T1. Towards 4G: LTE and LTE-Advanced

Abstract:

The current 3rd generation (3G) cellular wireless systems are evolving into 4th generation (4G). As a pathway to 4G, 3GPP developed Long Term Evolution (LTE). In terms of air interface techniques, LTE system uses OFDMA-based multicarrier modulation, MIMO techniques, and other advanced features to greatly improve the mobile wireless services. In this tutorial, we first survey the underlying techniques of the 4G systems such as OFDMA, SC-FDMA, MIMO, and fast multi-carrier resource scheduling. Then, we give technical overview of LTE and LTE-Advanced in detail.

Speaker's Biography:

Hyung G. Myung, Qualcomm, San Diego, USA

Hyung G. Myung is currently with Qualcomm, San Diego, USA since 2007. He received the B.S. and M.S. degrees in electronics engineering from Seoul National University, South Korea in 1994 and in 1996, respectively, and the M.S. degree in applied mathematics from Santa Clara University, California in 2002. He received his Ph.D. degree from the Electrical and Computer Engineering Department of Polytechnic University, Brooklyn, NY in January of 2007. From 1996 to 1999, he served in the Republic of Korea Air Force as a lieutenant officer, and from 1997 to 1999, he was with Department of Electronics Engineering at Republic of Korea Air Force Academy as a faculty member. From 2001 to 2003, he was with ArrayComm, San Jose, CA as a software engineer. During the summer of 2005, he was an assistant research staff at Communication & Networking Lab of Samsung Advanced Institute of Technology. Also from February to August of 2006, he was an intern at Air Interface Group of InterDigital Communications, Melville, NY. His research interests include DSP for communications and wireless communications, and he is the author of the book Single Carrier FDMA: A New Air Interface for Long Term Evolution (2008) from John Wiley & Sons.