

New Developments in Ophthalmic Optical Coherence Tomography, And Photoacoustic ophthalmoscopy for in vivo retinal imaging: current status and prospects

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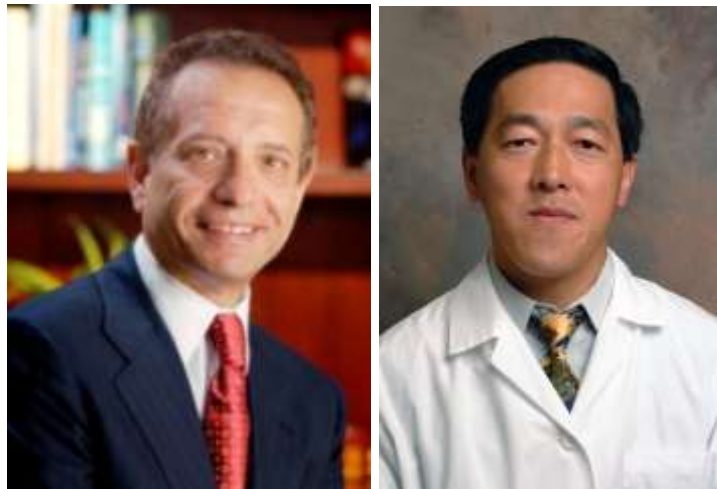
Abstract: Since the first description of optical coherence tomography (OCT) for biomedical applications in the journal Science in 1991, OCT has emerged as the most important imaging tool in the management of eye disease. This presentation will review the evolution of OCT technology in ophthalmology, current clinical applications, and review advanced OCT technology for the eye, including wide-field OCT, ultrahigh speed OCT using sweep source lasers, and functional OCT imaging.

Photoacoustic ophthalmoscopy (PAOM) is a new retinal imaging technology that offers the unique capability to measure optical absorption in the retina. Since PAOM is compatible with optical coherence tomography, scanning laser ophthalmoscopy, and autofluorescence imaging, registered multimodal images can be acquired from a single device at comparable resolution for comprehensive anatomic and functional retinal characterizations. Therefore, photoacoustic ophthalmoscopy is anticipated to have applications in both research and clinical diagnosis of many blinding diseases. In this review, we first explain the basic principles of the photoacoustic effect and imaging. Then, different types of photoacoustic microscopy are introduced and compared. Finally, the current status of photoacoustic imaging in animal eyes is presented and the prospects of future development of PAOM are suggested.

About our speakers: Carmen A. Puliafito is currently Dean of the Keck School of Medicine of the University of Southern California and Professor of Ophthalmology and Health Management. Dr. Puliafito has worked in the field of ophthalmic lasers and optics for thirty years. Among his accomplishments, he is co-inventor of the technique of optical coherence tomography (OCT) for which he was awarded the Rank Prize in Optoelectronics along with James Fujimoto and Eric Swanson. Dr. Puliafito was first to describe the use of the semiconductor diode laser for Retinal photocoagulation, and did pioneering work in exploring the biophysics of optical breakdown in the eye and in excimer laser photocoagulation. He was founding director of the Morse Laser Center at the Massachusetts

Eye and Ear Infirmary at Harvard Medical School. He served as Chair and founding Director of the New England Eye Center at Tufts University School of Medicine and went on to direct the Bascom Palmer Eye Institute of the University of Miami on its rise to the number one ranking in the U.S. News and World rankings of eye hospitals. He still is an active retinal clinician having been re-certified by the American Board of Ophthalmology in 2012 and continues to collaborate with Dr. Shuliang Jiao and other OCT investigators. He is a graduate of Harvard College, Harvard Medical School, and the Wharton School of the University of Pennsylvania.

Shuliang Jiao received his Ph.D from the department of Biomedical Engineering of Texas A&M University in 2003. He joined the faculty of Bascom Palmer Eye Institute of University of Miami as an assistant professor after graduation. He is currently an associate professor in the Department of Ophthalmology, Keck School of Medicine of University of Southern California. His research interest is mainly focused on the development of innovative technologies for imaging and treatment of eye diseases. His current research includes the technological development and application of Optical Photoacoustic Microscopy, Optical Coherence Tomography, and Multimodal Functional Imaging for the early diagnosis of age related macular degeneration, diabetic retinopathy, and glaucoma.



Wednesday, January 11, 2012

Reception: 6:00; Dinner: 7:00; Talk: 8:00

Meal: Buffet Style, free of charge thanks to generous sponsorship from the Keck School of Medicine of USC

Norris Research Tower, Room LG 503 (ground floor)
Corner of Biggy and Eastlake

USC Health Sciences Campus, Los Angeles, CA,
90033

Park in Lot P6

On-line Registration: www.osscc.org or

Contact: [Brent Bergner](mailto:Brent.Bergner@ussc.org), OSSC Arrangements Chair,
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Please Register by January 5, 2012



Please post this notice and invite your friends & colleagues to attend!