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| Nota di contenuto | Preface. -- Abbreviations. -- Functions. -- Symbols. -- 1 Introduction. -- 1.1 Book Structure. -- 1.2 Quick Introduction. -- 1.3 Application Scenarios. -- 1.4 Pros and Cons of Cooperation. -- 1.5 Cooperative Performance Bounds. -- 1.6 Definitions and Terminology. -- 1.7 Background and Milestones. -- 1.8 Concluding Remarks. -- 2 Wireless Relay Channel. -- 2.1 Introductory Note. -- 2.2 General Characteristics and Trends. -- 2.3 Regenerative Relaying Channel. -- 2.4 Transparent Relaying Channel. -- 2.5 Distributed MIMO Channel. -- 2.6 Concluding Remarks. -- 3 Transparent Relaying Techniques. -- 3.1 Introductory Note. -- 3.2 Transparent Relaying Protocols. -- 3.3 Transparent Space / Time Processing. -- 3.4 Distributed System Optimization. -- 3.5 Concluding Remarks. -- 4 Regenerative Relaying Techniques. -- 4.1 Introductory Note. -- 4.2 Regenerative Relay Protocols. -- 4.3 Distributed Space / Time Coding. -- 4.4 Distributed Network Coding. -- 4.5 Concluding Remarks. -- 5 Hardware Issues. -- 5.1 Introductory Note. -- 5.2 Analog Hardware Transceivers. -- 5.3 Digital Hardware |

Transceivers. -- 5.4 Architectural Comparisons. -- 5.5 Complexity of 3G UMTS Voice/HSDPA Relay. -- 5.6 Complexity of LTE/WiMAX Relay. -- 5.7 Hardware Demonstrators. -- 5.8 Concluding Remarks. -- 6 Conclusions and Outlook. -- 6.1 Contributions. -- 6.2 Real-World Impairments. -- 6.3 Open Research Problems. -- 6.4 Business Challenges. -- References. -- Index.

Sommario/riassunto

Facilitating Cooperation for Wireless Systems Cooperative Communications: Hardware, Channel & PHY focuses on issues pertaining to the PHY layer of wireless communication networks, offering a rigorous taxonomy of this dispersed field, along with a range of application scenarios for cooperative and distributed schemes, demonstrating how these techniques can be employed. The authors discuss hardware, complexity and power consumption issues, which are vital for understanding what can be realized at the PHY layer, showing how wireless channel models differ from more traditional models, and highlighting the reliance of PHY algorithm performance on the underlying channel models. Numerous transparent and regenerative relaying protocols are described in detail for a variety of transparent and regenerative cooperative schemes. Key Features: . Introduces background, concepts, applications, milestones and thorough taxonomy. Identifies the potential in this emerging technology (e.g. applications to LTE/WiMAX, WSN). Discusses latest wireless channel models for transparent and regenerative protocols. Addresses the fundamentals as well as latest emerging PHY protocols. Introduces transparent distributed STBC, STTC, multiplexing and beamforming protocols. Quantifies regenerative distributed space-time, channel and network coding protocols. Explores system optimization, such as distributed power allocation and relay selection. Introduces and compares analog and digital hardware architectures. Quantifies complexity, memory and power consumption of 3G UMTS and 4G LTE/WiMAX relay. Highlights future research challenges within the cooperative communications field This book is an invaluable guide for professionals and researchers in communications fields. It will also be of interest to graduates of communications and electronic engineering courses.