Wallace H. Coulter Foundation Lecture Series

Accommodation, Presbyopia, and Optical Coherence Tomography

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Lecture: Friday, March 2, 2018
9:00AM-10:00AM
Room EC 1112
10555 West Flagler Street
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Department of Biomedical Engineering

Biography

Dr. Manns is a professor of biomedical engineering and ophthalmology and the chair of the Department of Biomedical Engineering, where he has also previously served as associate chairman and graduate program director. Dr. Manns is the co-director of Bascom Palmer Eye Institute's Ophthalmic Biophysics Center (OBC) a research laboratory dedicated to the development of technologies designed to improve patient eye care. His current research focuses on the development optical imaging systems to study the optics of the eye in an effort to optimize vision correction procedures. Dr. Manns received an electrical engineering degree from the Ecole Nationale Supérieure d'Electronique et de Radioélectricité de Bordeaux (now ENSEIRB MATMECA) and a post-graduate degree from the University of Bordeaux in microelectronics. He earned his PhD in biomedical engineering from the University of Miami. He completed a post-doctoral fellowship at Bascom Palmer Eye Institute sponsored by Fight for Sight before being hired as a faculty member jointly by the Department of Biomedical Engineering and the Department of Ophthalmology at the University of Miami.

Abstract

The surgical correction of presbyopia, the age related loss of near visual function, has been called the "next frontier of refractive surgery". Most of the current surgical approaches to correct presbyopia rely on the assumption that presbyopia is primarily due to changes in the optical and mechanical properties of the crystalline lens of the eye. However, there are also age-related changes in the morphology of the ciliary muscle which could play a significant role in presbyopia. One of the primary challenges in characterizing the respective contributions of the lens and ciliary muscle to presbyopia is the difficulty in imaging the changes in the shape of the lens and ciliary muscle in vivo during accommodation. In this lecture, we will discuss some of the current approaches for presbyopia correction and describe our efforts to develop an accommodation biometry system that uses Optical Coherence Tomography (OCT) to enable synchronized and dynamic imaging of the interaction between the ciliary muscle and lens, and its application to the study of accommodation and presbyopia.

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