

ONE-DAY SHORT COURSE ON SPACE-TIME CODING

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Space-time coding is a channel coding technique that employs multiple transmit and receive antennas in the system to increase the system capacity. The next generation wireless communication systems are expected to deal with increasing demands for high data-rate, high quality services. Space-time coding can reduce the performance loss of wireless communication systems by exploiting both space and time diversity provided by the multiple-antenna configuration. InterDigital Communication develops advanced wireless technologies and products that drive voice and data communications. The company is a leading developer of W-CDMA technologies, offering FDD and TDD technology and product platforms. InterDigital delivers its solutions for 3G terminals and infrastructure through technology transfer, software protocol stacks, and chipsets.

This short course is to provide the fundamental knowledge of space-time coding and its applications in wireless communications. This course will first introduce the wireless channel model and the diversity techniques to combat channel fading. Then several major ST coding schemes will then be discussed, followed the applications of ST coding in wireless communications. Orthogonal Frequency Division Multiplexing (OFDM) technique and the combination of OFDM with CDMA will also be introduced.