

BCWS Seminar Series

The Building Blocks of the 5th Generation (5G) Wireless Networks for Affordable and Ubiquitous
Broadband Wireless Connectivity

by
Professor Halim Yanikomeroglu
Carleton University

Time: Wednesday, October 14, 10:30 - 11:30 am
Place: Room 4359, Mackenzie Building, Carleton University

Abstract: Commercial cellular wireless communications have a history of about 25 years. Currently, the wireless industry is busy with the standardization of the 4th generation (4G) cellular networks, namely, LTE/LTE-Advanced and WIMAX 802.16m. The 4G standards are expected to be finalized in the next year or two; the early commercial deployments could start in subsequent years. With 4G networks, wireless internet connectivity will be faster and more affordable which will result in substantial increase in wireless internet usage. Since the 4G concepts have already moved to the standardization phase, we must begin to work on the building blocks of the following generation (which we refer to as 5G) wireless networks. These networks will facilitate the provision of ubiquitous and affordable broadband (very high speed) wireless connectivity. This talk aims at highlighting some of the concepts and technologies which will facilitate the affordable provision of very high data rates with virtually ubiquitous coverage in 5G wireless networks. We refer to this goal as enabling the 4A paradigm: “any rate, anytime, anywhere, affordable”. In particular, the talk will focus on the coherent integration of advanced radio resource management (RRM) techniques with certain advanced physical layer (PHY) operations in the presence of advanced radio access network (RAN) architectures; we refer to this design principle as the “integrated cross-layer cross-network design”.

Biography: Dr. Yanikomeroglu is an Associate Professor at the Department of Systems and Computer Engineering at Carleton University. His research interests cover many aspects of the physical, medium access, and networking layers of wireless communications with an emphasis on multihop/relay/mesh networks, cooperative communications, and radio resource management. Dr. Yanikomeroglu has co-authored around 100 papers in these research areas in the last 5 years; he is also a co-inventor in several patent applications. One of the papers he co-authored received 500+ citations and another one 200+ citations. He has also given 17 tutorials in leading international conferences. Dr. Yanikomeroglu’s research is funded by Samsung Advanced Institute of Technology (SAIT, Korea), Huawei (China), Communications Research Centre of Canada (CRC), and NSERC. Dr. Yanikomeroglu is a recipient of the Carleton University Research Achievement Award 2009, and he has been Carleton University’s nomination for the NSERC Steacie Fellowship 2010. Dr. Yanikomeroglu has been involved in the steering committees and technical program committees of numerous international conferences. He is a member of the Steering Committee of the IEEE Wireless Communications and Networking Conference (WCNC), and has been involved in the organization of this conference over the years, including serving as the Technical Program Co-Chair of WCNC 2004 and the Technical Program Chair of WCNC 2008. Dr. Yanikomeroglu is the General Co-Chair of the IEEE Vehicular Technology Conference to be held in Ottawa in September 2010 (VTC2010-Fall). Dr. Yanikomeroglu served in the Editorial Boards of a number of periodicals as an Associate Editor or a Guest Editor as well. He is the former chair of the IEEE Technical Committee on Personal Communications.