Πανεπιστήμιο Κύπρου
University of Cyprus

School of Engineering
Department of Electrical and Computer Engineering

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Title: *"Photonic Techniques for mm-wave and THz Generation & Transmission"*

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Room XOD02 – 117, New Campus – University of Cyprus

Abstract:
High spectral purity microwave sources are key components for several important applications in telecommunications, navigation, and radar. In particular, low phase noise performance is critical for emerging applications in high-speed fiber-wireless links in the mm-wave and THz bands.

The use of photonic techniques for the generation of mm-wave and THz carriers is attractive from the point of view of providing both superior phase noise performance (as compared to conventional microwave sources based on electron devices) and also allowing distribution over low loss and high bandwidth optical fibres. This talk therefore focuses on new approaches to photonic generation of mm-wave signals that are based on self-oscillating combs. These combine the low-phase noise advantage of optoelectronic oscillators together with the potential of optical combs to generate signals into the THz range. We report on both theoretical and experimental results, with the latter being used to demonstrate a 94.8 GHz radio over fibre link.

Biography:
G.K.M. Hasanuzzaman received the B.Sc. and M.Sc. degrees in Electrical and Electronics Engineering from the Rajshahi University of Engineering & Technology (RUET), Bangladesh in 2011 and 2014, respectively. During his master's degree, he worked on porous core photonic crystal fiber for THz wave guiding. In 2012, he joined the Department of Electrical and Electronics Engineering, RUET as a lecturer. Mr. Hasanuzzaman is the author/co-author of 17 journals and conference papers published in leading journals and conferences (e.g. IEEE Photonics Technology Letters, Journal of Lightwave Technology, and Optical Fiber Conference). Currently, he is working towards the Ph.D. degree in the Microwave Photonics Research Laboratory (MPRL) of the EMPHASIS Research Centre, University of Cyprus. His current research interests include microwave photonics, integrated microwave photonics, and optical devices and systems.