

Department of Electrical and Computer Engineering

Title: «*Microwave Photonic Processing of High-Speed Microwave Signals*»

Robert A Minasian

School of Electrical and Information Engineering, University of Sydney

Thursday, 22nd October 2015, 17:00 – 18:00
Room XOD02 B104, New Campus - University of Cyprus

Abstract:

Microwave photonic techniques are attractive for processing high bandwidth signals. They open up new possibilities for overcoming the inherent bottlenecks caused by limited speeds in conventional electrical signal processors. This results from their unique, high time-bandwidth product capabilities. In-fibre signal processors are also inherently compatible with fibre optic microwave systems that integrate with wireless antennas. Photonic signal processing leverages the advantages of the optical domain, which can then benefit from the wide bandwidth, low loss, and natural immunity to electromagnetic interference (EMI) that photonics offers. These techniques transcend the limitations of existing electronic methods, and enable new structures to be realised, which not only can process high-speed signals but which can also realise widely adaptive operation. Recent new methods in wideband signal processors including ultra-wideband phase shifters for phased array beamforming; single passband high-resolution microwave photonic filters; ultra-wide continuously tunable filters; programmable switchable microwave photonic filters; photonic RF memory structures that can realise long reconfigurable storage times with wide instantaneous bandwidth and high dynamic range; high-resolution microwave frequency measurement systems with multiple frequency measurement capabilities; and wideband microwave photonic frequency converters with high conversion efficiency and high dynamic range, are presented.

Biography:

Robert A. Minasian is currently a Chair Professor with the School of Electrical and Information Engineering, University of Sydney, Australia. In addition, he is the Director of the Fibre-optics and Photonics Laboratory, and has also served as the Head of the School of Electrical and Information Engineering, University of Sydney. His research centres on photonic signal processing and microwave photonics. He has contributed over 330 publications in these areas. He is an Associate Editor of Optical Fiber Technology.

Professor Minasian is a Fellow of IEEE, and is a Fellow of the Optical Society of America. He has served on the Australian Research Council as a member of the College of Experts, and as a member of the Research Evaluation Committee for the Excellence in Research for Australia initiative. He has also served on the Technical Committee on Microwave Photonics of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S), and has served on the program committees for numerous international conferences. He was the recipient of the ATERB Medal for Outstanding Investigator in Telecommunications, awarded by the Australian Telecommunications and Electronics Research Board.