
Education

- ABR Certified Passed Part III, 6/2017
- June 2015 **Imaging Physics Residency**, Henry Ford Health System, Detroit.
Director: Dr. Donald Peck
- December 2013 **Ph.D., Biomedical Engineering**, University of California, Davis.
"Computed tomography dose and image quality characterization using real-time dosimeter measurements"
Advisor: Dr. John M. Boone
- May 2004 **B.S. & B.A., Physics & Studio Art**, University of Maryland, College Park.

Professional Experience

- May 2019 **Medical Physicist**, Stanford University, Stanford, CA.
Present Lead physicist for the Lucile Packard Children's Hospital. Researches, develops and implements quality assurance programs with students and collaborators. Manages regulatory compliance and accreditation programs for imaging equipment that employs ionizing radiation. Serves as medical physics, radiation safety, and image quality educator.
- August 2017 **Medical Physicist**, University of California Davis Health, Sacramento, CA.
- April 2019 Associate Professor VCF of Radiology. Supervised two individuals (1) a medical physics assistant and (2) a health physics technician. Supported the UCD medical imaging physics program. Managed regulatory compliance and accreditation programs for imaging equipment that employed ionizing radiation. Served as physics, radiation safety, and image quality educator.
- July 2015 **Medical Physicist & Radiation Safety Officer**, Children's National Medical Center,
August 2017 Washington, D.C.
Assistant Professor of Radiology & Pediatrics, affiliated with George Washington University School of Medicine and Health Sciences. Developed and directed the enterprise-wide medical physics and radiation safety programs. Researched, developed and implemented quality assurance programs with students and collaborators. Managed all aspects of imaging-related regulatory compliance and accreditation programs. Served as medical physics, radiation safety, and image quality educator.
- July 2013 **Resident**, Henry Ford Health System, Detroit, MI.
- June 2015 Participated in a CAMPEP-accredited imaging physics residency. Rotations included clinical, teaching, research, and administrative responsibilities. The rotations encompassed general x-ray, fluoroscopy, CT, radiation safety, nuclear imaging, MRI, ultrasound, and informatics. Conducted acceptance, annual, and ACR accreditation tests on 100+ imaging systems.
- September 2007 **Graduate Researcher**, Department of Radiology, University of California, Davis, CA.
June 2013 Research focus was on clinical CT dosimetry and image quality. Additional responsibilities included regular operation of a dedicated breast CT scanner (1x/month) for an on-going clinical trial; this involved consenting the patients and interfacing with clinicians, mammography technologists, and research coordinators.
- August 2012 **Intern**, General Electric Global Research Center (GRC), Niskayuna, NY.
- October 2012 Evaluated the accuracy of CatSim, a Monte Carlo simulator of dose deposition, within air and cylindrical phantoms with the CT Applications and Systems Lab. Worked under the mentorship of Mr. Paul Fitzgerald and management of Dr. Bruno De Man.

- September 2005 **Physicist**, National Institute of Standards and Technology (NIST), Gaithersburg, MD.
 July 2007 Worked with sample environment preparation and the development of He-3 spin filters to polarize neutron beams at the NIST Center for Neutron Research (NCNR), under the management of Dr. Daniel Dender and Dr. Jeffrey W. Lynn.

Community Service

Committees

- November 2016 **Vice-Chair**, Pediatric Imaging Sub-Committee, chaired by Dr. Samuel Brady.
 Present A group of medical physicists dedicated to excellence in pediatric imaging.
- November 2016 **Steering Committee Member**, Image Gently Alliance, chaired by Dr. Donald Frush.
 Present A coalition of health care organizations providing safe, high quality pediatric imaging worldwide by changing practice. Steering committee member prioritizes initiatives and directs operations.
- June 2017 **Committee Member**, Technical Electronic Product Radiation Safety Standards Committee (TEPRSSC), chaired by Dr. Donald Miller.
 Present An advisory committee for the U.S. Food & Drug Administration (FDA) regarding performance standards for electronic products which emit radiation.
- October 2015 **Working Group Member**, AAPM Alliance for Quality Computed Tomography Working Group, chaired by Drs. Dianna Cody and Cynthia McCollough.
 Present Develops CT protocols for frequent CT exams; educational resources; and manufacturer recommendations.
- January 2019 **Subcommittee Member**, AAPM Diagnostic Workforce Subcommittee (DWWSS), chaired by Dr. Dustin Gress.
 Present Measures the work associated with Imaging Physics clinical & non-clinical services.
- April 2019 **Vice-Chair**, Ad Hoc Committee on Education and Implementation Efforts for Discontinuing the Use of Patient Gonadal and Fetal Shielding (AHPGFS), chaired by Dr. Rebecca Marsh.
 Present Developing and coordinating materials, messaging and strategies regarding the discontinuation of gonadal and fetal shielding.
- April 2019 **Committee Member**, NCRP Statement on Gonadal Shielding, chaired by Dr. Donald Frush.
 Present
- September 2019 **CT Submission Reviewer (Physics) for the American College of Radiology (ACR)**.
 Present
- January 2020 **Chapter Representative for Northern California Chapter of the AAPM**, Board of Directors, chaired by Dr. Bruce Thomadsen.
 Present
- February 2020 **Committee Member**, ACR Committee on Clinical Practice Assessment, chaired by Dr. Dave Jordan.
 Present
- May 2020 **Committee Member**, ABR CMP Medical Physics Committee for the Part 2 Medical Physics Diagnostic Exam, chaired by Dr. Thomas Oshiro.
 Present

AAPM Task Group Member

- Nov 2016-Present TG 251 *Survey of Pediatric Fluoroscopic Exposure Rates*
- May 2015-August 2017 TG 270 *Display QA*
- Oct 2011-Present TG 200 *CT Dosimetry Phantoms and the implementation of AAPM Report Number 111*

One-time events

October, 2016 **AAPM Representative**, FDA TEPRSSC Meeting.
Provided AAPM statement for public comment regarding the FDA adoption of IEC standards.

September, 2014 **Radcal Consultant**, Flint, MI.
Physics support for CT characterization with Radcal diagnostic x-ray measurement systems.

Associate Editor

January 2019-Present *Member, Medical Physics Board of Associate Editors*

June 2015-Present *Medical Physics*

Reviewer

June 2010-Present *Medical Physics*

Feb 2015-Present *Journal of Applied Clinical Medical Physics (JACMP)*

Mar 2015-Present *SPIE Journal of Medical Imaging (JMI)*

May 2015-Present *Physica Medica: European Journal of Medical Physics*

Oct 2015-Present *Nature Scientific Reports*

Feb 2016-Present *Radiation Protection Dosimetry*

Sep 2019-Present *American College of Radiology, CT Physics Accreditation Program*

Memberships

2008-Present American Association of Physicists in Medicine, AAPM

2015-Present Health Physics Society, HPS

2015-Present American Pediatric Society (APS) and Society for Pediatric Research (SPR)

2015-Present Society for Imaging Informatics in Medicine, SIIM

2017-Present San Francisco Bay Area Chapter of the AAPM

2013-Present American College of Radiology, ACR

2015-2017 Mid-Atlantic Chapter of the AAPM

2013-2015 Great Lakes Chapter of Health Physics Society, HPS

2014-2015 Great Lakes Chapter (GLC) of the AAPM

Clinical Research

August 2016 **Principal Investigator of IRB-approved studies**, Children's National Health System,
August 2017 Washington, DC.

Estimating patient thickness for x-ray imaging

April 2008 **Participant of IRB-approved studies**, University of California, Davis.

June 2013

- Computed Tomography versus Standard 2-D Mammography versus 3-D Tomosynthesis

- Evaluation of Breast CT

- Development of Medical Image Processing and Analysis Techniques

Teaching & Mentoring Experience

December 2017 **Grant Advisor**, Children's National Health System.

Present Advising Dr. Awais Mansoor, who has submitted an R21 grant proposal to develop a post-reconstruction CT image processing technique to reduce radiation dose while preserving image quality.

- August 2016 **Medical Post-Medical Doctorate Mentor**, Children's National Health System.
- August 2017 Mentoring Dr. Razan Noorelahi, who is conducting a research year at Children's National before commencing a residency. Student acts as research coordinator and data collector for an IRB study of a patient thickness measurement device.
- August 2016 **Master's Student Mentor**, Children's National Health System.
- September 2016 Mentored Sarah Bawazir, of Khalifa University, Saudi Arabia. Student collected patient data for an IRB study of a patient thickness measurement device.
- July 2016 **Undergraduate Student Mentor**, Children's National Health System.
- September 2016 Mentored Jane Rouse, of University of Maryland, College Park. Student designed and built a RedCAP database and performed preliminary tests of a patient thickness measurement device.
- September 2017 **Lecturer**, University of California, Davis Health.
Present UCDH Radiation Safety Education; 8 lectures given to 80 members of hospital staff and faculty.
- July 2015 **Lecturer**, Children's National Health System.
- August 2017 CNHS Radiation Safety Education; 17 lectures given to 153 members of hospital staff and faculty.
- July 2013 **Lecturer**, Henry Ford Health System.
- June 2015 Led several classes reviewing topics in medical physics for radiology residents and student technologists.

Proposal & Grants

NIBIBT32EB003827-4 Ferrara (PI) 10/01/2007-9/30/2008 NIH/NBIB
 NIH Molecular Imaging Training Grant at University of California, Davis
 Amount Awarded: \$40,000
 Role: Trainee

Awards

- May 2017 **Caffey Award - Best Clinical Research Paper**, M. Ridore, W. Pastor, D. Bulas, S. McKenney, L. Soghier, and B. L. Short. "CXR reduction protocol in the Neonatal Intensive Care Unit (NICU) - Lessons Learned," Society of Pediatric Radiology (SPR) Annual Meeting (Denver), 2017

Patents

US 20130016808 A1, "Apparatus and methods for determination of the half value layer of x-ray beams"

Publications:

K. J. Strauss, **S.E. McKenney**, and S. L. Brady. "Improved Estimates of Trunk and Head CT Radiation Dose: Development of Size-Specific Dose Estimate." *Journal of the American College of Radiology* 17, no. 4 (April 1, 2020): 560–62.

Y. Lyu, X. Lv, W. Liu, M. S. Judenhofer, A. Zwingenberger, E. R. Wisner, E. Berg, **S. E. McKenney**, E. K. Leung, B. A. Spencer, S. R. Cherry, R. D. Badawi, "Mini EXPLORER II: a Prototype High-Sensitivity PET/CT Scanner for Companion Animal Whole Body and Human Brain Scanning," *Physics in Medicine and Biology*, vol. 64, no. 7 (2019).*

S.E. McKenney, M. P. Supanich. "'Leaping' Toward the Bottom." *The Journal of the American College of Radiology*. vol. 16, no. 8, 1119-20 (2019).

S.E. McKenney, E. Gingold, and H. Zaidi. "Gonadal Shielding Should Be Discontinued for Most Diagnostic Imaging Exams." *Medical Physics*, vol. 46, no. 3, 1111–14 (2019). [*Top 10% most downloaded paper in 2019*]

S. E. McKenney, C. T. Dodge, "Pediatric CT Protocols From the American Association of Physicists in Medicine Alliance for Quality CT," *The Journal of the American College of Radiology*, vol.15, no.10, 1148-1449 (2018).

S. E. McKenney, H. J. Otero, and S. T. Fricke, "Lead Apron Inspection Using Infrared Light: A Model Validation Study," *The Journal of the American College of Radiology*, vol. 15, no. 2 (2018).*

C. K. Rigsby, **S. E. McKenney**, K. D. Hill, A. Chelliah, A. J. Einstein, B. K. Han, J. D. Robinson, C. L. Sammet, T. C. Slesnick, and D. P. Frush, "Radiation Dose Management for Pediatric Cardiac Computed Tomography: A Report from the Image Gently 'Have-A-Heart' Campaign," *Pediatric Radiology*, vol. 48, no. 1, 5-20 (2018).*

B. P. Berman, **S. E. McKenney**, S. T. Fricke, Y. Fang, M. A. Gavrielides, and N. Petrick. "Quantitative Characterization of Liver Tumor Radiodensity in CT Images: A Phantom Study between Two Scanners," *Medical Imaging 2018: Computer-Aided Diagnosis*, 10575:105753H. (2018).*

S. E. McKenney, J. A. Seibert, R. Lamba and J. M. Boone, "Methods for CT Automatic Exposure Control Protocol Translation Between Scanner Platforms," *The Journal of the American College of Radiology*, vol. 11, no. 3, 285-291 (2014).*

S. E. McKenney, J. A. Seibert, G. Burkett, D. Gelskey, P. Sunde, and J. M. Boone, "Realtime dosimeter employed to evaluate the half-value layer in CT," *Physics in Medicine and Biology*, vol. 59, no. 2, 363-377 (2014).*

N. D. Prionas, **S. E. McKenney**, R. L. Stern and J. M. Boone, "Kilovoltage Rotational External Beam Radiotherapy on a Breast Computed Tomography Platform: A Feasibility Study," *International Journal of Radiation Oncology Biology Physics*, vol. 84, 533-539 (2012).*

N. D. Prionas, G. W. Burkett, **S. E. McKenney**, L. Chen, R. L. Stern and J. M. Boone, "Development of a patient-specific two-compartment anthropomorphic breast phantom," *Physics in Medicine and Biology*, vol. 57, 4293-4307 (2012).*

S. Y. Huang, J. M. Boone, K. Yang, N. J. Packard, **S. E. McKenney**, N. D. Prionas, K. K. Lindfors and M. J. Yaffe, "The characterization of breast anatomical metrics using dedicated breast CT," *Medical Physics*, vol. 38, 2180-2191 (2011).*

S. E. McKenney, A. Nosratieh, D. Gelskey, K. Yang, S.-Y. Huang, L. Chen, and J. M. Boone, "Experimental validation of a method characterizing bow tie filters in CT scanners using a real-time dose probe," *Medical Physics*, vol. 38, no. 3, 1406-1415 (2011).*

W. C. Chen, G. Armstrong, Y. Chen, B. Collett, R. Erwin, T. R. Gentile, G. L. Jones, J. W. Lynn, **S. McKenney** and J. E. Steinberg, "He-3 spin filters for a thermal neutron triple axis spectrometer," *Physica B-Condensed Matter*, vol. 397, 168-171 (2007).*

**indicates a peer-reviewed journal*

Presentations:

Invited Educational Lectures & Webinars

E. Samei, **S. E. McKenney**, L. Potters, B. Shabestari, G. White, "Episode #1: Medical Physics Meets COVID", American Association for Physicists in Medicine (webinar), 2020. Recording available at, <https://www.aapm.org/meetings/webinars/MP30WebinarSeriesEpisodeNo1.asp>

E. Tsai, **S. E. McKenney**, D. Inoye, "COVID-19: Imaging through Glass", Society for Thoracic Radiology (webinar), 2020. Recording available at, https://thoracicrad.org/?page_id=2879# covid-videos

S. E. McKenney, "A Walk Through the Market," Radiological Society of North America Scientific Assembly and Annual Meeting, (Chicago), 2018 & 2019.

S. E. McKenney, "Patient Radiation Dose Monitoring in Diagnostic Imaging", International Atomic Energy Agency (webinar), 2019. Recording available at, <https://www.iaea.org/resources/video/patient-radiation-dose-monitoring-in-diagnostic-imaging>

S. E. McKenney (Presenter & Moderator), "Strategies for CT protocol design, development and optimization in a typical multi-vendor CT environment: Pediatric CT Protocol Development," AAPM 58th Annual Meeting (Nashville), 2018.

S. E. McKenney, "General Postgraduate Course: Radiation Dose Monitoring - Watching Ourselves as We Watch Our Kids Part I: A Walk Through the Market," SPR Annual Meeting (Nashville), 2018.

S. E. McKenney, "Personalized CT Imaging: Decision support and optimization techniques for age, habitus, and diagnostic task," AAPM 57th Annual Meeting (Denver), 2017.

S. E. McKenney, "Preparing for Part 1 of the ABR Diagnostic Physics Exam," AAPM 56th Annual Meeting (Washington, DC), 2016.

S. E. McKenney, "Commercially Available Multi-spectral and Volumetric Imaging Systems," Radiological Society of North America Scientific Assembly and Annual Meeting, (Chicago), 2014.

Oral Presentations

S. E. McKenney, T. W. Loehfelm, J. R. Hancock, J. R. Harrison, E. Angel, J. M. Boone, J. A. Seibert. "Informatics Challenges and Solutions to Host an Ultra-High Resolution Computed Tomography System," Radiological Society of North America Scientific Assembly and Annual Meeting, (Chicago), 2019.

S. E. McKenney, D. M. Bakalyar, and V. Singh. "Evaluation of $H(L)_{CTr}$ on CBCT with a Stationary Source," Radiological Society of North America Scientific Assembly and Annual Meeting, (Chicago), 2015.

S. E. McKenney, N. Bevins, E. Olariu, M. and Flynn, "A Six-Year Longitudinal Evaluation of the DICOM GSDF Conformance Stability of LCD Monitors," AAPM 55th Annual Meeting (Anaheim), 2015.

S. E. McKenney, D. M. Bakalyar, and J. M. Boone, "A Universal Definition for CT Irradiated Length," AAPM 54th Annual Meeting (Austin), 2014.

S. E. McKenney, G. Burkett, R. Lamba, J. A. Seibert, and J. M. Boone, "Translating x-ray tube modulation parameters between different CT scanner models using dose metrics," AAPM Annual Meeting (Charlotte), 2012.

S. E. McKenney and J. M. Boone, "Application of a real-time dose probe for improved estimates of dose from scattered x-rays in clinical CT scanners," Radiological Society of North America (RSNA) Scientific Assembly and Annual Meeting (Chicago), 2011.

Poster Presentations

S. E. McKenney, T. W. Loehfelm, J. R. Hancock, J. R. Harrison, E. Angel, J. M. Boone, J. A. Seibert, "Learning from History: Informatics Challenges and Solutions to Hosting Ultra-High Resolution Imaging Systems," EXPLORER Symposium, (Sacramento), 2019.

R. Noorelahi, R. MacDougall, B. Scherrer, K. Cleary, S. Bawazir, J. Rouse, S. Don, and **S. E. McKenney**. "Pediatric Chest Radiography Imaging Technique Variability in the Emergency Department," Society for Imaging Informatics in Medicine (Pittsburgh), 2017.

S. E. McKenney and J. M. Boone, "Quantitative method for standardization of contrast enhanced head

computed tomography protocols," UC Systemwide Bioengineering Symposium (Berkeley), June 2012.

S. E. McKenney, G. Burkett, D. Gelskey, and J. M. Boone, "Application of real-time dosimetry to characterize the x-ray penetrability of ct scanners," Joint AAPM/COMP Meeting, (Vancouver), 2011.

Additional Contributions:

Textbook, contributed experimental data and several figures (Chapter 10):

J. T. Bushberg, J. A. Seibert, E. M. Leidholdt, and J. M. Boone, The Essential Physics of Medical Imaging, 3rd ed., (Lippincott Williams & Wilkins, Philadelphia, 2012).

ICRU Report 87, contributed experimental data and several figures (Chapters 5, 6, 7, 8, 9, 10 & 11):

J. M. Boone, J. A. Brink, S. Edyvean, W. Huda, C. H. McCollough, M.F. McNitt-Gray. ICRU Report No. 87: Radiation dose and image quality assessment in computed tomography, (Oxford University Press, Oxford).

Relevant workshops:

February 8-9, 2019 Patient Communication (San Diego, CA).

July 17, 2013 Radimetrics eXposure training (Detroit, MI).

June 24-29, 2012 AAPM Summer school attendee, "Medical Imaging Using Ionizing Radiation: Optimization of Dose and Image Quality" (San Diego, CA).

April 29-30, 2010 1st Annual CT Dose Summit attendee, "Scan Parameter Optimization" (Atlanta, GA).

August 3-7, 2009 Intermediate Monte Carlo for N-Particle eXtended (MCNPX) + Homeland Security workshop attendee (San Francisco, CA).