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CURRICULUM VITAE

Eric Paulson PhD

Chief, Professor
Department of Radiation Oncology

OFFICE ADDRESS:

Froedtert Specialty Clinics
9200 W Wisconsin Ave
Milwaukee, WI 53226

EDUCATION:

1998 - 2002 BS - Biomedical Engineering (Honors), Milwaukee School of Engineering, Milwaukee, WI
2003 - 2008 PhD - Biophysics, Medical College of Wisconsin, Milwaukee, WI

POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS:

2008 - 2009 Postdoctoral Fellow, Radiation Oncology, Medical College of Wisconsin, Milwaukee, WI 53226
2009 - 2011 Medical Physics Resident, Radiation Oncology (CAMPEP Accredited), Medical College of Wisconsin, Milwaukee, WI 53226

FACULTY APPOINTMENTS:

07/01/2011 - 06/30/2012 Instructor, Radiation Oncology and Radiology, Medical College of Wisconsin, Milwaukee, WI 53226
07/01/2012 - 08/31/2014 Assistant Professor, Radiation Oncology and Radiology, Medical College of Wisconsin, Milwaukee, WI 53226
09/01/2014 - 06/30/2017 Assistant Professor, Radiation Oncology, Radiology, and Biophysics, Medical College of Wisconsin, Milwaukee, WI 53226
07/01/2017 - Present Associate Professor, Radiation Oncology, Radiology, and Biophysics, Medical College of Wisconsin, Milwaukee, WI 53226
07/01/2023 - Present Professor, Radiation Oncology, Radiology, and Biophysics, Medical College of Wisconsin, Milwaukee, WI 53226

HOSPITAL AND CLINICAL ADMINISTRATIVE APPOINTMENTS:

07/01/2023 - Present Chief of Physics, Radiation Onocology, Medical College of Wisconsin, Milwaukee, WI 53226

HOSPITAL STAFF PRIVILEGES:

07/2011 - Present Medical Physicist, Radiation Oncology, Froedtert Hospital, 9200 W Wisconsin Ave., Milwaukee, WI 53226
07/2011 - Present Medical Physicist, Radiation Oncology, Froedtert Menomonee Falls Hospital, W180N8085 Town Hall Road, Menomonee Falls, WI 53051
11/2011 - 06/2015 Medical Physicist, Radiation Oncology, St. Catherine's Medical Center, 9555 76th St., Kenosha, WI 53158
05/2012 - Present Medical Physicist, Radiation Oncology, Froedtert West Bend Hospital, 3200 Pleasant Valley Road, West Bend, WI 53095

SPECIALTY BOARDS AND CERTIFICATION:

Board Certified	Issue Date	Expiration
American Board of Radiology, Therapeutic Radiologic	2012	None

Physics

AWARDS AND HONORS:

2002 Graduating Senior Student Achievement Award, Milwaukee School of Engineering
2002 Rita Schaffer Award, Biomedical Engineering Society
2007 Best Paper Award in General Neuroradiology for "Correction of confounding leakage and residual susceptibility effects in DSC MRI using dual-echo SPIRAL." Authors: Paulson E, Prah D, Schmainda K. , American Society of Neuroradiology (ASNR) 45th Annual Meeting
2008 3rd Place Poster Award in Molecular Imaging for "In vitro mitochondrial labeling using Mito-CP enhanced MRI." Authors: Prah D, Paulson E, Zielonka J, Hardy M, Joy J, Kalyanaraman B, Schmainda K., International Society of Magnetic Resonance in Medicine (ISMRM) 16th Annual Meeting
2014 Best of Physics for "Influence of Arterial Input Function (AIF) Forms on DCE-MRI Parameters used for Treatment Response Evaluation in Soft Tissue Sarcoma." Authors: Paulson ES, Prah M, Bedi M. , American Society for Radiation Oncology (ASTRO) 56th Annual Meeting
2014 Best Abstract - MCW Research Day, Medical College of Wisconsin
2016 Young Investigator Award for "Multiplexed Simultaneous Orthogonal Plane Imaging for Intrafraction Motion Monitoring in MRI-guided Radiation Therapy." Authors: Mickevicius NJ, Paulson ES. , 4th MR in RT Symposium, Ann Arbor, Michigan
2017 Outstanding Graduate School Educator, Medical College of Wisconsin
2019 Best of Physics for "Improving DIR-based Segmentation using a PreProcessing and Multiple Inputs Strategy for MR-gRT." Authors: Zhang Y, Paulson E, Lim S, Ahunbay E, Mickevicius N, Hall W, Li X., American Society for Radiation Oncology (ASTRO) 61st Annual Meeting
2019 Best of Physics for "First Clinical Use of 4D-MRI for Online Adaptive MR-gRT on a High Field MR-Linac." Authors: Mickevicius NJ, Straza M, Hall WA, Paulson ES., American Society for Radiation Oncology (ASTRO) 61st Annual Meeting
2020 Outstanding Graduate School Educator, Medical College of Wisconsin
2020 Froedtert Hospital President's Clinical and Translational Research Award. Accepted by Schultz C, Erickson B, Li XA, Hall W, Paulson ES., Froedtert Hospital
2021 ASTRO Basic Translational Award in Science for "Automatically determining necessity of online ART for MR-gRT." Authors: Nasief H, Omari E, Zhang Y, Chen X, Parchur A, Paulson E, Li X., American Society for Radiation Oncology (ASTRO) 63rd Annual Meeting
2021 Best of Physics for "Treatment Response Prediction using eCVF Derived from DECT for Chemo-RT of Pancreatic Cancer." Authors: Noid G, Godfrey G, Paulson E, Shah J, Hall W, Erickson B, Li X., American Association of Physicists in Medicine (AAPM) 2021 Annual Meeting
2024 ASTRO Basic Translational Award in Physics for "Deep Learning-based Quick MLC Sequencing for MRI-Guided Online Adaptive Radiotherapy" Authors: Ahunbay A, Paulson E, Ahunbay E, Zhang Y., American Society for Radiation Oncology (ASTRO) 66th Annual Meeting

MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES:

2000 - 2002 Biomedical Engineering Society (Member)
2001 - 2002 Rehabilitation Engineering and Assistive Technology Society (Member)
2004 - Present International Society for Magnetic Resonance in Medicine (Member)
2006 - 2008 Institute of Electrical and Electronics Engineers (Member)
2008 - Present American Association of Physicists in Medicine (Member)
2011 - Present American Board of Radiology (Member)
2011 - 2012 American Association for Cancer Research (Member)
2011 - Present American Society for Radiation Oncology (Member)

EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:

Editorship

01/2022 - Present Frontiers in Radiology - Interventional Radiology, Special Research Topic: MRI-guided Radiation Therapy

Journal Review

07/2011 - Present Medical Physics
10/2015 - Present International Journal of Radiation Oncology, Biology, and Physics

11/2016 - Present Physics in Medicine and Biology
05/2018 - Present Radiotherapy and Oncology

INVITED LECTURES/WORKSHOPS/PRESENTATIONS:

International

Dedicated MRI Scanners in Radiation Oncology: Applications and Advanced Methods, Imaging Technology News Live Webinar, 10/24/2012
MRL Real-Time Requirements: Pancreas, MRI Working Group, Elekta MR-Linac Consortium, Helsinki, Finland, 04/14/2014
MR Sim at MCW, MRI Working Group, Elekta MR-Linac Consortium, Helsinki, Finland, 04/15/2014
QA for MRI in RT, MRI Working Group, Elekta MR-Linac Consortium, Helsinki, Finland, 10/29/2014
Perspectives on Beam On Imaging, MRI Working Group, Elekta MR-Linac Consortium, Helsinki, Finland, 10/30/2014
Brain Breakout Session: Unmet Needs for Using MR in RT, 3rd MRI in RT Symposium, Lund, Sweden, 06/16/2015
QA for MRI in RT, 3rd MRI in RT Symposium, Lund, Sweden, 06/16/2015
4D-MRI for Simulation, Inauguration of Bas Raaymakers, Utrecht, The Netherlands, 09/15/2015
MRI in RT at MCW, Siemens Healthcare, Erlangen, Germany, 04/18/2016
MR Simulation: Optimization and Emerging Tools, Sunnybrook Health Sciences Center, Toronto, Canada, 06/07/2016
4D-MRI for Treatment Preparation, 4th MR in RT Symposium, Ann Arbor, Michigan, United States, 06/18/2016
Toward Adaptive MR Planning and Imaging, Elekta User's Meeting - ASTRO, Boston, MA, United States, 09/24/2016
MRI for RO Physicists: What is What? QA Geometric Distortions, ESTRO 36th Annual Meeting, Vienna, Austria, 05/06/2017
Motion Management and 4D-MRI, 5th MR in RT Symposium, Sydney, Australia, 06/20/2017
Integrating High-Precision Radiotherapy with High-Field MR, Elekta Users's Meeting, Sydney, Australia, 06/22/2017
Clinical/Technical Implementation: Pancreas, Elekta MR-Linac Consortium Meeting, Copenhagen, Denmark, 04/02/2019
Clinical/Technical Implementation: Liver, Elekta MR-Linac Consortium Meeting, Copenhagen, Denmark, 04/02/2019
MR-Linac: Unique Workflows/Modifications, Elekta MR-Linac Consortium Meeting, Amsterdam, The Netherlands, 10/30/2019
MR-guided RT: The MCW Experience, UMC Utrecht, Utrecht, The Netherlands, 06/12/2023

National

MRI Program in Radiation Oncology at the Medical College of Wisconsin, 2012 MRI in Radiation Therapy Workshop, Boston, MA, 11/01/2012
MRI-Guided Therapy Planning (I): External Beam Radiation Treatment Planning, Symposium at AAPM 55th Annual Meeting, Indianapolis, IN, 08/08/2013
MR Simulation for MRL, MRI Working Group, Elekta MR-Linac Consortium, Houston, Texas, 10/31/2013
QA for MRI in RT, 2nd MRI in RT Symposium, St. Louis, MO, 05/23/2014
QA for MRI in RT, ASTRO 56th Annual Meeting, San Francisco, California, 09/17/2014
MR in RT: Optimization, QA, and Emerging Tools, Memorial Sloan Kettering Cancer Center, 07/22/2015
Clinical Workflow Efficiency and Standardization using MIM, MIM User Meeting, San Antonio, Tx, United States, 10/19/2015
MRI use in Treatment Planning, ASTRO 2015 Annual Meeting, San Antonio, Tx, United States, 10/20/2015
MRI for Anatomical Delineation, RSNA 2015 Annual Meeting, Chicago, IL, United States, 11/30/2015
MR Simulation: Pancreas, Elekta/Philips MRI-Linac Consortium Meeting, Houston, Tx, United States, 12/05/2015
MRI-guided RT and the MR-Linac, AAPM Southern California Chapter Midwinter Workshop, Los Angeles, Ca, 01/29/2016
Advancements in MR-Guided Radiation Therapy and Planning, Elekta User's Meeting - AAPM, Washington, DC, United States, 08/01/2016
MRI for Anatomical Delineation, RSNA Annual Meeting, Chicago, Illinois, 12/01/2016

Optimization of Radiotherapy for MRI, AAPM Annual Meeting, Denver, Colorado, 08/01/2017
Optimization of RT-Specific MR Imaging Protocols, ASTRO 59th Meeting, San Diego, California, 09/26/2017
MRI for Anatomical Delineation, RSNA Annual Meeting, Chicago, Illinois, 11/28/2017
Towards Theragnostic Radiotherapy, AAPM 2018 Meeting, Nashville, Tennessee, 07/31/2018
Optimization of RT-Specific MR Imaging Protocols, ASTRO 60th Annual Meeting, San Antonio, Texas, 10/24/2018
The MR-Linac: Moving MR-guided Radiation into Clinical Practice, Johns Hopkins Hospital, Baltimore, Maryland, 08/05/2019
Implementing an MR-guided Radiotherapy Program: The MCW Experience, Society of Radiation Oncology Administrators, Chicago, Illinois, 09/17/2019
MRgRT Workflows: Elekta, AAPM Summer School - Modern Applications of MRI in Radiation Therapy, Virtual, 06/27/2021
Motion Assessment: 4D-MRI, Cine MRI, AAPM Summer School - Modern Applications of MRI in Radiation Therapy, Virtual, 06/28/2021
MR-guided RT: The MCW Experience, Stanford Medical Physics Seminar Series, Stanford University, Stanford, California, 05/2023
MR-guided Radiation Therapy: The MCW Experience, Center for Advanced Imaging and Precision Radiotherapy Research Seminar Series. NYU Lagone Health, 03/29/2024

Regional

MRI in RT: Optimization, QA, and Emerging Tools, Mayo Clinic, Rochester, MN, 01/29/2015
MRI in RT: From Simulation to Treatment, University of Chicago, Chicago, IL, 05/24/2016
Initial Performance Test Results on an Elekta MR-Linac, North Central Chapter AAPM Spring Meeting, Wisconsin Dells, WI, 04/07/2017
MR-guided RT: A direct hit, 2017 RTOW Fall Regional Meeting, Milwaukee, WI, 11/04/2017
MR-Guided Radiation Therapy: The MCW Experience, UT Southwestern, Dallas, Tx, 07/08/2022

Local

Perfusion MRI of Brain Tumors, Department of Biophysics Seminar Series, Medical College of Wisconsin, Milwaukee, Wisconsin, 02/09/2007
Strategies for Acquiring High Fidelity, Low Distortion MR Images for Radiation Treatment Planning., Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 09/22/2010
Establishment of the MRI Program in Radiation Oncology, MCW Cancer Center Cancer Imaging Retreat, Milwaukee, WI, 03/15/2013
Methodology and Tools for MRI Simulation, Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 05/08/2013
MRI in Radiation Oncology: Applications and Advanced Methods, MCW Cancer Center Cancer Cell Biology Research Forum, Milwaukee, WI, 05/16/2013
MRI-Guided RT, MCW 2014 Tumor Progression and Metastasis Retreat, Wauwatosa, WI, 06/27/2014
MRI in RT, Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 11/12/2015
Towards MR-Only, Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 04/27/2016
Updates on MR-Only, 4D-MRI, and MR-Linac, Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, WI, 05/31/2017
MR-guided Radiotherapy, Department of Information Services Team Meeting, Medical College of Wisconsin, Milwaukee, Wisconsin, 02/26/2018
Towards Theragnostic Radiotherapy, Department of Radiology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 05/21/2018
MR Safety in Radiation Oncology, Department of Radiation Oncology, Medical College of Wisconsin, Milwaukee, Wisconsin, 12/19/2018
4D and Quantitative MRI for MR-Linac, Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 03/20/2019
ATP Plan Approval and New Disease Sites for MR-Linac, Department of Radiation Oncology Grand Rounds, Medical College of Wisconsin, Milwaukee, Wisconsin, 09/08/2021

PEER REVIEWED WORKSHOPS/PRESENTATIONS:

International

Correction of Contrast Agent Extravasation Effects in DSC-MRI using Dual-Echo SPIRAL Provides Better Reference for Evaluating PASL CBF Estimates in Brain Tumors, Intl Soc. Mag. Reson. Med. 15., Berlin, Germany, 05/22/2007

rCBV Estimates in Tumor and Normal Brain Depend on Acquisition and Analysis Methods, Intl Soc. Mag. Reson. Med. 15., Berlin, Germany, 05/22/2007

Feasibility of Self-Navigated Phase-Resolved 4D-MRI using Golden Angle Radial, 3rd MRI in RT Symposium, Lund, Sweden, 06/16/2015 - 06/16/2915

Advantages of Radial CAIPI for Real-Time Motion Management in MRI-gRT, 3rd MRI in RT Symposium, Lund, Sweden, 06/16/2015

The Reversed Simulation Workflow for Hybrid CT Validation in Brain, 5th MR in RT Symposium, Sydney, Australia, 06/20/2017

Simultaneous Orthogonal Plane Imaging with bSSFP Contrast using k-t GRAPPA, 5th MR in RT Symposium, Sydney, Australia, 06/21/2017

Initial Clinical Experience using 4D-MRI Driven Online Adaptive SBRT on a High-Field MR-Linac, 7th MR in RT Symposium, Toronto, Canada, 06/23/2019

National

Dependency of Tumor and Normal Brain Relative Cerebral Blood Volume on Choice of DSC MR Imaging Data Acquisition and Analysis Methods, ASNR 45th An. Meeting, Chicago, IL, 06/11/2007

Correction of Confounding Leakage and Residual Susceptibility Effects in Dynamic Susceptibility Contrast MR Imaging using Dual-Echo Spiral, ASNR 45th An. Meeting, Chicago, IL, 06/11/2007

"Step and Shoot MRI:" A simple acquisition method for reducing gradient nonlinearity-induced geometric distortions, AAPM 53th An Meeting, Vancouver, BC, 08/01/2011

High fidelity, low distortion tetrahedral diffusion-weighted MR imaging for radiation treatment planning, AAPM 54th An Meeting, Charlotte, NC, 07/31/2012

Feasibility of MR Relaxometry-Guided Synthetic CT Image Formation for MRI-based Radiation Treatment Planning, AAPM 55th An. Meeting, Indianapolis, IN, 08/08/2013

Feasibility of 4D-MRI using Time-Locked Temporal Reshuffling of k-Space, 2nd MRI in RT Symposium, St. Louis, MO, 05/22/2014

Evaluation of Common Material Magnetic Susceptibility Effects for Immobilization Devices used in MR-Guided Therapies, AAPM 56th Annual Meeting, Austin, Texas, 07/20/2014

Characterization of Cross-Vendor, Cross-Field Strength MR Image Intensity Variations, AAPM 56th Annual Meeting, Austin, Texas, 07/23/2014

Image Intensity Non-Uniformities between MRI Simulation and Diagnostic MRI, AAPM 56th Annual Meeting, Austin, Texas, 07/24/2014

Influence of Arterial Input Function on DCE-MRI Parameters used for Treatment Response Assessment in Soft Tissue Sarcoma, ASTRO 56th Annual Meeting, San Francisco, CA, 09/15/2014

Automated MR Image Standardization Strategy for MRI-gRT, ASTRO 2015 Annual Meeting, San Antonio, Tx, United States, 10/18/2015

Dosimetric Feasibility of Dose Painting using ADC Map in MR-based Radiation Therapy for Pancreatic Cancer, ASTRO 2015 Annual Meeting, San Antonio, Tx, United States, 10/22/2015

Methodology for True Dynamic Contrast Enhanced MRI of Pancreatic Lesions, RSNA 2015 Annual Meeting, Chicago, IL, United States, 12/02/2015

Initial Performance Test Results on an Elekta MR-Linac, AAPM Annual Meeting, Denver, Colorado, 08/01/2017

Self-Navigated, Respiratory-Correlated 4D-MRI with Switchable Contrast Modes, AAPM Annual Meeting, Denver, Colorado, 08/03/2017

Initial Performance Results of a Commercial MR-Only Workflow for Pelvis, AAPM 2018 Meeting, Nashville, Tennessee, 07/29/2018

Local

Development and Application of Perfusion and Susceptibility-Weighted MRI Methods for the Assessment of Gliomas, Thesis Proposal, Department of Biophysics, Medical College of Wisconsin, Milwaukee,

Wisconsin, 02/08/2007

Development and Application of Perfusion MRI Methods for the Assessment of Gliomas, Thesis Defense, Department of Biophysics, Medical College of Wisconsin, Milwaukee, Wisconsin, 06/09/2008

COMMITTEE SERVICE:

Medical College of Wisconsin

2005 - 2006 Member, Clubs Committee, Graduate Student Association, Medical College of Wisconsin
2005 - 2006 Biophysics Representative, Graduate Student Association, Medical College of Wisconsin
2009 - 2011 Member, Physics Residency Education Committee, Department of Radiation Oncology, Medical College of Wisconsin
10/2011 - 12/2012 Member, 7T Internal Advisory Committee, Department of Biophysics, Medical College of Wisconsin
08/2013 - 07/2019 Member, Mentorship Committee, Department of Radiation Oncology, Medical College of Wisconsin
05/2019 - Present Member, Services and Technology Implementation and Review Committee (STIRC), Department of Radiation Oncology, Medical College of Wisconsin
08/2021 - 03/2022 Member, Biophysics Chair Search Committee, Department of Biophysics, Medical College of Wisconsin, Milwaukee, Wisconsin
07/2022 - 11/2022 Member, Radiation Oncology Research Vision Group, Department of Radiation Oncology, Medical College of Wisconsin
08/2022 - Present Member, Operations Committee, Department of Radiation Oncology, Medical College of Wisconsin
12/2022 - Present Member, ROCKET Leadership Committee, Department of Radiation Oncology, Medical College of Wisconsin
2024 - Present Department Representative, Radiation Oncology Chair Search Committee, Department of Radiation Oncology, Medical College of Wisconsin

MCW TEACHING ACTIVITIES:

Medical Student Education

01/2014 - 03/2019 Instructor, M4 Integrative Selective: "Introduction to Medical Imaging"
01/2014 - 03/2017 Co-Director, M4 Integrative Selective: "Introduction to Medical Imaging"

Graduate Student Education

01/2016 - 05/2016 Moderator, Biophysics 03-298B-B: "MRI Journal Club"
09/2016 - 12/2018 Instructor, Biophysics: "MRI Contrast Agents"
09/2019 - 12/2019 Moderator, Biophysics 03-298B-B: "MRI Journal Club"
09/2021 - 12/2021 Instructor, Biophysics 03-230: "Nuclear Magnetic Resonance"
01/2022 - 05/2022 Instructor, Biophysics 03-239: "fMRI Contrast Mechanisms"
08/01/2023 - 12/31/2023 Instructor, Biophysics 03-230: "Nuclear Magnetic Resonance"

Resident and Fellow Education

09/2012 - Present Instructor, Radiation Oncology: "Radiation Physics"
11/2014 - 11/2018 Instructor, Radiation Oncology: "Radiobiology"
2017 - Present Director: Radiation Oncology MRI Safety Course

EXTRAMURAL TEACHING:

Graduate Student Education

11/2016 - 11/2019 Joint Medical College of Wisconsin/Marquette University, Instructor, Heathcare Technology Management 6100: "Survey of Biomedical Engineering Technology"

PROGRAMMATIC DEVELOPMENTS:

Research Programs

2013 - Present MR-Linac Program in Radiation Oncology

Clinical Programs

2008 - Present MRI Program in Radiation Oncology

INTERNATIONAL WORKING GROUPS/COMMITTEES:

07/01/2013 - 06/30/2014 Scientific Review Committee, 2nd MRI in RT Symposium
10/2013 - Present MRI Working Group, Elekta MR-Linac Consortium
07/01/2014 - 06/30/2015 Scientific Review Committee, 3rd MRI in RT Symposium
07/01/2015 - 06/20/2016 Scientific Review Committee, 4th MRI in RT Symposium
09/01/2016 - 06/23/2017 Scientific Review Committee, 5th MRI in RT Symposium
09/01/2017 - 07/05/2018 Scientific Review Committee, 6th MR in RT Symposium
2019 - Present Brainstorm Group on MRI Biomarkers for Treatment Response, Elekta MR-Linac Consortium
2021 - Present DWI in Moving Targets Subgroup, Elekta MR-Linac Consortium
06/22/2022 - Present Scientific Review Committee, 9th MR in RT Symposium
2022 - Present MRI Relaxometry Subgroup, Elekta MR-Linac Consortium
2022 - Present Joint American Association of Physicists in Medicine (AAPM) / European Federation of Organisations for Medical Physics (EFOMP) Task Group 391: Recommendations for the Safe Clinical use of Respiratory-Correlated Four-Dimensional Magnetic Resonance Imaging in Radiotherapy (Co-Chair)
2022 - Present ISMRM MR in Radiation Oncology Study Group

NATIONAL WORKING GROUPS/COMMITTEES:

2015 - 2021 American Association of Physicists in Medicine (AAPM) Task Group 284: MRI Simulation in Radiotherapy: Considerations for Clinical Implementation, Optimization, and Quality Assurance (Co-Chair)
2015 - 2020 American Association of Physicists in Medicine (AAPM) Task Group 294: MR Biomarkers in Radiation Oncology (Member)
2016 - 2022 American Association of Physicists in Medicine (AAPM) Task Group 303: MRI Guidance in HDR Brachytherapy: Considerations from Simulation to Treatment (Member)
08/2017 - Present NCI Quantitative Imaging for Radiation Therapy (QIRT) Working Group

PATENTS:

2007 Paulson ES, Prah DE, Schmainda KM. Multiparameter Perfusion Imaging with Leakage Correction (PCT/US2008/064597)
2007 Prah DE, Paulson ES, Schmainda KM. Method for Detecting Tumor Cell Invasion using Short Diffusion Times (PCT/US2010/0298692 A1)
2012 Nencka AS, Jesmanowicz A, Hyde JS, Paulson ES, Muftuler TL, Shefchik D. System and Method for Fabricating Electromagnetic Field Enhancing Objects for Magnetic Resonance Imaging. (PCT/US2015/031697)
2013 Li XA, Paulson ES, Ahunbay EE, Yang CG, Hart V. System and method for producing synthetic images (PCT/US2014/072645)
2013 Li XA, Paulson ES, Ahunbay EE, Hart V, Yang CG. Systems and methods for adaptive replanning based on multi-modality imaging (PCT/US2014/072645)
2015 Mickevicius NJ, Paulson ES. Systems and Methods for Motion Management in Magnetic Resonance Imaging Guided Therapies (PCT/US2017/025703).
2016 Paulson ES, Prah DE. Condensed Visualization Media for Risk-Adaptive Therapies (provisional application filed 11/2016)
2019 Paulson ES, Mickevicius NJ. Augmented Reality Driven Guidance for Interventional Procedures (PCT/US2022/036869)
2023 Hall WM, Paulson ES, Monitoring Organ Morphology for Radiation Treatment Delivery using Ultrasound (provisional application filed 2/2023)
2024 Paulson ES, Tai A. System Enabling Patient Self-Positioning and Respiratory Biofeedback for Radiation Therapy (provision application filed 3/2025)

SOFTWARE COPYRIGHTS:

2008 Arterial Spin Labeling Analysis (ASLA). (MCW 1529, 2008).
2008 Susceptibility-based Perfusion Imaging Analysis (SPIA). (MCW 1530, 2008).
Remedy (A generalized reconstruction engine for MRI). (MCW, pending).

BIBLIOGRAPHY

Refereed Journal Publications/Original Papers

1. **Paulson ES**, Schmainda KM. Comparison of Dynamic Susceptibility-weighted Contrast-enhanced MR Methods: Recommendations for Measuring Relative Cerebral Blood Volume in Brain Tumors. Radiology. 249:601-613 (2008).
2. Prah DE, **Paulson ES**, Nencka AS, Schmainda KM. Phase-Corrected Real Data Reconstruction: Effects on Diffusion Weighted Imaging Parameter Estimation. Mag. Reson. Med. 64:418-429 (2010).
3. Smith JC, **Paulson ES**, Verber M, Tian Q, Cook DB. Detecting Changes in Human Cerebral Blood Flow After Acute Exercise using Arterial Spin Labeling: Implications for fMRI. J. Neurosci Methods. 191:258-262 (2010).
4. **Paulson ES**, Bradley JA, Wang D, Ahunbay EE, Schultz C, Li XA. Internal Margin Assessment using Cine MRI Analysis of Deglutition in Head and Neck Cancer Radiotherapy. Med Phys. 38:1740-1747 (2011).
5. Bradley JA, **Paulson ES**, Ahunbay EE, Schultz C, Li XA, Wang D. Dynamic MRI Analysis of Tumor and Organ Motion during Rest and Deglutition and Margin Assessment for Radiotherapy of Head and Neck Cancer. Int J Radiat Biol Phys. 81:e803-e812 (2011).
6. Boxerman JL, Prah DE, **Paulson ES**, Machan JT, Bedekar D, Schmainda KM. The role of preload and leakage correction in gadolinium-based cerebral blood volume estimation determined by comparison with MION as a criterion standard. Am J Neuroradiol 2012; 33:1081-1087
7. Boxerman JL, **Paulson ES**, Prah MA, Schmainda KM. The effect of pulse sequence parameters and contrast agent dose on percentage signal recovery in DSC-MRI: implications for clinical applications. AJNR Am J Neuroradiol. 2013 Jul;34(7):1364-9. PMCID: PMC4316677
8. LaViolette PS, Daun MK, **Paulson ES**, Schmainda KM. Effect of contrast leakage on the detection of abnormal brain tumor vasculature in high-grade glioma. J Neurooncol. 2014 Feb;116(3):543-549. PMCID: PMC4316680
9. Kharofa J, Morrow N, Kelly T, Rownd J, **Paulson E**, Rader J, Uyar D, Bradley W, Erickson B. 3-T MRI-based adaptive brachytherapy for cervix cancer: treatment technique and initial clinical outcomes. Brachytherapy. 2014;13(4):319-25.
10. Dalah E, Moraru I, **Paulson E**, Erickson B, Li XA. Variability of target and normal structure delineation using multimodality imaging for radiation therapy of pancreatic cancer. Int J Radiat Oncol Biol Phys. 2014 Jul 01;89(3):633-40.
11. Bedi M, King D, **Paulson ES**. Advanced magnetic resonance imaging in soft tissue sarcomas. Int J Clin Med Imag 2014; 1:218
12. **Paulson ES**, Erickson B, Schultz C, Allen Li X. Comprehensive MRI simulation methodology using a dedicated MRI scanner in radiation oncology for external beam radiation treatment planning. Med Phys. 2015 Jan;42(1):28-39.
13. Elson A, Bovi J, Siker M, Schultz C, **Paulson E**. Evaluation of absolute and normalized apparent diffusion coefficient (ADC) values within the post-operative T2/FLAIR volume as adverse prognostic indicators in glioblastoma. J Neurooncol. 2015 May;122(3):549-58.
14. Li R, Liu X, Sidabras JW, **Paulson ES**, Jesmanowicz A, Nencka AS, Hudetz AG, Hyde JS. Restoring susceptibility induced MRI signal loss in rat brain at 9.4 T: A step towards whole brain functional connectivity imaging. PLoS One. 2015;10(4):e0119450. PMCID: PMC4386820
15. Elson A, Laviolette PS, Bovi J, Siker M, Schultz C, **Paulson E**. Evaluation of pre-radiotherapy apparent diffusion coefficient (ADC): patterns of recurrence and survival outcomes analysis in patients treated for glioblastoma multiforme. J Neurooncol. 2015 May;123(1):179-88
16. Prah MA, Stufflebeam SM, **Paulson ES**, Kalpathy-Cramer J, Gerstner ER, Batchelor TT, Barboriak DP, Rosen BR, Schmainda KM. Repeatability of Standardized and Normalized Relative CBV in Patients with Newly Diagnosed Glioblastoma. AJNR Am J Neuroradiol. 2015 Sep;36(9):1654-61. PMCID: PMC4567906
17. Prior P, Chen X, Botros M, **Paulson ES**, Lawton C, Erickson B, Li XA. MRI-based IMRT planning for MR-

linac: comparison between CT- and MRI-based plans for pancreatic and prostate cancers. Phys Med Biol. 2016 May 21;61(10):3819-42.
18. **Paulson ES**, Crijns SP, Keller BM, Wang J, Schmidt MA, Coutts G, van der Heide UA. Consensus opinion on MRI simulation for external beam radiation treatment planning. Radiother Oncol. 2016 Nov;121(2):187-192.
19. Mickevicius NJ, **Paulson ES**. Simultaneous orthogonal plane imaging. Magn Reson Med. 2017 Nov;78(5):1700-1710.
20. **Paulson ES**, Prah DE, Schmainda KM. Spiral Perfusion Imaging With Consecutive Echoes (SPICE™) for the Simultaneous Mapping of DSC- and DCE-MRI Parameters in Brain Tumor Patients: Theory and Initial Feasibility. Tomography. 2016 Dec;2(4):295-307. PMCID: PMC5226659
21. Heerkens HD, Hall WA, Li XA, Knechtges P, Dalah E, **Paulson ES**, van den Berg CAT, Meijer GJ, Koay EJ, Crane CH, Aitken K, van Vulpen M, Erickson BA. Recommendations for MRI-based contouring of gross tumor volume and organs at risk for radiation therapy of pancreatic cancer. Pract Radiat Oncol. 2017;7(2):126-136.
22. Mickevicius NJ, **Paulson ES**. Investigation of undersampling and reconstruction algorithm dependence on respiratory correlated 4D-MRI for online MR-guided radiation therapy. Phys Med Biol. 2017 Apr 21;62(8):2910-2921.
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