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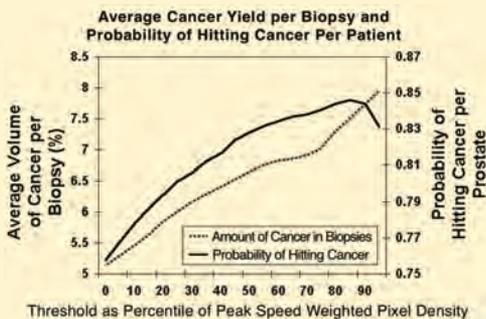
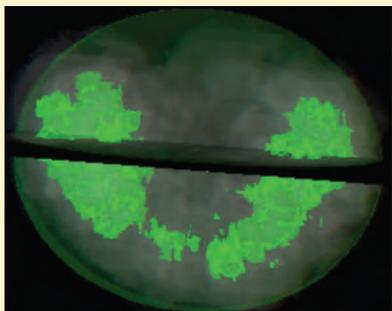
The Paul L. Carson
COLLEGIATE PROFESSORSHIP IN RADIOLOGY

Dr. Carson: A Pioneer in Ultrasound and a Leader in Medical Physics

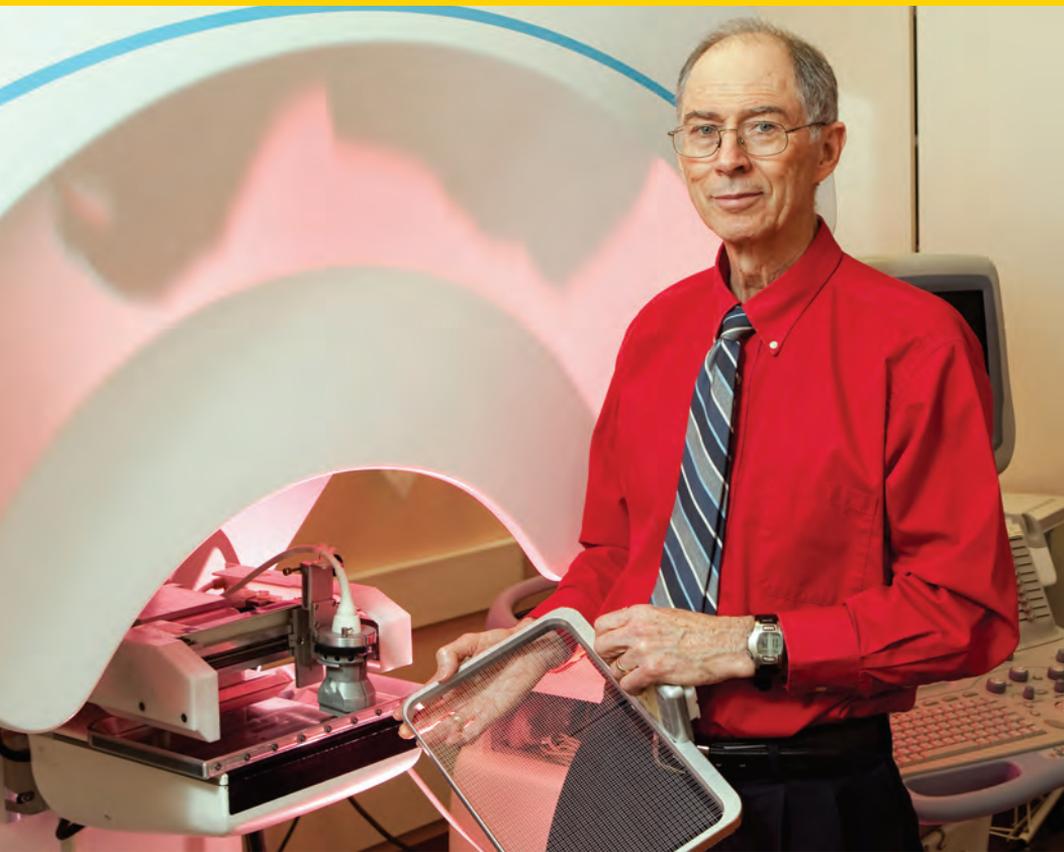
Dr. Carson's impact on medical imaging is driven by a commitment to improving the safety and performance of existing imaging systems while investigating new possibilities, including those that could take generations to bring to full clinical fruition. It is also fueled by a remarkable intellectual agility.

After earning a Ph.D. in nuclear physics from the University of Arizona in 1971, Dr. Carson joined the faculty at the University of Colorado as coordinator of the new medical physics training program under Dr. William Hendee in 1971. With no background in medicine, Dr. Carson mastered this area and became certified in radiological physics. Similarly, he added acoustical physics to his expertise when a nuclear imaging project he initiated did not receive funding, but several ultrasound projects did. Working with Dr. Joseph Holmes, Dr. Carson embarked on improving the positioning of echoes in compound ultrasound scanning, which resulted in his development of the longstanding American Institute of Ultrasound in Medicine (AIUM) standard enclosed 100-mm test object for diagnostic ultrasound. As a young faculty member, he continued to distinguish himself in standards work, teaching ultrasound safety and quality control nationally, reviewing manuscripts and proposals, and receiving substantial grants for pioneering research in ultrasonic CT and the assessment of fetal maturity.

Having earned the reputation of a consummate innovator and scientist, Dr. Carson was recruited by U-M in 1981 to found the Basic Radiological Sciences Division of the Department of Radiology. As division director until 2008, and now associate director, Dr. Carson has excelled in attracting the talent and funding needed for clinical imaging support and cutting-edge research. The division, along with radiologists and other collaborators, has for decades led research



3D distribution of cancer in 39 prostates (left). Probability of biopsies finding cancer when guided by quantitative 3D color flow Doppler (right). Moskalik, Carson, et al., 2001.



Research Breast Cancer Detection System combining 3D mammography and automated ultrasound in the same views

in computer aided diagnosis; MR and ultrasound imaging; ultrasonic therapy and bioeffects; image registration; and, more recently, tomosynthesis, photoacoustic imaging, and some microwave imaging and therapy. Dr. Carson's work on quantification of vascularity stimulated the development of power Doppler imaging by U-M colleague Dr. Jonathan Rubin. Dr. Carson has worked with colleagues to develop the delivery of bioactive agents solely in the small, ultrasound beam focal zone only. His leadership in fusion of automated ultrasound, tomosynthesis and functional photoacoustics of the breast is bringing this contrast agent free imaging close to tests of screening feasibility. This technique offers a way to add speed of sound and attenuation images to this combination in the mammographic geometry.

Dr. Carson's enduring impact on imaging has been recognized with numerous awards, including AIUM's Joseph H. Holmes Basic Science Pioneer Award, U-M's Basic Radiological Sciences Collegiate Professorship, and American Association of Physicists in Medicine's (AAPM) highest award, the William D. Coolidge Award.

Reflections on Dr. Carson's Career and Contributions

"The quality of Paul's own research and the research he's inspired through his contributions to building our enterprise will be honored by this professorship. I thank him for his commitment to our department and for being a mentor, colleague, and friend."

*Dr. J. Brian Fowlkes
Professor, Radiology*

"Paul's understanding of the field and rigorous investigation of pertinent issues has helped him attract the external funding that has made the Division of Basic Radiological Sciences one of the best in the country. His stature and collaborative nature have made him a natural leader in imaging science."

*Dr. N. Reed Dunnick
Fred Jenner Hodges Professor and Chair of Radiology*

"I came to the University of Michigan in 1984 largely to work with Paul. He had a reputation for outstanding ultrasound research, and nearly 30 years later, he continues to impress me with his novel, creative approach to research problems. He has been a great resource and inspiration for my academic work."

*Dr. Jonathan Rubin
Professor, Abdominal Radiology*

"Paul has always sought ways to address the problems radiologists have with imaging techniques and has been helpful in translating the basic research developed in the lab to clinical applications."

*Dr. Isaac R. Francis
Professor and Associate Chair for Clinical Research
Co-Director, Tumor Imaging Core, Comprehensive Cancer Center*

"Paul has had a steadfast commitment to developing new technologies for the early detection of breast cancer. This commitment is evidenced by his own important research and his leadership in recruiting a great team of successful basic scientists. Both the future of Radiology and the care of our patients depend upon continued basic science and technological advances made possible by researchers like Paul."

*Dr. Mark Helvie
Professor, Breast Imaging*

Service Toward Improving Imaging and Patient Care

Dr. Carson's career is distinguished by scientific prowess, the ability to lead and collaborate, and extraordinary dedication. In addition to authoring or co-authoring nearly 900 published works, including more than 170 peer-reviewed papers, he has maintained exceptionally strong involvement in professional societies.

Beginning with membership in the American Institute of Ultrasound in Medicine's standards committee, Dr. Carson has ceaselessly given his time and talent to 19 other national and international organizations, including serving as president of the American Association of Physicists in Medicine. His contributions over nearly 40 years have helped improve the safety and efficacy of imaging, and his efforts continue today with his role as scientific coordinator of RSNA's Quantitative Imaging Biomarkers Alliance, whose mission is to make radiologic imaging more quantitative. Dr. Carson regards his extensive involvement in societies as a natural role for a medical physicist, one that enables service toward both improving current health care and developing knowledge and capabilities for the future.

The Paul L. Carson Collegiate Professorship in Radiology honors Dr. Carson's contributions to imaging, the Department of Radiology, and the many colleagues, fellows, and students he's inspired and mentored. It also helps ensure that the dedication to the advancement of radiological services in medicine exemplified by Dr. Carson continues to thrive in the Department of Radiology and the University of Michigan. The support of alumni, faculty, students, family, and friends is paramount in making this possible.

Please consider making a contribution. Contact Alisha M. Faciane, Associate Director of Development and Alumni Relations, at:

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