**Triple-input polarization-sensitive optical coherence tomography in ophthalmology**

*Singapore Eye Research Institute, Singapore*

**Xinyu Liu**

**Email: xinyu.liu@duke-nus.edu.sg**

Polarization-sensitive optical coherence tomography (PS-OCT) detects not only the structural information but also the sample birefringence property thereby providing specific contrasts to fibular tissues in the eye. A high detection sensitivity of birefringence is needed to reliably measure relevant tissue parameters. In this talk, I will introduce the development of triple-input PS-OCT (TRIPS-OCT), a technique that significantly improves the sensitivity of traditional dual-input PS-OCT devices. Furthermore, I'll share insights from our studies of leveraging TRIPS-OCT to measure various ocular structures, including retinal nerve fiber layer, sub-retinal fibrosis, and posterior sclera. I’ll show evidence about how these measurements can serve as critical biomarkers for diagnosis and evaluation of eye conditions such as myopia, glaucoma, and age-related macular degeneration. Overall, this talk discusses the potential application of TRIPS-OCT in clinical management of various eye diseases.

**Short Bio:**

**Xinyu Liu** received his PhD degree in Biomedical Engineering from Nanyang Technological University, Singapore. He is a senior research fellow at Singapore Eye Research Institute and an assistant professor at Duke-Nus Medical School, Singapore. His research focuses on polarization sensitive optical coherence tomography, ophthalmic imaging, and technological translation in medicine. He has published more than 40 papers in the field of ocular imaging technologies and applications.