

Title: Wireless Communications: An Information Theoretic Perspective

Abstract : The tutorial will focus mainly on the interpretation and utility of information theoretic results for understanding and designing existing/emerging wireless communication systems including cognitive radio. The stress will be more on the insights that one can obtain from information theory and not on the mathematical derivation of the results. No prior exposure of information theory will be assumed. We will start by introducing some basic results for AWGN channels and then proceed towards communication in fading channels. Some important topics that will be covered are: capacity of wireless channels, multiuser capacity, MIMO capacity, diversity-multiplexing tradeoff and an information theoretic perspective on cognitive radio.

Biography : Prof. AK Chaturvedi obtained his B.Tech ('86), M.Tech ('88) and Ph.D ('95) degrees from the Department of Electrical Engineering at IIT Kanpur. Subsequently he taught at IT-BHU and IIT Roorkee. For the last 13 years he has been teaching at IIT Kanpur where he has also received the Distinguished Teacher Award of the institute. Prof. Chaturvedi's current research interests are in wireless communications, OFDM & cognitive radio. Over the last decade his research contributions have been published in several widely respected journals.