

RADIO COMMUNICATIONS: COMPONENTS, SYSTEMS, AND NETWORKS



Joseph Evans

Zoran Zvonar

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Dear readers:

As we continue this Series in 2013, we plan to bring you a variety of topics related not only to the leading trends in wireless communications, but also those investigating new applications of radio communication principles. The topics that continue to dominate the interests of the wireless community are Long Term Evolution (LTE) and related cellular networking techniques. In addition, we see a growing trend in different applications of wireless networks, with machine-to-machine (M2M) being at the forefront, opening new and exciting opportunities.

The first article in this issue, “Full Dimensional MIMO for Next Generation Cellular Technology,” focuses on multiple-antenna technology, which is dominating physical layer design in wireless communications. The complexity of antenna arrays continues to grow to enable increased data rates. This article covers system aspects of the technology, including advanced concepts in channel modeling.

Following on the channel modeling topic as one of the fundamentals of wireless communications, the second article, “Channel Modeling for Wireless Networks-on-Chips,” brings the concept to a quite different scale. Even those who have followed the trend in shrinking cell sizes may be surprised by the attocell concept.

The third article, “Challenges and Conditions for Wireless M2M Communications in Industrial Environment,” continues with the theme of channel characterization. In this case, channel parameters are used to guide the most effective system design for different M2M applications.

We hope that the articles in this issue will find their way onto your summer reading list. As you relax and reflect, we would love to hear from you. Readers’ comments and contributions are the driving force behind this series.

Best wishes,

Joseph Evans and Zoran Zvonar

BIOGRAPHIES

JOSEPH B. EVANS [SM] (evans@ittc.ku.edu) is the Deane E. Ackers Distinguished Professor of Electrical Engineering & Computer Science at the University of Kansas. He served as the director of the Information and Telecommunication Technology Center from 2008 to 2010 and the Director of Research Information Technology at the University of Kansas from 2005 to 2008. He served as a program director in the Division of Computer & Network Systems in the Directorate for Computer & Information Science & Engineering at the National Science Foundation from 2003 to 2005. His research interests include mobile and wireless networking, networked computing systems, high-speed networks, and adaptive computing systems. He has been involved in major national high-performance networking testbeds and broadband wireless mobile networking efforts, and has published over 110 journal and conference works. He has been a researcher at the Olivetti & Oracle Research Laboratory, Cambridge University Computer Laboratory, USAF Rome Laboratories, and AT&T Bell Laboratories. He has been involved in several startups: as co-founder and member of the Board of Directors of a network gaming company acquired by Microsoft in 2000, and as a partner in a military software company acquired by General Dynamics in 2010. He received his Ph.D. degree from Princeton University in 1989 and is a member of the ACM.

ZORAN ZVONAR [F'10] (zoran.zvonar@mediatek.com) is deputy general manager, MediaTek US, and a MediaTek Fellow. He received his Dipl.Ing. in 1986 and his M.S. degree in 1989 from the Department of Electrical Engineering, University of Belgrade, Serbia, and his Ph.D. degree in electrical engineering from Northeastern University, Boston, Massachusetts, in 1993. He has been with the Department of Electrical Engineering, University of Belgrade, and Woods Hole Oceanographic Institution, Massachusetts. From 1994 to 2008 he was with Analog Devices and has been recipient of the company's highest technical honor of ADI Fellow. Since January 2008 he has been with MediaTek, leading an R&D team focused on the design of algorithms and architectures for cellular standards, with applications to integrated chip-set solutions and real-time software. He is Co-Editor of the Radio Communications Series in *IEEE Communications Magazine*, and has also served as an Associate Editor of *IEEE Communications Letters* and a Guest Editor of *IEEE Transactions on Vehicular Technology*.