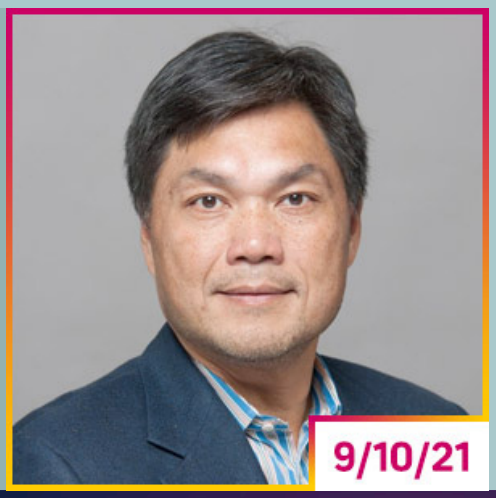
FIU Engineering & Computing
Biomedical Engineering

Wallace H. Coulter Foundation
Biomedical Engineering Seminar Series

WEI-CHIANG LIN, PH.D. is an Associate Professor of the Department of Biomedical Engineering at Florida International University (FIU). Dr. Lin obtained his M.S. and Ph.D. degrees in Biomedical Engineering at the University of Texas at Austin. He was a postdoctoral fellow and then a research assistant professor at Vanderbilt University between 1997 and 2004. His research at Vanderbilt University focused on intraoperative tissue diagnosis using optical spectroscopy. In 2004, he joined the Department of Biomedical Engineering at FIU as the MCH Assistant Professor of Neuro-Engineering.

Dr. Lin's expertise is in medical instrumentation, optical spectroscopy, and medical imaging. His research focus has been in vivo tissue characterization using optical and mechanical modalities. Over the past 15 years, his research team has developed several novel instrumentations, such as a hybrid spectroscopy imaging system and all-optical ultrasound imaging system, for in vivo tissue screening and surgical guidance. His team has also developed optical sensors for continuous monitoring of physiological signals such as interstitial CO2. Dr. Lin's research projects have been funded by the National Institute of Health, the Department of Defense, the Thrasher Research Fund, and the American Heart Association.



DR. WEI-CHIANG LIN

Associate Professor, Department of Biomedical Engineering
Florida International University

FRIDAY, SEPTEMBER 10 / 9:00 AM

SUBCUTANEOUS CAPNOGRAPHY AND ALL-OPTICAL QUANTITATIVE ULTRASOUND IMAGING

ABSTRACT: In this faculty research presentation, Dr. Lin will introduce several research activities in his lab, with a strong emphasis on the development of a novel capnography technology and an all-optical quantitative ultrasound (AOQUS) imaging system. The novel capnography technology consists of an implantable CO2 sensor and an optical reader. The implantable CO2 sensor is a passive optochemical sensor implanted in the subdermal space to monitor CO2 in the interstitial fluid continuously. The response of the sensor is read by the optical reader on the skin surface in a noninvasive fashion. This subcutaneous capnography, once developed, will be used to guide therapies for, for example, congenital central hypoventilation syndrome. The AOQUS imaging system uses optical modalities to generate and receive ultrasound waves. It has several advantages over conventional ultrasound imaging systems, including broad bandwidth, high sensitivity, and no reliance on high voltage. This imaging system will be integrated into the optical surgical guidance system developed by Dr. Lin's group to provide real-time tissue classification intraoperatively and facilitate surgery.

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Through the generous support of the Wallace H. Coulter Foundation, the Department of Biomedical Engineering facilitates weekly lectures each year during academic terms. Experts in all areas of Biomedical Engineering are invited to provide a research seminar and to meet with faculty and students to discuss the latest developments and research in Biomedical Engineering.

Friday, September 10, 2021
9:00AM-10:00AM | https://bme.fiu.edu/seminars