



Department of Electrical and Computer Engineering

Title: Non-invasive biomedical sensors for breath analysis

Christoforos Panteli

Wednesday 15 of February, 2023, 17:00 - 18:00

Room: XOD02-013

Abstract: What is biomedical technology and why we use it even when it is not comfortable? We have all experienced several times in our lives this technology when we visit our doctor. Biotechnology can be as simple as thermometers, stethoscope, but also advanced as cochlear implants, MRI and X-ray scanners, pacemakers and more. A promising biomedical technology for the future is breath analysis that is a non-invasive approach and much more comfortable than blood analysis. There is plethora of information to be gained from breath. Chemical signals from exhaled gases and from breath condensate and physical signals from thorax expansion and gas flow open doors for disease diagnosis and monitoring such as lung and liver cancer, COVID-19, sleep apnea and many more. Although there are commercial devices available and research is being conducted, in this seminar we are going to see the development of alternative approaches from fundamental techniques and devices all the way to real-life applications. Finally, we are going to see how a current European research project undertaken in the University of Cyprus is tackling 11 million deaths per year or 1 every 2.8 seconds caused by sepsis in clinical care.

Biography: Christoforos Panteli received the M.Eng. degree in electrical and electronics engineering with First Class Honours and the Ph.D. degree from Imperial College London, London, U.K. in 2015 and 2019 respectively. He then worked as a Research Associate in the Optical and Semiconductor Devices Group in the Department of Electrical and Electronic Engineering, Imperial College London. In this role he focused on environmentally friendly manufacturing techniques using nano materials for hermetic sealing for electronic devices. He also developed read-out electronics for wearable smart textile sensors to monitor breath via thorax expansion. His research interests focus on breath monitoring via physical and chemical approaches using mixed signal electronic devices and systems, micro- and nanofabrication for gas and pH sensors. He has contributed to the development of graphene-based gas sensors for and pioneered the plasma post-processing of CMOS ISFET pH sensors for improved performance. He is an Associate member of the IET and Young Professionals member of IEEE since 2015.