

1. Record Nr.	UNINA9911019828103321
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Titolo	Wireless communications over MIMO channels : applications to CDMA and multiple antenna systems / / Volker Kuhn
Pubbl/distr/stampa	Chichester, England, : John Wiley & Sons, c2006
ISBN	9786610519125 9781280519123 1280519126 9780470034606 0470034602 9780470034613 0470034610
Descrizione fisica	1 online resource (389 p.)
Disciplina	621.384
Soggetti	MIMO systems Code division multiple access
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [347]-358) and index.
Nota di contenuto	Wireless Communications over MIMO Channels; Contents; Preface; Acknowledgements; List of Abbreviations; List of Symbols; 1 Introduction to Digital Communications; 1.1 Basic System Model; 1.1.1 Introduction; 1.1.2 Multiple Access Techniques; 1.1.3 Principle Structure of SISO Systems; 1.2 Characteristics of Mobile Radio Channels; 1.2.1 Equivalent Baseband Representation; 1.2.2 Additive White Gaussian Noise; 1.2.3 Frequency-Selective Time-Variant Fading; 1.2.4 Systems with Multiple Inputs and Outputs; 1.3 Signal Detection; 1.3.1 Optimal Decision Criteria; 1.3.2 Error Probability for AWGN Channel; 1.3.3 Error and Outage Probability for Flat Fading Channels; 1.3.4 Time-Discrete Matched Filter; 1.4 Digital Linear Modulation; 1.4.1 Introduction; 1.4.2 Amplitude Shift Keying (ASK); 1.4.3 Quadrature Amplitude Modulation (QAM); 1.4.4 Phase Shift Keying (PSK); 1.5 Diversity; 1.5.1 General Concept; 1.5.2 MRC for Independent Diversity Branches; 1.5.3 MRC for Correlated Diversity Branches; 1.6 Summary; 2

Information Theory; 2.1 Basic Definitions; 2.1.1 Information, Redundancy, and Entropy; 2.1.2 Conditional, Joint and Mutual Information; 2.1.3 Extension for Continuous Signals
 2.1.4 Extension for Vectors and Matrices
 2.2 Channel Coding Theorem for SISO Channels; 2.2.1 Channel Capacity; 2.2.2 Cutoff Rate; 2.2.3 Gallager Exponent; 2.2.4 Capacity of the AWGN Channel; 2.2.5 Capacity of Fading Channel; 2.2.6 Channel Capacity and Diversity; 2.3 Channel Capacity of MIMO Systems; 2.4 Channel Capacity for Multiuser Communications; 2.4.1 Single Antenna AWGN Channel; 2.4.2 Single Antenna Flat Fading Channel; 2.4.3 Multiple Antennas at Transmitter and Receiver; 2.5 Summary; 3 Forward Error Correction Coding; 3.1 Introduction; 3.2 Linear Block Codes
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 3.7.1 Basic Definitions and Encoding

Sommario/riassunto

Wireless Communications over MIMO Channels: Applications to CDMA and Multiple Antenna Systems covers both, state-of-the-art channel coding concepts and CDMA and multiple antenna systems, rarely found in other books on the subject. Furthermore, an information theoretical analysis of CDMA and SDMA systems illuminate ultimate limits and demonstrates the high potential of these concepts. Besides spatial multiplexing, the use of multiple transmit antennas in order to increase the link reliability by diversity concepts (space-time coding) is described. Another focus is the application of er