1. Record Nr. UNINA9910877736203321

Autore	Hanzo Lajos <1952->
Titolo	MIMO-OFDM for LTE, WIFI, and WIMAX : coherent versus non-coherent and cooperative turbo-transceivers / / Prof. Lajos Hanzo ...[et. al.]
Pubbl/distr/stampa	Chichester, West Sussex, U.K. ; ; Hoboken, NJ, : Wiley, 2010
ISBN	9786612782688 9781282782686 1282782681 9780470711750 0470711752 9780470711767 0470711760
Edizione	[1st edition]
Descrizione fisica	1 online resource (694 p.)
Collana	Wiley - IEEE ; ; 10
Disciplina	621.382/16
Soggetti	Orthogonal frequency division multiplexing MIMO systems Wireless LANs - Equipment and supplies IEEE 802.11 (Standard) IEEE 802.16 (Standard) Radio - Transmitter-receivers
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 and index.
Nota di contenuto	About the Authors -- OtherWiley and IEEE Press Books on Related Topics -- Acknowledgments -- Preface -- List of Symbols -- 1 Introduction to OFDM and MIMO-OFDM -- 1.1 OFDM History -- 1.2 OFDM Schematic -- 1.3 Channel Estimation for Multicarrier -- 1.5 Signal Detection in MIMO-OFDM Systems -- 1.6 Iterative Signal Processing for SDM-OFDM -- 1.7 System Model -- 1.8 SDM-OFDM System Model -- 1.9 Novel Aspects and Outline of the Book -- 1.10 Chapter Summary -- 2 OFDM Standards -- 2.1 Wi-Fi -- 2.2 3GPP Long-Term Evolution -- 2.3 WiMAX Evolution -- 2.4 Chapter Summary -- I Coherently Detected SDMA-OFDM Systems -- 3 Channel Coding Assisted STBC-OFDM Systems -- 3.1 Introduction -- 3.2 Space-Time

Block Codes -- 3.3 Channel Coded Space-Time Block Codes -- 3.4 Channel Coding Aided Space-Time Block Coded OFDM -- 3.5 Chapter Summary -- 4 Coded Modulation Assisted Multi-User SDMA-OFDM Using Frequency-Domain Spreading -- 4.1 Introduction -- 4.2 System Model -- 4.3 Simulation Results -- 4.4 Chapter Summary -- 5 Hybrid Multi-User Detection for SDMA-OFDM Systems -- 5.1 Introduction -- 5.2 Genetical Algorithm Assisted Multi-User Detection -- 5.3 Enhanced GA-based Multi-User Detection -- 5.4 Chapter Summary -- 6 DS-Spreading and Slow Subcarrier-Hopping Aided Multi-User SDMA-OFDM Systems -- 6.1 Conventional SDMA-OFDM Systems -- 6.2 Introduction to Hybrid SDMA-OFDM -- 6.3 Subband-Hopping Versus Subcarrier-Hopping -- 6.4 System Architecture -- 6.5 Simulation Results -- 6.6 Complexity Issues -- 6.7 Conclusions -- 6.8 Chapter Summary -- 7 Channel Estimation for OFDM and MC-CDMA -- 7.1 Pilot-Assisted Channel Estimation -- 7.2 Decision Directed Channel Estimation -- 7.3 A Posteriori FD-CTF Estimation -- 7.4 A Posteriori CIR Estimation -- 7.5 Parametric FS-CIR Estimation -- 7.6 Time-Domain A Priori CIR Tap Prediction -- 7.7 PASTD Aided DDCE -- 7.8 Channel Estimation for MIMO-OFDM -- 8 Iterative Joint Channel Estimation and MUD for SDMA-OFDM Systems -- 8.1 Introduction -- 8.2 System Overview -- 8.3 GA-assisted Iterative Joint Channel Estimation and MUD. 8.4 Simulation Results -- 8.5 Conclusions -- 8.6 Chapter Summary -- II Coherent versus Non-Coherent and Cooperative OFDM Systems List of Symbols in Part II -- 9 Reduced-Complexity Sphere Detection for Uncoded SDMA-OFDM Systems -- 9.1 Introduction -- 9.2 Principle of Sphere Detection -- 9.3 Complexity-Reduction Schemes for SD -- 9.4 Comparison of the Depth-First, K-Best and OHRSA Detectors -- 9.5 Chapter Conclusions -- 10 Reduced-Complexity Iterative Sphere Detection for Channel Coded SDMA-OFDM Systems -- 10.1 Introduction -- 10.2 Channel Coded Iterative Center-Shifting SD -- 10.3 Apriori-LLR-Threshold-Assisted Low-Complexity SD -- 10.4 Unity-Rate-Code-Aided Three-Stage Iterative Receiver Employing SD -- 10.5 Chapter Conclusions -- 11 Sphere Packing Modulated STBC-OFDM and its Sphere Detection -- 11.1 Introduction -- 11.2 Orthogonal Transmit Diversity Design with Sphere Packing Modulation -- 11.3 Sphere Detection Design for Sphere Packing Modulation -- 11.4 Chapter Conclusions -- 12 Multiple-Symbol Differential Sphere Detection for Cooperative OFDM -- 12.1 Introduction -- 12.2 Principle of Single-Path Multiple-Symbol Differential Sphere Detection -- 12.3 Multi-Path MSDSD Design for Cooperative Communication -- 12.4 Chapter Conclusions -- 13 Resource Allocation for the DifferentiallyModulated Cooperative Uplink -- 13.1 Introduction -- 13.2 Performance Analysis of the Cooperation-Aided Uplink -- 13.3 Cooperating-User-Selection for the Uplink -- 13.4 Joint CPS and CUS for the Differential Cooperative Cellular Uplink Using APC -- 13.5 Chapter Conclusions -- 14 The Near-Capacity DifferentiallyModulated Cooperative Cellular Uplink -- 14.1 Introduction -- 14.2 Channel Capacity of Non-coherent Detectors -- 14.3 Soft-Input Soft-OutputMSDSD -- 14.4 Approaching the Capacity of the Differentially Modulated Cooperative Cellular Uplink -- 14.5 Chapter Conclusions -- III Coherent SDM-OFDM Systems -- 15 Multi-Stream Detection for SDM-OFDM Systems -- 15.1 SDM/V-BLAST OFDM Architecture. 15.2 Linear Detection Methods -- 15.3 Non-Linear SDM Detection Methods -- 15.4 Performance Enhancement Using Space-Frequency Interleaving -- 15.5 Performance Comparison and Discussion -- 15.6 Conclusions -- 16 Approximate Log-MAP SDM-OFDM Multi-Stream Detection -- 16.1 Optimized Hierarchy Reduced Search Algorithm-Aided SDM Detection -- 17 Iterative Channel Estimation and Multi-

Stream Detection for SDM-OFDM -- 17.1 Iterative Signal Processing -- 17.2 Turbo Forward Error Correction Coding -- 17.3 Iterative Detection - Decoding -- 17.4 Iterative Channel Estimation - Detection - Decoding -- 18 Summary, Conclusions and Future Research -- 18.1 Summary of the Results -- 18.2 Suggestions for Future Research -- A Appendix to Chapter 5 -- A.1 A Brief Introduction to Genetic Algorithms -- A.2 Normalization of the Mutation-Induced Transition Probability -- Glossary -- Bibliography -- Subject Index -- Author Index.

Sommario/riassunto

MIMO-OFDM for LTE, WIFI and WIMAX: Coherent versus Non-Coherent and CooperativeTurbo-Transceivers provides an up-to-date portrayal of wireless transmission based on OFDM techniques augmented with Space-Time Block Codes (STBCs) and Spatial-Division Multiple Access (SDMA). The volume also offers an in-depth treatment of cutting-edge Cooperative Communications.This monograph collates the latest techniques in a number of specific design areas of turbo-detected MIMO-OFDM wireless systems. As a result a wide range of topical subjects are examined, including channel coding and multiuser detection (MUD), with a special emphasis on optimum maximum-likelihood (ML) MUDs, reduced-complexity genetic algorithm aided near-ML MUDs and sphere detection. The benefits of spreading codes as well as joint iterative channel and data estimation are only a few of the radical new features of the book.Also considered are the benefits of turbo and LDPC channel coding, the entire suite of known joint coding and modulation schemes, space-time coding as well as SDM/SDMA MIMOs within the context of various application examples. The book systematically converts the lessons of Shannon's information theory into design principles applicable to practical wireless systems; the depth of discussions increases towards the end of the book.. Discusses many state-of-the-art topics important to today's wireless communications engineers.. Includes numerous complete system design examples for the industrial practitioner.. Offers a detailed portrayal of sphere detection.. Based on over twenty years of research into OFDM in the context of various applications, subsequently presenting comprehensive bibliographies.