

Department of Electrical Engineering and Computer Science
Syracuse University

Seminar

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Time: 1:30 pm, Friday, February 23, 2007

Place: 1-218 Sci Tech

Cooperative Communications in Wireless Networks: Performance Analysis and Optimum Power Allocation

Abstract: Cooperative communications and networking is a new and rapidly evolving wireless communication paradigm. Different from conventional point-to-point wireless communications, the concept of cooperative communications has been recently proposed for wireless networks, especially for sensor networks and wireless ad hoc networks. The basic idea of cooperative communications is that different users or nodes in a wireless network can help each other to transmit information cooperatively. Different users may share their antennas to create a “virtual array” through distributed transmission, which results in increasing capacity and multiplexing gain and realizes a new form of space diversity to combat the effects of signal fading that has been termed as cooperative diversity. In this talk, I will report some of our research findings in performance analysis and optimum power allocation for two cooperative communication protocols. We will conclude the talk with some open problems and discussions.

Speaker Bio

Dr. Su received the Ph.D. degree in electrical engineering from the University of Delaware, Newark in 2002. He received his B.S. and Ph.D. degrees in mathematics from Nankai University, Tianjin, China, in 1994 and 1999, respectively. His research interests span a broad range of areas from signal processing to wireless communications and networking, including space-time coding and modulation for MIMO wireless communications, MIMO-OFDM systems, cooperative communications for wireless networks, and ultra-wideband (UWB) communications. He has published more than 25 journal papers and 40 conference papers in the related areas.

Since March 2005, Dr. Su has been an Assistant Professor with the Department of Electrical Engineering at the State University of New York (SUNY) at Buffalo. From June 2002 to March 2005, he was a Postdoctoral Research Associate with the Department of Electrical and Computer Engineering, University of Maryland, College Park. Dr. Su received the Signal Processing and Communications Faculty Award from the University of Delaware in 2002 as an outstanding graduate student in the field of signal processing and communications. In 2005, he received the Invention of the Year Award from the University of Maryland. Dr. Su serves as an Associate Editor for IEEE Transactions on Vehicular Technology.