

# Palestras da ComSoc

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## ***Context Aware Wireless Networks: A Physical Layer Perspective***

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### *ABSTRACT*

Wireless communication is now a truly global industry, growing at an astonishing pace—by the end of 2008; nearly three billion handsets have been in use. India alone is adding 200,000 new subscribers every day. High performance devices such as Nokia's E and N series and Apple's iPhone will continue to drive demand for ubiquitous and high bandwidth wireless services. Existing networks will not be able to scale with either the increasing number of users or the growth in data rate per user, so the wireless industry is compelled to seek new paradigms in network design. In this presentation, we propose a paradigm in which nodes cooperate by pooling power and bandwidth resources and where flows interact opportunistically to avoid interference and increase network utilization. In particular, we will explore location information and network awareness to develop MAC and physical layer strategies to significantly increase spectral and power efficiencies of the network.

### *BIO*

Behnaam Aazhang received his Ph.D. degrees in Electrical and Computer Engineering from University of Illinois at Urbana-Champaign in 1986. In August 1985, he joined the faculty of Rice University, Houston, Texas, where he is now the J.S. Abercrombie Professor, and Chair of the Department of Electrical and Computer Engineering. In addition, he holds an Academy of Finland Distinguished Visiting Professorship appointment at the CWC in the University of Oulu, Oulu, Finland. He has served as the founding director of Rice's Center for Multimedia Communications from 1998 till 2006. He has been a Visiting Professor at IBM Federal Systems Company, Houston, Texas, the Laboratory for Communication Technology at Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, the Univ. of Oulu, Oulu, Finland, the U.S. Air Force Phillips Laboratory, Albuquerque, New Mexico, and at Nokia Mobile Phones in Irving, Texas. His research interests are in the areas of communication theory, information theory, and their applications with emphasis on multiple access communications, cellular mobile radio communications, and wireless communication networks. He is a Fellow of IEEE, a distinguished lecturer of IEEE Communication Society, and also a recipient of 2004 IEEE Communication Society's Stephen O. Rice best paper award, of the Alcoa Foundation

Award 1993, the NSF Engineering Initiation Award 1987-1989, and the IBM Graduate Fellowship 1984-1985.