

# Signal Processing and Wireless Networks

Dr. Vincent Poor

Princeton University, NJ

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## Abstract

A major issue in today's wireless world is the dramatic increase in demand for new capacity and higher performance of wireless networks.

The development of these capabilities is limited severely by the scarcity of two of the principal resources in wireless networks, namely energy and bandwidth. Consequently, the community has turned to a third principal resource, the addition of intelligence throughout the network, in order to exploit increases in processing power afforded by Moore's Law type improvements in microelectronics. This talk will focus on two aspects of this phenomenon: the effects of advanced node-level signal processing on the higher-layer performance of wireless communication networks, including energy efficiency, spectral efficiency, throughput and delay; and the use of advanced signal processing principles, including collaborative beam-forming, sensor scheduling, and distributed learning, in the design, deployment and operation of wireless sensor networks.

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## Bio

H. Vincent Poor is the George Van Ness Lothrop Professor in Engineering at Princeton University, where he is involved in research and teaching in wireless communications and related fields. Among his publications in these areas is the recent book, *Wireless Networks: Multiuser Detection in Cross-Layer Design*. Dr. Poor is a member of the National Academy of Engineering, and is a Fellow of the IEEE, the Institute of Mathematical Statistics, and other organizations. During the 2003-04 academic year he was a Guggenheim Fellow, dividing a sabbatical leave among Imperial College, Stanford and Harvard. He is the recipient of 2005 IEEE Education Medal.