IEEE Photonics Society
Distinguished Lecturer Program

Le vendredi 11 octobre 2019, 9h15
Rafraîchissements servis dès 9h00
Complexe de recherche avancée, pièce 233
Université d'Ottawa, 25, rue Templeton
Le séminaire se déroulera en anglais

Friday, October 11, 2019, 9:15 a.m.
Refreshments to be served starting at 9:00 a.m.
Advanced Research Complex, Room 233
University of Ottawa, 25 Templeton Street

Advanced optical sources for spectrally efficient photonic systems

Liam Barry, Dublin City University

Abstract: The continuing growth in demand for bandwidth (from residential and business users), necessitates significant research into new advanced technologies that will be employed in future broadband communication systems. Two specific technologies which are becoming increasingly important for future photonic systems are wavelength tunable lasers and optical frequency combs. Although these topics have been studied for over two decades their significance for the development of future ultra-high capacity photonic systems has only recently been fully understood. Wavelength tunable lasers are currently becoming the norm in optical communication systems because of their flexibility and ability to work on any wavelength. However, as their operating principles are different to standard single mode lasers they can effect how future systems will operate. For example as optical transmission systems move towards more coherent transmission (where the data is carried using both the intensity and phase of the optical carrier), the phase noise in these tunable lasers will become increasingly important. Optical frequency combs also have many applications for future photonics systems, and for telecommunications they can be used to obtain the highest spectral efficiency in optical transmission systems by employing the technology of optical frequency division multiplexing (OFDM) that has been widely employed to increase spectral efficiency in wireless systems. Wavelength tunable lasers and optical frequency combs are thus topics at the leading edge of current photonics systems research, and their detailed understanding promises new applications in all-optical signal processing, optical sensing and metrology, and specifically telecommunications. This talk will focus on the development and characterization of various wavelength tunable lasers and optical frequency combs, and then outline how these sources can be employed for developing optical transmission systems and networks which make the best use of available optical spectrum.

Bio: Liam Barry received his BE (Electronic Engineering) and MEngSc (Optical Communications) from University College Dublin and his PhD from the University of Rennes. His main research interests are: all-optical signal processing, optical pulse generation and characterization, hybrid radio/fibre communication systems, wavelength tuneable lasers for reconfigurable optical networks, and optical performance monitoring. He has worked as a Research Engineer in the Optical Systems Department of France Telecom's Research Laboratories (now known as Orange Labs), and a Research Fellow at the Applied Optics Centre in Auckland University. He is currently a Full Professor in the School of Electronic Engineering at Dublin City University, establishing the Radio and Optical Communications Laboratory, and is a Principal Investigator for Science Foundation Ireland. He has published over 500 articles in internationally peer reviewed journals and conferences, holds 9 patents in the area of optoelectronics, and has co-founded two companies in the photonics sector.

IEEE Photonics Society Distinguished Lecturer Program was designed to honor excellent speakers who have made technical, industrial or entrepreneurial contributions to the field of photonics and to enhance the technical programs of the IEEE Photonics Society Chapters.