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Nota di contenuto	Channel-Adaptive Technologies and Cross-Layer Designs for Wireless Systems with Multiple Antennas; CONTENTS; List of Figures; List of Tables; Preface; Acknowledgments; PART 1 THEORY; Chapter 1 Basic Concepts in Wireless Communications; 1.1 Overview; 1.2 Wireless Channel Models; 1.2.1 AWGN Channel Model; 1.2.2 Linear Time-Varying Deterministic Spatial Channel; 1.2.3 The Random Channels; 1.2.4 Frequency-Flat Fading Channels; 1.2.5 Frequency-Selective Fading Channels; 1.3 Equivalence of Continuous-Time and Discrete-Time Models; 1.3.1 Concepts of Signal Space; 1.3.2 Sufficient Statistics 1.3.3 Discrete-Time Signal Model-Flat Fading1.3.4 Discrete-Time Channel Model-Frequency-Selective Fading; 1.4 Fundamentals of Information Theory; 1.4.1 Entropy and Mutual Information; 1.4.2 Shannon's Channel Coding Theorem; 1.4.3 Examples of Channel Capacity; 1.5 Summary; Exercises; Chapter 2 MIMO Link with Perfect Channel State Information; 2.1 Overview; 2.2 Mathematical Model of the MIMO Link; 2.2.1 Probabilistic Channels with States; 2.2.2 General

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2.2.5 Causal Feedback Constraint2.3 Ergodic and Outage Channel Capacity; 2.3.1 Ergodic Capacity; 2.3.2 Outage Capacity; 2.4 Channel Capacity with No CSIT and No CSIR; 2.4.1 Fast Flat Fading MIMO Channels; 2.4.2 Block Fading Channels; 2.5 Channel Capacity with Perfect CSIR; 2.5.1 Block Fading Channels; 2.5.2 Fast Flat Fading MIMO Channels; 2.5.3 Effect of Antenna Correlation on Ergodic MIMO Capacity; 2.5.4 Slow Flat Fading MIMO Channels; 2.6 Channel Capacity with Perfect CSIT Only; 2.6.1 Discrete Block Fading Channels; 2.6.2 Discrete Channel with Three States
2.6.3 Fast Flat Fading MIMO Channels2.6.4 Slow Flat Fading MIMO Channels; 2.7 Channel Capacity with Perfect CSIR and Perfect CSIT; 2.7.1 Fast Flat Fading MIMO Channels; 2.7.2 Slow Flat Fading MIMO Channels; 2.8 Summary; Exercises; Chapter 3 MIMO Link with Imperfect Channel State Information; 3.1 Overview; 3.2 Effect of Imperfect CSI Estimation; 3.2.1 CSI Estimation for MIMO Channels; 3.2.2 Capacity Bounds of MIMO Link; 3.3 Effect of Limited Feedback-Optimizing for SNR; 3.3.1 Introduction to Optimizing Effective SNR; 3.3.2 Grassmannian Line Packing
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Chapter 4 Spacetime Coding and Layered Spacetime Coding for MIMO with Perfect Channel State Information

Sommario/riassunto

This innovative book sets forth two promising wireless approaches that support high-quality, high-speed data and multimedia service-multiple antenna technologies and cross layer transmitter adaptation designs-while highlighting the relationships and interactions between them. The latest advanced technologies of channel adaptation techniques for wireless communication systems with multiple antennas are thoroughly investigated.The book is divided into three parts, first giving readers a good foundation in underlying theory, then exploring applications as well as advanced topics:* Par