**Physical Layer Security in Wireless Networks**

Security in wireless networks has traditionally been considered to be an issue to be addressed at the higher layers of the network. However, with the emergence of ad hoc and other less centralized networking architectures, and networks having low-complexity nodes, there has been an increase in interest in the potential of the wireless physical layer to provide communications security. Information theory provides a natural framework for the study of this issue, and consequently there has been a resurgence of interest in information-theoretic security in recent years, particularly for wireless channel models. The use of information theoretic concepts to characterize communications security dates to Shannon’s earliest work, and the important work on the wire-tap channel by Wyner and by Csiszár and Körner in the 1970’s addressed security issues for broadcast communications. But, recent work has taken these early ideas and expanded on them considerably, by examining multiple-access channels, fading, code design for secure transmission, feedback, authentication, secure network coding, and many other issues. This talk will review recent work and open issues in this field. Further recent work using a similar formalism to examine the tradeoff between privacy and utility of data sources will also be touched upon briefly.