



Seminar

**Integrated CMOS-MEMS Devices For
Communication Systems and Nano-Instrumentations**

**By
Professor Raafat R. Mansour
University of Waterloo, Canada**

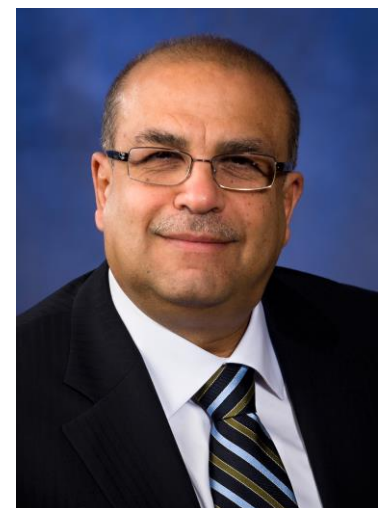
Date: January 14, 2016 (Thursday)
Time: 3:30 pm
Place: Room 222, Ho Sin-Hang Engineering Building, CUHK

Abstract

This talk introduces a new class of devices and instrumentations that leverage the myriad economic benefits of having integrated systems with both electrical and mechanical functionality on a single-chip. This is enabled by a CMOS post-processing technique developed at the University of Waterloo to create MEMS devices within CMOS chips. We integrate actuation, sensing and control electronics on a single CMOS-chip. This unique chip-scaled technology platform enables the development of highly advanced devices for a wide range of applications including radio frequency (RF) communication systems and nano-instrumentations. The talk addresses, CMOS-MEMS integration. RF CMOS-MEMS devices such as switches, tunable filters and reconfigurable matching networks. It will also address the use of CMOS-MEMS technology in the realization of nano instrumentations such as atomic force microscopes (AFM) and scanning microwave microscopes (SMM) on a single CMOS chip.

Biography

Raafat Mansour is a Professor of Electrical & Computer Engineering at the University of Waterloo and holds a Tier 1 Canada Research Chair in Micro-Nano Integrated RF Systems. He is the Founding Director of the Center for Integrated RF Engineering (CIRFE) at the University of Waterloo (www.cirfe.uwaterloo.ca). He held an NSERC Industrial Research Chair for two terms (2001-2005) and (2006-2010). He currently holds a Tier I Canada Research Chair in Micro-Nano Integrated RF System. Prior to joining the University of Waterloo in January 2000, Dr. Mansour was with COM DEV Cambridge, Ontario, over the period 1986-1999, where he held various technical and management positions in COM DEV's Corporate R&D Department. Dr. Mansour holds 35 US and Canadian patents and more than 350 refereed publications to his credit. He is an author of Wiley book and contributed 6 chapters to four other books. He served as the Chair of the Technical Program Committee of the IEEE-IMS2012 Symposium. Dr. Mansour is a Fellow of the IEEE, a Fellow of the Engineering Institute of Canada (EIC) and a Fellow of the Canadian Academy of Engineering (CAE). Dr. Mansour was the recipient of the 2014 Professional Engineers Ontario Engineering Medal for Research and Development.



***** All are welcome to attend *****

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