacted] (Medical Student) 2011

[redacted] le (Visiting Student) 2011

[redacted] (Summer Student) 2012

[redacted] (Summer Student) 2012

[redacted] (Summer Intern) 2012

[redacted] (Student) 2012 - Present
Description: Thesis Committee Member

Scholarship

Presentations

Visual Teaching Aids for Diagnostic Radiologic Physics 05/1996
[redacted]
North Central Chapter of the American Association of Physicists in Medicine
Madison, Wisconsin

Teaching Physics to Diagnostic Radiology Residents 07/1997
[redacted]
American Association of Physicists in Medicine 39th Annual Meeting
Milwaukee, Wisconsin

Activities of the Committee on Medical Physics Education of Physicians 07/2000

[redacted]

Education Council Symposium - Annual Meeting of the American Association of Physicists in Medicine
Chicago, Illinois

INSTITUTIONAL/DEPARTMENTAL ADMINISTRATIVE RESPONSIBILITIES, COMMITTEE MEMBERSHIPS AND OTHER ACTIVITIES

Mayo Clinic

Mayo Clinic Center for Translational Science Activities

Associate Member 10/2008 - 01/2009

Full Member 01/2009 - Present

Mayo Clinic in Rochester

Department of Radiology

Member 01/2003 - 2005

Body CT Leadership Committee

Member 01/1991 - 01/2003

Computer Committee

Member 01/1991 - 01/1992

CT Clinical Innovation Center

Director 01/2004 - Present

CT Operations Group

Member 01/2005 - Present

CT Technical Support Committee

Member 01/1993 - Present

Chair 01/1993 - 01/2007

Digital Imaging Transmission Committee

Member 01/1991 - 01/1996

Education Committee

Member 01/1991 - 01/1999

Image Processing and Analysis Committee

Chair 01/1992 - 01/1995

Member 01/1992 - 01/1995

Radiology Engineering Committee

Member 01/1994 - 01/2000

Radiology Networking Task Force

Member 01/1991 - 12/1991

Research Committee

Member 01/2005 - 01/2007

Mayo Clinic Rochester Committees

Women's Advisory Council

Member 01/1997

PRESENTATIONS

International

Assessment of Regional Wall-Motion Abnormalities With Phase-Matched Dual-Energy DSA. 76th Scientific Assembly and Annual Meeting of the Radiological Society of North America Chicago, Illinois	11/1990
The Quantitative Assessment of Changes in Left-Ventricular Regional End-Systolic Volume Using Phase-Matched Dual-Energy Intravenous Digital Subtraction Angiography World Congress on Medical Physics and Biomedical Engineering Kyoto, Japan	07/1991
Acceptance Testing of a 5th Generation, Scanning-Electron-Beam Computed Tomography Scanner American Association of Physicists in Medicine 34th Annual Meeting Calgary, Canada	08/1992
Artifact Reduction From the Use of Plastic Surgical Clips in CT, MR and Ultrasound Imaging American Association of Physicists in Medicine 34th Annual Meeting Calgary, Canada	08/1992
The Use of Electron-Beam Computed Tomography Scanners for Quantitative Density Measurements Radiological Society of North America 78th Scientific Assembly and Annual Meeting Chicago, Illinois	12/1992
Radiation Dosimetry for Scanning-Electron-Beam Computed Tomography 79th Scientific Assembly and Annual Meeting of the Radiological Society of North America Chicago, Illinois	11/1993
Performance Evaluation of Electron Beam CT Scanners: Comparison of Various Hardware and Software Configurations Advances in Ultrafast CT 1996: An International Symposium on Electron Beam Tomography Lake Buena Vista, Florida	10/1996

Performance Evaluation of a Multi-Slice CT System 12/1998
Radiological Society of North America 84th Scientific Assembly and Annual Meeting
Chicago, Illinois

CT Colonography (CTC) Using a Multi-Slice CT Scanner: Optimization of Scan Acquisition Parameters 12/1999
Radiological Society of North America 85th Scientific Assembly and Annual Meeting
Chicago, Illinois

Development of an Enhanced CT Digital Projection Radiograph for Uroradiologic Imaging 11/2000
Radiological Society of North America, 86th Scientific Assembly and Annual Meeting
Chicago, Illinois

Patient Radiation Dose in Multi-Slice CT: Dependents Detector Configuration and System Manufacturer 11/2000
Radiological Society of North America, 86th Scientific Assembly and Annual Meeting
Chicago, Illinois

Evaluation of Renal Colic During Pregnancy: A Comparison of Radiation Dose From Radiographic and CT Exams 11/2000
Radiological Society of North America, 86th Scientific Assembly and Annual Meeting
Chicago, Illinois

Dose Optimization in CT: Creation, Implementation and Clinical Acceptance of Sized-Base Technique Charts 11/2002
Radiological Society of North America, 88th Scientific Assembly and Annual Meeting
Chicago, Illinois

Multi-Scanner, Multi-Manufacturer, International Standard for the Quantification of Coronary Artery Calcium Using Cardiac CT 07/2003
4th International Conference on Cardiac CT
Boston, Massachusetts

A Visual Method for Demonstrating the Relative Performance of Cone Beam Reconstruction Algorithms 12/2003
Radiological Society of North America, 89th Scientific Assembly and Annual Meeting
Chicago, Illinois

The Phantom Portion of the ACR CT Accreditation Program: Practical Tips, Artifact Examples, and Pitfalls to Avoid
Radiological Society of North America, 89th Scientific Assembly and Annual Meeting
Chicago, Illinois
12/2003

A Multi-Scanner, Multi-Manufacturer, International Standard for the Quantification for Coronary Artery Calcium Using Cardiac CT.
Radiological Society of North America, 89th Scientific Assembly and Annual Meeting
Chicago, Illinois
12/2003

Radiation Doses from Adult Head, Pediatric Abdomen and Adult Abdomen CT Examination: Initial Results from the ACR CT Accreditation Program
Radiological Society of North America, 89th Scientific Assembly and Annual Meeting
Chicago, Illinois
12/2003

Dose and Image Quality in CT: National and International Activities
International Committee on Radiation Measurements and Units (ICRP) Meeting
Bethesda, Maryland
02/2004

U.S. Standards and Professional Recommendations for CT Constancy Testing
International Electrotechnical Committee (IEC) CT Maintenance Team Meeting
Kyoto, Japan
03/2004

The Dose Consequences of New CT Technology: Evaluation of AEC and Dose Efficiency from 4 to 64-Slice CT Systems
Radiological Society of North America 90th Scientific Assembly and Annual Meeting
Chigaco, Illinois
11/2004

Early Experience with 64-Slice CT and Z-axis over Sampling: Novel Applications and Elimination of Helical Artifacts in Neuro CT
Radiological Society of North America 90th Scientific Assembly and Annual Meeting
Chicago, Illinois
11/2004

Measurement Of Temporal Resolution In Dual Source CT 11/2006
Radiological Society of North America 92nd Scientific Assembly and Annual Meeting

The Use Of Dual Source CT For 80 Kv Imaging Of Obese Patients 11/2006
Radiological Society of North America 92nd Scientific Assembly and Annual Meeting

The Effects Of Computed Tomography (CT) Irradiation On Implantable Cardiac Rhythm Management (ICRMD) Devices 11/2006
Radiological Society of North America 92nd Scientific Assembly and Annual Meeting

Radiation Doses From The ACR CT Accreditation Program: Review Of Data Since Program Inception And Proposals For New Reference Values And Pass/Fail Limits 11/2006
Radiological Society of North America 92nd Scientific Assembly and Annual Meeting

Noise reduction in spectral CT: Reducing dose and breaking the trade-off between image noise and energy bin selection 05/2011
Workshop on Medical Applications of Spectroscopic X-ray Detectors
Geneva, Switzerland

Quantification of iron as a marker of hemorrhage into atherosclerotic plaques using dual-energy computed tomography (DECT) in an ex vivo porcine plaque model 05/2011
Workshop on Medical Applications of Spectroscopic X-ray Detectors
Switzerland

LL-EDE1013: Physics Case of the Day (Education Exhibit) 11/2011
[redacted]
97th Scientific Assembly and Meeting of the Radiological Society of North America
Chicago, Illinois

Evaluation of Patient Attenuation from CT Scanned Projection Radiographs and CT Images. 11/2011
97th Scientific Assembly and Meeting of the Radiological Society of North America
Chicago, Illinois

National

A Noise Reduction Algorithm for Dual-Energy Digital Subtraction Angiography American Association of Physicists in Medicine/Association of University Radiologists Symposium on Digital Radiography and PACS New Orleans, Louisiana	04/1988
The Quantitative Assessment of Regional Systolic Function During Graded Ischemia Using Phase-Matched Dual-Energy Digital Subtraction Ventriculography 40th Annual Scientific Session of the American College of Cardiology Atlanta, Georgia	03/1991
Organ Dose Calculations for X-ray CT: Methods and Applications to Clinical Practice American Association of Physicists in Medicine 387th Annual Meeting Philadelphia, Pennsylvania	07/1996
CT Urography: Evaluation of Image Quality and Radiation Dose Society of Uroradiology Annual Meeting Kauai, Hawaii	03/2000
Evaluation of Renal Colic During Pregnancy: A Comparison of Radiation Dose From Radiographic and CT Exams Society of Uroradiology Annual Meeting Kauai, Hawaii	03/2000
Radiology Center Phase 1 Planning Lung Tissue Research Consortium Steering Committee, NIH Bethesda, Maryland	03/2004
Comparison of Patient Radiation Doses from Published and Non-published CT Urography (CTU) Protocols using Multiple Detector-row CT (MDCT) Scanners Abdominal Radiology Course San Antonio, Texas	03/2005
Fast, Dual-energy, Multi-slice CT Can Discriminate Fe and Ca American Heart Association Annual Meeting Chicago, Illinois	11/2006

Translating Protocols Between Scanner Manufacturer and Model; Translating Protocols Across Patient Size: Babies to Bariatric
American Association of Physicists in Medicine CT Dose Summit
Atlanta, Georgia
04/2010

Clinical and research advances in computed tomography (CT).
Coalition for Imaging & Bioengineering Research: The Impact of Imaging Research, Technology & Patient Care
Washington, District of Columbia
05/2011

Adapting Protocols for Patient Size: Babies to Bariatric
American Association of Physicists in Medicine CT Dose Summit
Denver, Colorado
10/2011

Standardization versus individualization: How each contributes to managing dose in computed tomography
National Council of Radiation Protection Annual Meeting
Bethesda, Maryland
03/2012

Regional

CT Dose Estimates and Dose Reduction Strategies
North Central Chapter of the Health Physics Society Spring Meeting
Rochester, Minnesota
05/2011

INVITED PRESENTATIONS AND VISITING PROFESSORSHIPS

Invited Presentations

Digital Subtraction Angiography and its Applications in Cardiac Imaging
Eastern Carolina University, Department of Physics Seminar
Greenville, North Carolina
02/1990

Quantitative Assessment of Regional Wall-Motion Abnormalities Using Dual-Energy Digital Subtraction Angiography
University of Wisconsin, Department of Medical Physics Seminar
Madison, Wisconsin
01/1991

The Physics of Fast CT — 09/1992
Fast-CT Mini-Symposium, Minnesota Radiological Society Annual Meeting
Rochester, Minnesota

The Physical Performance of Scanning-electron Beam CT — 09/1992
Fast-CT Symposium, Mayo Radiology Annual Meeting
Jacksonville, Florida

The Physical Principles and Technical Performance of Scanning-Electron-Beam X-ray Computed Tomography — 08/1993
Physics of High Speed CT Systems Mini-Symposium, American Association of Physicists in Medicine Annual Meeting
Jacksonville, Florida

The Physical Performance of Scanning-Electron-Beam CT — 10/1993
Fast CT Symposium, Mayo Radiology Alumni Meeting
Jacksonville, Florida

X-ray Computed Tomography — 01/1994
Hope College, Department of Physics Seminar
Holland, Michigan

Physics and Medical Imaging — 01/1994
Hope College, Department of Physics Seminar
Holland, Michigan

Acceptance and QC Testing of Conventional CT — 06/1995
Medical CT and Ultrasound: Current Technology and Applications - American Association of Physicists in Medicine Summer School
New London, Connecticut

Principles and Performance of Electron Beam CT — 06/1995
Medical CT and Ultrasound: Current Technology and Applications - American Association of Physicists in Medicine Summer School
New London, Connecticut

X-ray Production — 11/1996
AAPM/RSNA Physics Tutorial for Residents: Basic X-ray Physics - Radiological Society of North America 82nd Scientific Assembly and Annual Meeting
Chicago, Illinois

The CT Marketplace 11/1996
AAPM/RSNA Tutorial on Equipment Selection: X-ray Computed Tomography Systems - Radiological Society of North America 82nd Scientific Assembly and Annual Meeting
Chicago, Illinois

Anatomy of a CT Scanner 11/1996
AAPM/RSNA Tutorial on Equipment Selection: X-ray Computed Tomography Systems - Radiological Society of North America 82nd Scientific Assembly and Annual Meeting
Chicago, Illinois

CT Numbers and Electron Density 06/1998
Imaging in Radiotherapy - American Association of Physicists in Medicine Summer School
Madison, Wisconsin

Performance Evaluation of a Multi-Slice CT System 05/1999
North Central Chapter of the American Association of Physicists in Medicine Spring Meeting
Rochester, Minnesota

Calculation of Effective Dose 07/1999
Medical Physics Consultation on Radiation Exposure: Measuring, Calculating and Reporting Radiation Risk - American College of Radiology Physics Symposium
Nashville, Tennessee

Radiation Dosimetry in X-ray CT 03/2000
Spiral and Multi-Slice CT: Physical Principals and Medical Physics Responsibilities - Southeast Chapter of the American Association of Physicists in Medicine Symposium
Asheville, North Carolina

State of the Art X-ray Computed Tomography 05/2000
The Image-Based Treatment Process: Practical Methods for Clinical Medical Physicists - American College of Medical Physicists Annual Workshop
Whistler, British Columbia, Canada

X-ray CT: Advanced Techniques, Radiation Dose, and Fundamentals of Quality Assurance The Image-Based Treatment Process: Practical Methods for Clinical Medical Physicists - American College of Medical Physicists Annual Workshop Whistler, British Columbia, Canada	05/2000
Patient Dose in Multi-Slice CT Second Annual International Symposium on Multidetector-row CT San Francisco, California	06/2000
Medical Imaging and State of the Art X-ray CT Hope College Department of Physics Seminar Holland, Michigan	09/2000
State of the Art in X-ray Computed Tomography University of Wisconsin Department of Physics Seminar Madison, Wisconsin	09/2000
Performance Evaluation of CT Systems Radiological Society of North America 86th Scientific Assembly and Annual Meeting Chicago, Illinois	11/2000
Fundamental Principles of X-ray CT Hands on Multi-slice CT Workshop Houston, Texas	01/2001
Fundamental Principles of X-ray CT Hands on Multi-slice CT Workshop Houston, Texas	04/2001
ACR's CT Accreditation Program Image Quality Phantom Accreditation Progams and the Medical Physicists - American Association of Physicists in Medicine Summer School Seattle, Washington	06/2001
Overview of the American College of Radiology CT Accreditation Program Accreditation Progams and the Medical Physicists - American Association of Physicists in Medicine Summer School Seattle, Washington	06/2001

Spiral CT: Radiation Dose and Image Quality 06/2001
Second International Conference on Cardiac Spiral CT
Charleston, South Carolina

Patient Dose in Multislice CT 06/2001
Third Annual International Symposium on Multidetector-row CT
San Francisco, California

Technical State of the Art in CT Angiography 09/2001
Annual International Workshop on Magnetic Resonance Angiography
Madison, Wisconsin

Performance Evaluation of CT Systems 11/2001
Radiological Society of North America 87th Scientific Assembly and Annual Meeting
Chicago, Illinois

Basic Principles of Multi-detector Row CT 02/2002
Tutorials in Diagnostic Radiology Review Course
Kohala, Hawaii

Radiation Dose and Image Quality: How and What to Optimize 02/2002
Tutorials in Diagnostic Radiology Review Course
Kohala, Hawaii

Patient Dose in Multi-detector CT 06/2002
4th Annual International Symposium on Multi-detector Row CT
San Francisco, California

Patient Dose in Cardiac CT 07/2002
3rd International Conference on Cardiac Spiral CT
Nurenberg, Germany

Performance Evaluation of CT Systems and CT Accreditation 11/2002
Radiological Society of North America 88th Scientific Assembly and Annual Meeting
Chicago, Illinois

Basic Principles of Multi-detector Row CT 01/2003
Tutorials in Diagnostic Radiology Review Course
Wailea, Hawaii

Radiation Dose and Image Quality: How and What to Optimize Tutorials in Diagnostic Radiology Review Course Wailea, Hawaii	01/2003
Basic Principles of Multi-detector Row CT The 17th Annual University of Wisconsin CT Conference Madison, Wisconsin	03/2003
Radiation Dose and Image Quality: How and What to Optimize The 17th Annual University of Wisconsin CT Conference Madison, Wisconsin	03/2003
Patient Dose in Multi-detector CT 5th Annual International Symposium on Multi-detector Row CT San Francisco, California	06/2003
Dose Issues and Dose Reduction in Cardiac CT 4th International Conference on Cardiac Spiral CT Boston, Massachusetts	07/2003
ACR CT Accreditation Program: Image Quality Phantom and Dose Measurements American Association of Physicists in Medicine, 45th Annual Meeting San Diego, California	08/2003
CT Accreditation-Medical Physics Aspects Radiological Society of North America, 89th Scientific Assembly and Annual Meeting Chicago, Illinois	12/2003
Patient Dose in Multi-slice CT Tutorials in Diagnostic Radiology Maui, Hawaii	01/2004
Technical Aspects of Multi-slice CT Tutorials in Diagnostic Radiology Maui, Hawaii	01/2004
Dose Management and Dose Reduction in MDCT 6th Annual International Symposium on Multidetector-Row CT. San Francisco, California	06/2004

Basics of Radiation Dose 5th International Conference on Cardiac CT Nurnberg, Germany	07/2004
Radiation Exposure and Quality Control in Cardiac CT 5th International Conference on Cardiac CT Nurnberg, Germany	07/2004
ACR CT Accreditation Program: Image Quality and Dose Measurement American Association of Physicists in Medicine 46th Annual Meeting Pittsburg, Pennsylvania	07/2004
Calcium Analysis Methodology and Scoring by CT European Society of Cardiac Radiology Berlin, Germany	10/2004
Radiation Exposure in Diagnostic Imaging. American Imaging Management 2nd Annual Symposium: Emerging Technology in Diagnostic Imaging. Chicago, Illinois	11/2004
Medical Physics Aspects of American College of Radiology CT Accreditation Radiological Society of North America 90th Scientific Assembly and Annual Meeting Chicago, Illinois	12/2004
Dose Management and Dose Reduction in CT. 7th International SOMATOM CT User Conference. Rome, Italy	05/2005
From kV and mA to MilliSieverts: Understanding Radiation Dose with CT. 7th Annual International Symposium on Multidetector-row CT. San Francisco, California	06/2005
Radiation Dose Reduction: Strategies for Minimizing the Impact on Image Quality. 7th Annual International Symposium on Multidetector-row CT. San Francisco, California	06/2005

CT Radiation Safety. 06/2005
Cardiovascular Magnetic Resonance and Computed Tomography: State of the Art.
Washington, District of Columbia

CT Physics and Imaging Techniques. 06/2005
Cardiovascular Magnetic Resonance and Computed Tomography: State of the Art.
Washington, District of Columbia

CT Physics Workshop: Calcium Scoring and Image Artifacts. 06/2005
Cardiovascular Magnetic Resonance and Computed Tomography: State of the Art.
Washington, District of Columbia

Radiation Dose in Cardiac CT: How High Is It and What Can Be Done About It? 07/2005
6th International Conference on Cardiac CT
Boston, Massachusetts

ACR Accreditation Physics Tests 07/2005
American Association of Physicists in Medicine 47th Annual Meeting
Seattle, Washington

Dose and Multidetector CT: What You Need To Know. 11/2005
Radiological Society of North America Scientific Assembly and Annual Meeting Program Nov 2005.
Chicago, Illinois

Diagnostic Radiation and Carcinogenesis: Fact or Hypothesis? 11/2005
Radiological Society of North America Scientific Assembly and Annual Meeting Program Nov 2005.
Chicago, Illinois

Radiation Exposure in Radiology: Risk vs Benefit 02/2006
Department of Radiology Tutorials in Diagnostic Radiology.
Wailea, Maui, Hawaii

Advanced CT Imaging using 64 Slice Technology: What's New and What Can It Do? 02/2006
Department of Radiology Tutorials in Diagnostic Radiology.
Wailea, Maui, Hawaii

Stone Imaging: Future Developments 03/2006
NIDDK 2006 Urolithiasis Symposium
Baltimore, Maryland

Stone Imaging: Reducing Radiation Dose 03/2006
NIDDK 2006 Urolithiasis Symposium
Baltimore, Maryland

Dual-Source CT: How Does it Work and What Can it Do? 06/2006
8th Annual Stanford MDCT Meeting
San Francisco, California

Radiation Dose in Cardiac Imaging: How Does CT Compare? 06/2006
8th Annual Stanford MDCT Meeting
San Francisco, California

CT of the Pregnant Patient: When to Worry about Fetal Dose? 06/2006
8th Annual Stanford MDCT Meeting
San Francisco, California

From kV and mA to milliSieverts: Understanding radiation dose with CT 06/2006
8th Annual Stanford MDCT Meeting
San Francisco, California

Current Developments in CT Technology 07/2006
Austin Health Medical Center
Melbourne, Australia

Radiation in Radiology: Risk vs Benefit 07/2006
CT/MRI & PACS/CR/DR Conference
Gold Coast, Australia

CT Dose Metrics and mA Modulation Techniques 07/2006
CT/MRI & PACS/CR/DR Conference
Gold Coast, Australia

Cardiac CT: Physics Principles and Radiation Dose 07/2006
CT/MRI & PACS/CR/DR Conference
Gold Coast, Australia

Advanced CT Imaging using 64 Slice Technology: What's New and What Can It Do? 07/2006
CT/MRI & PACS/CR/DR Conference
Gold Coast, Australia

Radiation Dose in CT: How to Measure It, How to Reduce It Gold Coast CT User's Meeting Gold Coast, Australia	07/2006
Cardiac CT: Physics Principles and Radiation Dose St. Vincent's Hospital Melbourne, Australia	07/2006
Cardiac CT and Radiation Safety American Heart Association Annual Meeting Chicago, Illinois	11/2006
Radiation in Radiology: Risk versus Benefit Tutorials in Diagnostic Radiology Big Island, Hawaii	02/2007
Dual-Source CT: How Does it Work and What Can it Do? Tutorials in Diagnostic Radiology Big Island, Hawaii	02/2007
New Horizons with Dual-Energy CT. European Congress of Radiology. Vienna, Austria	03/2007
Dose in Computed Tomography: How to Quantitate, How to Reduce. NCRP Meeting Arlington, Virginia	04/2007
Radiation Dose with Dual Source CT 8th Somatom World Summit 2007 Berlin, Germany	05/2007
Dual Energy CT: Stones and Hard Plaques 8th Somatom World Summit 2007 Berlin, Germany	05/2007
Dual Source CT: How Does it Work and What Can it Do? 10th Annual International Symposium on Multidetector-Row CT San Francisco, California	06/2007
Radiation Dose in Cardiac Imaging: How Does CT Compare? 9th Annual International Symposium on Multidetector-Row CT San Francisco, California	06/2007

CT of the Pregnant Patient: When to Worry About Fetal Dose. 9th Annual International Symposium on Multidetector-Row CT San Francisco, California	06/2007
Dose Measurements and New Dose Reference Values. American Association of Physicists in Medicine 49th Annual Meeting Minneapolis, Minnesota	07/2007
Performance Evaluation for New-Technology CT Systems: Dual-Source CT. American Association of Physicists in Medicine 49th Annual Meeting Minneapolis, Minnesota	07/2007
Dual Source CT Mayo Clinic Alumni Association -- 65th Meeting Rochester, Minnesota	10/2007
ACR CT Accreditation Tips and Trends Mayo Clinic Tutorials in Diagnostic Radiology Maui, Hawaii	02/2008
Technical Advances and Radiation Dose in Cardiac CT Mayo Clinic Tutorials in Diagnostic Radiology Maui, Hawaii	02/2008
Radiation As A Carcinogen 10th Annual International Symposium on Multidetector-Row CT Las Vegas, Nevada	05/2008
Radiation: Good for What Ails You 10th Annual International Symposium on Multidetector-Row CT Las Vegas, Nevada	05/2008
Ionizing Radiation As A Carcinogen 10th Annual International Symposium on Multidetector-Row CT Las Vegas, Nevada	05/2008
Ionizing Radiation: Good for What Ails You 10th Annual International Symposium on Multidetector-Row CT Las Vegas, Nevada	05/2008

Is CT Safe for Patients with Implantable Cardiac Devices? 05/2008
10th Annual International Symposium on Multidetector-Row CT
Las Vegas, Nevada

Is CT Safe for Patients with Implantable Cardiac Devices? 05/2008
10th Annual International Symposium on Multidetector-Row CT
Las Vegas, Nevada

ECG Gating and Radiation Dose for Cardiac CT 06/2008
Current Topics in Cardiovascular Imaging
La Jolla, California

Dual Source CT: What Is It and What Can It Do For You? 06/2008
Current Topics in Cardiovascular Imaging
La Jolla, California

ECG Gating and Radiation Dose for Cardiac CT 06/2008
Current Topics in Noninvasive Cardiovascular Imaging
La Jolla, California

Dual Source CT: What Is It and What Can It Do For You? 06/2008
Current Topics in Noninvasive Cardiovascular Imaging
La Jolla, California

Dual-Energy CT: Dual-kV Techniques and Clinical Applications 07/2008
McCollough CH.
American Association of Physicists in Medicine 50th Annual Meeting
Houston, Texas

Advanced CT Applications and Their Impact on Clinical Practice 07/2008
McCollough CH.
American Association of Physicists in Medicine 50th Annual Meeting
Houston, Texas

Dual Energy CT: Promises and Challenges for Cardiovascular Imaging 07/2008
McCollough CH.
American Association of Physicists in Medicine 50th Annual Meeting
Houston, Texas

Radiation Dose at CT Angiography [Refresher Course] 12/2008
Radiological Society of North America
Chicago, Illinois

Dose Assessments in Clinical Practice: What's Typical, What's Too Much? [Refresher Course] 12/2008
Radiological Society of North America
Chicago, Illinois

Dual Energy: How and Why 03/2009
European Congress of Radiology
Vienna, Austria

Radiation dose: What you should know 03/2009
European Congress of Radiology
Vienna, Austria

How effective is effective dose as a predictor of radiation risk? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

How effective is effective dose as a predictor of radiation risk? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Dose assessment in clinical practice: What's typical? What's too much? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Dose assessment in clinical practice: What's typical? What's too much? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Understanding kV adaptation in CT: When does it help? When can it hurt? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Understanding kV adaptation in CT: When does it help? When can it hurt? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Technical implementations of dual-energy CT: Many roads to the same destination? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Technical implementations of dual-energy CT: Many roads to the same destination? 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

An alphabet soup of dose reduction techniques: AEC, FLASH, HYPR, IR, MBF (and more). 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

An alphabet soup of dose reduction techniques: AEC, FLASH, HYPR, IR, MBF (and more). 05/2009
11th Annual International Symposium on Multidetector-Row CT
San Francisco, California

Radiation Dose in CT: Cardiac CT and CT of the Pregnant Patient. 10/2009
Royal Australian and New Zealand Radiology Society Scientific Mtg.
Brisbane, Australia

Does Assessments in Clinical Practice: What's Typical, What's Too Much? 10/2009
Royal Australian and New Zealand Radiology Society Scientific Mtg.
Brisbane, Australia

Dual Source CT and Dual Energy CT: Overview of the Technologies and Clinical Applications. 10/2009
Royal Australian and New Zealand Radiology Society Scientific Mtg.
Brisbane, Australia

Radiation Dose at CT Angiography [Refresher Course] 11/2009
95th Scientific Assembly and Annual Meeting, Radiological Society of North America
Chicago, Illinois

Dose Assessments in Clinical Practice: What's Typical? What's Too Much? [Refresher Course] 95th Scientific Assembly and Annual Meeting, Radiological Society of North America Chicago, Illinois	11/2009
FDA Public meeting on Device Improvement to Reduce Unnecessary Radiation Exposure from Medical Imaging AAPM Speaker FDA Hearing on CT Dose Gaithersburg, Maryland	03/2010
Equipment Features for CT Devices. FDA Hearing on CT Dose. Gaithersburg, Maryland	03/2010
FDA public meeting on Device Improvement to Reduce Unnecessary Radiation Exposure from Medical Imaging. FDA Hearing on CT Dose. Gaithersburg, Maryland	03/2010
Translating Protocols Between Scanner Manufacturer and Model AAPM CT Dose Summit in Atlanta Atlanta, Georgia	04/2010
Translating Protocols Across Patient Size: Babies to Bariatric AAPM CT Dose Summit in Atlanta Atlanta, Georgia	04/2010
Dose in DECT: Does it Go Up or Down? 12th Annual International Symposium on MDCT San Francisco, California	05/2010
Automatic kV Selection for CT Dose Reduction: An Idea Whose Time Has Come. 12th Annual International Symposium on MDCT San Francisco, California	05/2010
Dual-Source Spiral CT at Pitch Values up to 3.4: Assessment of Image Quality and Non-Cardiac Applications. 12th Annual International Symposium on MDCT San Francisco, California	05/2010

Sedation-free Pediatric CT: Use of High-pitch Dual-source CT to Obtain Artifact-free Images of Moving Patients. 05/2010
12th Annual International Symposium on MDCT
San Francisco, California

Use of a Pitch Value of 3.4 in Dual Source, Cardiac CT Angiography: Dose and Image Quality Relative to Existing Scan Modes. 05/2010
12th Annual International Symposium on MDCT
San Francisco, California

Dose in DECT: Does it Go Up or Down? 05/2010
12th Annual International Symposium on MDCT 2010
San Francisco, California

Automatic kV Selection for CT Dose Reduction: An Idea Whose Time has come 05/2010
12th Annual International Symposium on MDCT 2010
San Francisco, California

Dual-Source Spiral CT at Pitch Values up to 3.4: Assessment of Image Quality and Non-Cardiac Applications 05/2010
12th Annual International Symposium on MDCT 2010
San Francisco, California

Sedation-free Pediatric CT: Use of High-pitch Dual-source CT to Obtain Artifact-free Images of Moving Patients 05/2010
12th Annual International Symposium on MDCT 2010
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Sedation-free Pediatric CT: Use of High-pitch Dual-source CT to Obtain Artifact-free Images of Moving Patients 05/2010
12th Annual International Symposium on MDCT 2010
San Francisco, California

Use of Pitch Value of 3.4 in Dual Source, Cardiac CT Angiography: Dose and Image Quality Relative to Existing Scan Modes 05/2010
12th Annual International Symposium on MDCT 2010
San Francisco, California

Low Levels of Ionizing Radiation in Medicine: The impact on patients and physicians Biological Consequences and Health Risks of Low-Level Exposure to Ionizing Radiation Workshop Richland, Washington	05/2010
The lastest in radiation dose reduction techniques in CT. AAPM 52nd Annual Meeting. Philadelphia, Pennsylvania	07/2010
Radiation risk, risk perception, and reference dose values. Society of Cardiovascular Computed Tomography 5th Annual Scientific meeting. Las Vegas, Nevada	07/2010
Radiation Dose Standards and Measurements American Heart Association Think Tank Meeting Washington, District of Columbia	02/2011
Variations in the Field: CT Equipment and Protocol Differences. The Summit on Management of Radiation Dose in Computerized Tomography: Toward the Sub-mSv Exam. Bethesda, Maryland	02/2011
Image Noise and Radiation Dose Reduction in Spectral CT - Simulation Study Using Photon Counting Detectors Medical Applications of Spectroscopic X-ray Detectors Meeting Geneva, Switzerland	04/2011
Quantification of Iron as a Marker of Hemorrhage into Atherosclerotic Plaques Using Dual-energy Computed Tomography (DECT) in an examination-vivo Porcine Plaque Model Medical Applications of Spectroscopic X-ray Detectors Meeting Geneva, Switzerland	04/2011
Clinical and research advances in computed tomography (CT). Coalition for Imaging & Bioengineering Research: The Impact of Imaging Research, Technology & Patient Care Washington, District of Columbia	05/2011
CT Brain Perfusion Imaging at Routine Head Exam Doses ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011

Influence of the X-ray Spectrum on Image Quality and Dose in Dual-Energy CT ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Influence of the X-ray Spectrum on Image Quality and Dose in Single-Energy CT ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Dose Management in CT Imaging: What Should be Required from the Manufacturers ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Use of Diagnostic Reference Levels to Determine the "Right" Dose Level ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Put Away the Calculator: Radiation Risk Should not be a Consideration When Ordering CT Exams ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Radiation Dose Reduction in Thoracic and Abdominal CT Angiography using Automatic kV Selection ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Use of Photon Counting Detectors and Energy Domain Correlations to Reduce Image Noise and Radiation Dose in Spectral CT ISCT 13th Annual International Symposium on MDCT San Francisco, California	06/2011
Risk estimation versus risk perception Joint Meeting of the American Association of Physicists in Medicine and the Canadian Organization of Medical Physics Vancouver, Florida, Canada	08/2011

Advances in Dose Reduction: New Hardware Approaches for Dose Reduction. 1st Annual International Symposium on Radiation Dose in CT (ISRC). Boston, Minnesota	09/2011
Conflicting theories in radiation risk estimation 9th Biennial Symposium of the International Society for Strategic Studies in Radiology Dubrovnik, Croatia	09/2011
Bismuth shielding: Helpful or harmful AAPM CT Dose Summit Denver, Colorado	10/2011
Adapting protocols for patient size: Babies to bariatric AAPM CT Dose Summit Denver, Colorado	10/2011
Measuring, Reporting, and Managing CT Dose (Physics Keynote Speaker). 97th Scientific Assembly and Meeting of the Radiological Society of North America Chicago, Illinois	11/2011
Radiation Risk: Use of Linear Non-Threshold Hypothesis for Cancer Risk Estimation. 97th Scientific Assembly and Meeting of the Radiological Society of North America Chicago, Illinois	11/2011
Dual energy CT for material composition analysis: Present status and future directions (Urolithiasis Keynote Speaker). 97th Scientific Assembly and Meeting of the Radiological Society of North America Chicago, Illinois	11/2011
Non-invasive characterization of renal stones (Presented by [redacted]) Urology Program Director's Meeting - NIDDK Ellicott City, Maryland	11/2011
PPC Regional Collaborative: CT Dose Tracking: The Next Step Emergency Care Research Institute Educational Webinar	02/2012

Standardization versus Individualization: How Each Contributes to Managing Dose in Computed Tomography National Council on Radiation Protection and Measurements 48th Annual Meeting Bethesda, Maryland	03/2012
Dose Reduction Techniques in CT American Association of Physicists in Medicine Summer School in San Diego San Diego, California	06/2012
Estimating Risk: BEIR VII and ICRP 103 American Association of Physicists in Medicine Summer School in San Diego San Diego, California	06/2012
New Technologies and Applications in CT American Association of Physicists in Medicine Summer School in San Diego San Diego, California	06/2012
Estimation of Size Specific Doses in CT ISCT 14th Annual International Symposium on Multidetector Row CT in San Fran San Francisco, California	06/2012
Optimal kV Selection: Dose Reductions Acheived in Routine Abdomen and Vascular CT ISCT 14th Annual International Symposium on Multidetector Row CT in San Fran San Francisco, California	06/2012
Effect of Iterative Reconstruction on Low Contrast Resolution: A Pictorial Review ISCT 14th Annual International Symposium on Multidetector Row CT in San Fran San Francisco, California	06/2012
Risk Estimation Versus Risk Perception Symposium Director AAPM 54th Annual Meeting in Charlotte Charlotte, North Carolina	07/2012

Risks in Medical Imaging: Ruses and Realities 07/2012
Symposium Director
AAPM 54th Annual Meeting in Charlotte
Charlotte, North Carolina

Dose Reduction in Cardiac CT 07/2012
RADaim 2012 in Australia
Gold Coast, Australia

New Approaches for Dose Reduction in CT 07/2012
RADaim 2012 in Australia
Gold Coast, Australia

Radiation Dose and CT: Why is it Essential to Reduce It? 07/2012
RADaim 2012 in Australia
Gold Coast, Australia

CT Perfusion Imaging: Methods to Dramatically Reduce Required Doses 07/2012
RADaim 2012 in Australia
Gold Coast, Australia

Standardization Versus Individualization: How Each Contributes to Managing Dose in Computed Tomography 07/2012
RADaim 2012 in Australia
Gold Coast, Australia

CLINICAL PRACTICE, INTERESTS, AND ACCOMPLISHMENTS

Diagnostic Medical Physicist, Department of Radiology
Director, CT Clinical Innovation Center
Director, CT Physics
Radiation dosimetry calculations and consultations for diagnostic imaging procedures
Radiation dosimetry measurements for x-ray computed tomography
Specification, selection, installation and acceptance testing of new computed tomography equipment
Digital image processing: workstation performance, analysis techniques, and clinical implementation
Spectral CT

RESEARCH INTERESTS

Director, CT Clinical Innovation Center
Director, Opus CT Imaging Resources
Dual-energy CT and material selective imaging
Quantitative assessment of vascular plaque
CT perfusion imaging

Quantitative cardiac CT imaging
X-ray computed tomography: Technology development, radiation dosimetry, technical performance evaluation, protocol optimization and reconstruction algorithms
Quantitation of coronary artery calcium
Low-dose CT screening exams (chest and colon)

RESEARCH GRANTS AWARDED

Active Grants

Federal

Program Director / Principal Investigator	The Structural Basis of Kidney Stone Fragility. Funded by National Institute of Diabetes and Digestive and Kidney Diseases. (DK 59933)	09/2008 - 08/2012
Program Director / Principal Investigator	Project 1 - McCollough in: Mayo Clinic Urology O'Brien Research Center. Funded by National Institute of Diabetes and Digestive and Kidney Diseases. (P50 DK 83007)	09/2008 - 07/2013
Program Director / Principal Investigator	Core B - Imaging Core (McCollough) in: Mayo Clinic Urology O'Brien Research Center. Funded by National Institute of Diabetes and Digestive and Kidney Diseases. (P50 DK 83007)	09/2008 - 07/2013
Program Director / Principal Investigator	Quantitative Assessment of Dynamic Joint Instabilities Using 4D CT Imaging (McCollough Portion) in: Quantitative Assessment of Dynamic Joint Instabilities Using 4D CT Imaging. Funded by National Institute of Arthritis and Musculoskeletal and Skin Diseases. (R21 AR 57902)	08/2010 - 05/2013
Co-Investigator	Lung Tissue Research Consortium (LTRC): Radiology Center (CORE) in: Lung Tissue Research Consortium (LTRC): Radiology Center. Funded by National Heart, Lung, and Blood Institute. (HHSN268201100022C)	01/2011 - 01/2015

Foundation

Co-Investigator	Final budget for Thrasher in: Radiation Dose Reduction with Novel Denoising Techniques and Lower X-ray Tube Energies for Pediatric CT. Funded by Thrasher Research Fund. (THR-01)	12/2009 - 11/2012
Co-Investigator	Assessment of SLIL reconstruction techniques using dynamic CT imaging. Funded by American Society for Surgery of the Hand.	10/2011 - 09/2013

Industry

Program Director / Principal Investigator	CT CIC Research Personnel Budget for 2010 - 2012. Funded by Siemens Medical Solutions USA, Inc. (Addendum ID: MAYO-2010-CT_McCollough-36297)	01/2010 - 12/2012

Completed Grants

Federal

Program Director / Principal Investigator	Comprehensive, Robust Radiation Dose Estimates for Patients Undergoing CT Exams. Funded by National Institute of Biomedical Imaging and Bioengineering. (R01 EB 04898)	09/2005 - 06/2010
Program Director / Principal Investigator	Core A Non-Invasive Localization of Vulnerable Plaques in: Non-Invasive Localization of Vulnerable Plaques. Funded by National Institute of Biomedical Imaging and Bioengineering. (R01 EB 07986)	09/2007 - 08/2011
Co-Investigator	Epidemiology of Coronary Artery Calcification. Funded by National Heart, Lung, and Blood Institute. (R01 HL 46292)	04/1994 - 02/2007
Co-Investigator	Early Disease of Coronaries Evaluated with Fast X-ray CT. Funded by NIH.	01/1995 - 12/1997
Co-Investigator	CTC of the Unprepped Colon: Optimization and Validation. Funded by National Cancer Institute. (R01 CA 75333)	04/1998 - 08/2008
Co-Investigator	CT Colography: Optimization, Validation, Virtual Preparation. Funded by National Institutes of Health.	04/1998 - 03/2001

Co-Investigator	Epidemiology of Age-Related Bone Loss and Fractures. Funded by National Institute of Arthritis and Musculoskeletal and Skin Diseases. (R01 AR 27065)	06/2000 - 05/2005
Co-Investigator	Lung Tissue Research Consortium, LTRC - Phase IIA in: Lung Tissue Research Consortium, LTRC - Master Budget. Funded by National Heart, Lung, and Blood Institute. (HR 46158)	01/2004 - 12/2008
Co-Investigator	Core A:Lung Tissue Research Consortium, LTRC - Phase I in: Lung Tissue Research Consortium, LTRC - Master Budget. Funded by National Heart, Lung, and Blood Institute. (HR 46158)	01/2004 - 12/2008
Co-Investigator	Epidemiology of Age-Related Bone Loss and Fractures. Funded by National Institute of Arthritis and Musculoskeletal and Skin Diseases. (R01 AR 27065)	06/2005 - 05/2010
Co-Investigator	In Vivo Myocardial Microcirculatory Function. Funded by National Heart, Lung, and Blood Institute. (R01 HL 72255)	07/2009 - 09/2011

Foundation

Principal Investigator	Continuing Development Award. Funded by Society of Uroradiology.	03/2000 - 02/2001
Co-Investigator	ECG-gated Multidetector CT and Aortic Distensibility. Funded by Flight Attendants Medical Research Institute. (FAMRI)	07/2004 - 06/2008
Co-Investigator	Detection of Obscure GI Bleeding: Prospective Comparison of Timed Multiphase 64-channel CT Enterography and Wireless Capsule Endoscopy. Funded by The Society of Gastrointestinal Radiologists.	12/2005 - 11/2006

Industry

Program Director / Principal Investigator	Clinical Innovation Center Grant. Funded by Siemens.	08/2004 - 07/2009
Program Director / Principal Investigator	Clinical Innovation Center - Administrative Assistant. Funded by Siemens.	07/2005 - 06/2009
Program Director / Principal Investigator	MMV Agreement - Evaluate Performance of and Potential Applications for CT-SD16. Funded by RTI Electronics, AB.	08/2006 - 07/2009
Program Director / Principal Investigator	MMV Agreement - DSCT contrast protocol optimization. Funded by Schering Berlex.	08/2006 - 08/2009
Program Director / Principal Investigator	MMV Final -CT Clinical Innovation Center. Funded by Siemens Medical Solutions USA, Inc. (Mayo Agr. No. 2146)	01/2007 - 12/2009
Co-Investigator	Dosimetry and Image Quality Evaluation of a Dedicated Cone-beam CT System for Sinus and Temporal Bone Applications. Funded by Xoran.	12/2007 - 11/2008

Mayo Clinic

Program Director / Principal Investigator	A Methodology to Assess Dynamic Joint Instabilities Using 4-D CT Imaging. Funded by Novel Methodology.	05/2009 - 04/2010
Co-Investigator	CT Colography: Optimization, Validation, Virtual Preparation. Funded by Mayo Cancer Center.	10/1997 - 09/1999
Co-Investigator	Pilot Prospective Study to Assess Reliability of Dramatic Radiation Dose Reduction Using Projection and Image Space Denoising in CT Enterography. Funded by SGP - Small Grants Program <$10K.	03/2009 - 03/2010

PATENTS

Title	Patent number	Date filed	Date issued
System and method for creating mixed image from dual-energy CT data Inventors: [redacted]	US 7801265	11/24/2008	09/21/2010

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