



CHANNEL ESTIMATION OF WIRELESS CHANNELS

By Khawza Ahmed

VDM Verlag Aug 2010, 2010. Taschenbuch. Book Condition: Neu. 220x150x11 mm. Neuware - With the advent of the wireless broadband era, multicarrier technology such as orthogonal frequency division multiplexing (OFDM), and multiple transmit and receive antennas in the physical layer of communication systems appear to be favorable solutions to achieving higher data rates within the costly and scarce frequency spectrum. In communication systems, acquisition of the channel state information (CSI) via training is desirable to remove the distortions experienced by the subsequent information symbols. In this dissertation, the performance of OFDM systems is analyzed over a quasi-static fading channel where the channel is estimated through training and used for decoding. The expressions of bit-error probability (BEP) and pairwise error probability (PEP) are obtained and the loss of performance due to training is quantified. In order to mitigate the loss of performance, a power allocation scheme that distributes the total power optimally between the training and data symbols is devised. The analyses are extended to multiple-input-multiple-output (MIMO) systems with space-time codes. Simulations and numerical examples reinforce our findings. 180 pp. English.



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