



THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering

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**Battle of the Bandwidths:
Spectrum Markets, Interference Management,
and Wireless System Design**

by

**Wei Lun Visiting Professor
Professor Michael L. Honig
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Northwestern University
Evanston, Illinois**

Date : 3 April 2009 (Friday)
Time : 4:00pm
**Venue : T Y Wong Hall, 5/F, Ho Sin-Hang Engineering Building
The Chinese University of Hong Kong**

Abstract

Traditionally, radio spectrum has been tightly regulated worldwide in order to manage interference among commercial and public wireless services. This “command and control” approach to spectrum allocation has been criticized in recent years as the cause of the following paradox: spectrum is viewed as a scarce resource, yet large portions of useful spectrum are typically idle. Many government regulatory agencies, such as the Federal Communications Commission (FCC) in the U.S. and the Office of the Telecommunications Authority (OFTA) in Hong Kong, have recognized that market mechanisms for spectrum sharing would likely lead to more efficient use of spectrum resources and provide for the current rapid growth in wireless systems and services. This lecture will start with a general discussion of how spectrum markets might be structured, along with the effects on wireless services. Professor Honig will then highlight some distributed techniques for interference management. Several important issues such as associated information exchange and overhead will be discussed.

Biography

Professor Michael L. Honig is a Professor in the Electrical Engineering and Computer Science Department of Northwestern University, Evanston, Illinois. He received his BS degree in electrical engineering from Stanford University (1977), and his MS and PhD degrees in electrical engineering from the University of California, Berkeley (1978 and 1981 respectively). Professor Honig subsequently joined Bell Laboratories in Holmdel, New Jersey, where he worked on local area networks and data transmission through band-limited telephone channels. In 1983 he joined the Systems Principles Research Division of Bellcore (now Telcordia), where he worked on digital subscriber lines and interference mitigation techniques for wireless systems. During that time he also co-authored a book on adaptive filters. He joined Northwestern University in the fall of 1994 and has been professor of the Department of Electrical Engineering and Computer Science since then. He has held visiting scholar positions at Naval Research Laboratory (San Diego), the University of California, Berkeley, the University of Sydney, Princeton University, and the Technical University of Munich. Professor Honig served as an editor for Transactions on Information Theory (1997–2000) and Transactions on Communications (1990–1995), both published by the Institute of Electrical and Electronics Engineers (IEEE), and Foundations and Trends in Communications and Information Theory (Now Publishers, 2003–present). He has been a guest editor for several other journals, and has served on numerous technical program committees for conferences and workshops on communications and signal processing. He was a member of the Board of Governors for the IEEE Information Theory Society from 1997 to 2002, the recipient of a Humboldt Research Award for Senior U.S. Scientists, the co-recipient of the 2002 IEEE Communications Society and Information Theory Society Joint Paper Award, and is a Fellow of IEEE.

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