



Twenty years of Doppler OCT and OCT angiography: translation of functional OCT technology from bench to bedside

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Optical coherence tomography (OCT) is one of the fastest growing areas of biomedical optics. Many of the functional extensions of OCT technology that were developed in the last decade, such as Doppler OCT, polarization sensitivity OCT, phase resolved OCT, and optical coherence elastography, started to generate clinically important information. I will review the development of D-OCT and report several on-going research projects in my laboratory that focus on technology development and translation of functional OCT technology to solve specific clinical problems, including diagnosis and management of ocular diseases, sleep apnea, and cardiovascular diseases. The challenges and opportunities in translational research will be discussed.

SHORT BIO:

Dr. Zhongping Chen is a Professor of Biomedical Engineering and Director of the OCT Laboratory at the University of California, Irvine. He is a Co-founder and Chairman of OCT Medical Imaging Inc. Dr. Chen received his B.S. degree in Applied Physics from Shanghai Jiao Tong University in 1982, his M. S. degree in Electrical Engineering in 1987, and his Ph.D. degree in Applied Physics from Cornell University in 1993.

Dr. Chen's research group has pioneered the development of functional optical coherence tomography (OCT), including Doppler OCT, phase resolved OCT, and optical coherence elastography. In addition, his group has developed a number of endoscopic and intravascular OCT and MPM imaging and translated this technology to clinical applications. He has led numerous major research projects funded by NIH, NSF, DOD, and DARPA, including several interdisciplinary research projects such as the NIH Biomedical Research Partnership (BRP) grant and NSF Biophotonics Partnership Initiative grant. He has published more than 280 peer-reviewed papers and review articles and holds a number of patents in the fields of biomaterials, biosensors, and biomedical imaging.

Dr. Chen is a Fellow of the American Institute of Medical and Biological Engineering (AIMBE), a Fellow of SPIE, and a Fellow of the Optical Society of America.