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SEMINAR

Optical Coherence Tomography: Technologies and Challenges

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<https://us02web.zoom.us/j/83992455343?pwd=RVk4b2JkcEpFc0RWTUdQaHArOFNNZz09>

Abstract: Optical coherence tomography (OCT) has now become a standard of care, impacting the treatment of millions of people every year. There is tremendous clinical and preclinical OCT progress in diagnosing cancers and disorders in ophthalmology, cardiology, dermatology, gastroenterology, etc. In recent years, OCT technologies have been advancing rapidly in cross-sectional and en-face imaging speeds, spatial resolutions, and functionalities due to breakthroughs in broadband light sources and various micro-optical probes for reaching deep and interior tissues and organs. Dynamic anatomical variations can also be assessed on a time scale beyond milliseconds. Morphological recognition, dynamic analyses, and artificial intelligence algorithms utilizing the backscattered light from subcellular structures will be addressed in the talk. The challenges of leveraging the ever-escalating techniques in applying deep learning algorithms to medical image analysis and translation that could accelerate the acceptance of OCT among clinicians in reading and diagonalizing the OCT tomograms will also be addressed.

Bio: Dr. Sheng-Lung Huang received his Ph.D. from the Department of Electrical Engineering, University of Maryland, College Park, in 1993. He is a Distinguished Professor at the Graduate Institute of Photonics and Optoelectronics (GIPO) and the Department of Electrical Engineering, National Taiwan University. He served as the Chairman of GIPO from 2007 to 2010. He was also a guest professor at the Abbe School of Photonics, Friedrich-Schiller University of Jena, Germany, in 2014. Dr. Huang is a Fellow of the Optica. He pioneers the development of cellular-resolution optical coherence tomography and has used it clinically in the early-stage diagnosis of cancers and diseases. In 2014, he co-founded Apollo Medical Optics and was the Chief Technology Officer. Dr. Huang served as Chairman of IEEE/LEOS (now IEEE/PS) Taipei Chapter from 2005 to 2006. He was a steering board member of the European Master of Science in Photonics (EMSP). Dr. Huang served as an Associate Editor of the IEEE Photonics Journal and was a Topical Editor, Optics Letters, 2005–2011. Dr. Huang has received the Outstanding Research Award from the Ministry of Science and Technology and the University/Industry Cooperation Award from the Ministry of Education, Taiwan. He has also received Chimei Innovation Excellence Award and Optical Communications Elite Award.

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