Next Generation Antennas for Wireless Devices

Speaker:

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Date and time: Tuesday, 7th Nov. at 1:10 pm , **Room**: 59-2013

Abstract:

High data rate in wireless communications is the major requirement of the upcoming age of Internet of Things (IoT) and seamless connectivity where human, devices, and infrastructures are linked to each other. The available bands for wireless communications are too congested with low bandwidth levels which eventually limit the data rate capabilities.

According to the Energy Aware Radio and Network Technologies (EARTH), the number of mobile subscribers was 4.5 billion in 2012 with 10 GB/subscriber data traffic request which is predicted to become 7.6 billion subscribers with 82 GB/subscriber data traffic request in 2020.

One of the potential solutions to address this growing demand for data rate is the use of wideband millimeter-wave based wireless systems at 60 GHz.

In this seminar, novel 60 GHz high-gain antennas with linear and circular polarization are presented. Ridge-gap waveguide technology is utilized to feed different radiating systems to ensure low loss feeding with no spurious radiation. The proposed antennas are strong candidates to provide multigigabit wireless speed for short-distance communication systems

by overcoming the higher free-space loss at the millimeter-waveband.

Bio:

Dr. Hussein Attia received his Ph.D. degree in Electrical and Computer Engineering from the University of Waterloo, Ontario, Canada in March 2011. After finishing his Ph.D., he worked as Research Engineer at the Coding and Signal Transmission Lab., University of Waterloo from March 2011 till July 2013. He was granted a post-doctoral fellowship at Concordia University, Montreal, Quebec from Aug. 2014 - Jul. 2015. Also, He was a visiting scholar at University de Quebec (INRS) from Aug.-Dec. 2015 and during June-Aug. 2017. He is currently an assistant professor at the EE Dept., KFUPM. His research interests include millimeter-wave high-gain and wide-band antennas, analytical techniques for electromagnetic modeling, and engineered magnetic metamaterials. Dr. Attia published 43 journal and conference papers.