

1. Record Nr.	UNINA9910806990803321
Autore	Glisic Savo G.
Titolo	Advanced wireless communications & Internet : future evolving technologies // Savo G. Glisic
Pubbl/distr/stampa	Chichester, West Sussex, U.K. ; , : Wiley, , 2011 [Piscataway, New Jersey] : , : IEEE Xplore, , [2011]
ISBN	1-119-99175-7 1-283-17791-9 9786613177919 1-119-99163-3 1-119-99162-5
Edizione	[3rd ed.]
Descrizione fisica	1 online resource (951 p.)
Classificazione	TEC041000
Disciplina	621.384
Soggetti	Wireless communication systems - Technological innovations Internet
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	-- Preface to the Third Edition xix -- 1 Fundamentals 1 -- 1.1 4G and the Book Layout 1 -- 1.2 General Structure of 4G Signals 5 -- 1.3 Next Generation Internet 16 -- 1.4 Cloud Computing and Network Virtualization 18 -- 1.5 Economics of Utility Computing 20 -- 1.6 Drawbacks of Cloud Computing 22 -- 1.7 Wireless Grids and Clouds 24 -- References 30 -- 2 Adaptive Coding 35 -- 2.1 Adaptive and Reconfigurable Block Coding 35 -- 2.2 Adaptive and Reconfigurable Convolutional Codes 40 -- 2.3 Concatenated Codes with Interleavers 51 -- 2.4 Adaptive Coding, Practice and Prospects 57 -- 2.5 Distributed Source Coding 59 -- Appendix 2.1 Maximum a Posteriori Detection 69 -- References 71 -- 3 Adaptive and Reconfigurable Modulation 77 -- 3.1 Coded Modulation 77 -- 3.2 Adaptive Coded Modulation for Fading Channels 86 -- References 89 -- 4 Space / Time Coding 93 -- 4.1 Diversity Gain 93 -- 4.2 Space / Time Coding 98 -- 4.3 Space / Time Block Codes from Orthogonal Designs 112 -- 4.4 Channel Estimation Imperfections 122 -- 4.5 Quasi-Orthogonal Space / Time Block Codes 123 -- 4.6 Space / Time Convolutional Codes 127

-- 4.7 Algebraic Space / Time Codes	128
-- 4.8 Differential Space / Time Modulation	133
-- 4.9 Multiple Transmit Antenna Differential Detection from Generalized Orthogonal Designs	142
-- 4.10 Layered Space / Time Coding	148
-- 4.11 Concatenated Space / Time Block Coding	157
-- 4.12 Estimation of MIMO Channel	165
-- 4.13 Space / Time Codes for Frequency Selective Channels	168
-- 4.14 Optimization of a MIMO System	174
-- 4.15 MIMO Systems with Constellation Rotation	182
-- 4.16 Diagonal Algebraic Space / Time Block Codes	187
-- Appendix 4.1 QR Factorization	192
-- Appendix 4.2 Lattice Code Decoder for Space / Time Codes	194
-- Appendix 4.3 MIMO Channel Capacity	195
-- References	200
5 Multiuser Communication	209
5.1 Pseudorandom Sequences	209
5.2 Multiuser CDMA Receivers	220
5.3 Minimum Mean Square Error (MMSE) Linear Multiuser Detection	237
5.4 Single User LMMSE Receivers for Frequency Selective Fading Channels	246
5.5 Signal Subspace-Based Channel Estimation for CDMA Systems	253
-- 5.6 Iterative Receivers for Layered Space / Time Coding	259
Appendix 5.1 Linear and Matrix Algebra	277
-- References	283
6 Channel Estimation and Equalization	291
6.1 Equalization in the Digital Data Transmission System	291
6.2 LMS Equalizer	297
6.3 Detection for a Statistically Known, Time Varying Channel	301
6.4 LMS-Adaptive MLSE Equalization on Multipath Fading Channels	306
6.5 Adaptive Channel Identification and Data Demodulation	311
6.6 Turbo Equalization	324
6.7 Kalman Filter Based Joint Channel Estimation and Data Detection Over Fading Channels	330
6.8 Equalization Using Higher Order Signal Statistics	335
-- References	345
7 Orthogonal Frequency Division Multiplexing / OFDM and Multicarrier CDMA	351
7.1 Timing and Frequency Offset in OFDM	351
7.2 Fading Channel Estimation for OFDM Systems	357
7.3 64 DAPSK and 64 QAM Modulated OFDM Signals	363
7.4 Space / Time Coding with OFDM Signals	367
7.5 Layered Space / Time Coding for MIMO OFDM	375
7.6 Space / Time Coded TDMA/OFDM Reconfiguration Efficiency	379
7.7 Multicarrier CDMA System	392
7.8 Multicarrier DS-CDMA Broadcast Systems	396
7.9 Frame By Frame Adaptive Rate Coded Multicarrier DS-CDMA System	399
7.10 Intermodulation Interference Suppression in Multicarrier CDMA Systems	405
7.11 Successive Interference Cancellation in Multicarrier DS-CDMA Systems	409
7.12 MMSE Detection of Multicarrier CDMA	413
-- 7.13 Approximation of Optimum Multiuser Receiver for Space / Time Coded Multicarrier CDMA Systems	419
7.14 Parallel Interference Cancellation in OFDM Systems in Time-Varying Multipath Fading Channels	430
7.15 Zero Forcing OFDM Equalizer in Time-Varying Multipath Fading Channels	437
7.16 Channel Estimation for OFDM Systems Using Multiple Receive Antennas	442
7.17 Turbo Processing for an OFDM-Based MIMO System	445
7.18 PAPR Reduction of OFDM Signals	447
-- Appendix 7.1	451
-- References	452
8 UltraWide Band Radio	459
8.1 UWB Multiple Access in a Gaussian Channel	459
8.2 The UWB Channel	462
8.3 UWB System with M-ary Modulation	468
8.4 M-ary PPM UWB Multiple Access	476
8.5 Coded UWB Schemes	483
8.6 Multiuser Detection in UWB Radio	486
-- 8.7 UWB with Space / Time Processing	487
8.8 Beamforming for UWB Radio	492
-- References	519
9 Linear Precoding for MIMO Channels	523
9.1 Space / Time Precoders and Equalizers for MIMO Channels	523
9.2 Linear Precoding Based on Convex Optimization Theory	530
9.3 Convex Optimization-Theory-Based Beamforming	540
-- References	561
10 Cognitive Networks	565
10.1 Optimal Channel Sensing in Cognitive Wireless Networks	565
10.2 Optimal	

Sequential Channel Sensing 568 -- 10.3 Optimal Parallel Multiband Channel Sensing 569 -- 10.4 Collaborative Spectrum Sensing 573 -- 10.5 Multichannel Cognitive MAC 578 -- References 583 -- 11 Relay-Assisted Wireless Networks 585 /A. Agustin, J. Vidal, O. Munoz, and S. Glisic -- 11.1 Introduction 585 -- 11.2 Background and Related Work 586 -- 11.3 Cooperative Communications 593 -- 11.4 Relay-Assisted Communications 616 -- 11.5 Two-Way Relay-Assisted Communications 646 -- 11.6 Relay-Assisted Communications With Reuse of Resources 651 -- Appendices 668 -- 12 Biologically Inspired Paradigms in Wireless Networks 683 -- 12.1 Biologically Inspired Model for Securing Hybrid Mobile Ad Hoc Networks 683 -- 12.2 Biologically Inspired Routing in Ad Hoc Networks 687 -- 12.3 Analytical Modeling of AntNet as Adaptive Mobile Agent Based Routing 691 -- 12.4 Biologically Inspired Algorithm for Optimum Multicasting 697 -- 12.5 Biologically Inspired (BI) Distributed Topology Control 703 -- 12.6 Optimization of Mobile Agent Routing in Sensor Networks 708 -- 12.7 Epidemic Routing 710 -- 12.8 Nano-Networks 715 -- 12.9 Genetic Algorithm Based Dynamic Topology Reconfiguration in Cellular Multihop Wireless Networks 718 -- References 739 -- 13 Positioning in Wireless Networks 743 -- 13.1 Mobile Station Location in Cellular Networks 743. 13.2 Relative Positioning in Wireless Sensor Networks 753 -- 13.3 Average Performance of Circular and Hyperbolic Geolocation 762 -- References 771 -- 14 Wireless Networks Connectivity 773 -- 14.1 Survivable Wireless Networks Design 773 -- 14.2 Survivability of Wireless Ad Hoc Networks 776 -- 14.3 Network Dimensioning 777 -- 14.4 Survivable Network Under General Traffic 785 -- 14.5 Stochastic Geometry and Random Graphs Theory 791 -- References 798 -- 15 Advanced Routing and Network Coding 801 -- 15.1 Conventional Routing Versus Network Coding 801 -- 15.2 A Max-Flow Min-Cut Theorem 803 -- 15.3 Algebraic Formulation of Network Coding 807 -- 15.4 Random Network Coding 811 -- 15.5 Gossip Based Protocol and Network Coding 813 -- 15.6 Network Coding With Reduced Complexity 816 -- 15.7 Multisource Multicast Network Switching 820 -- 15.8 Optimization of Wireless Multicast Ad-Hoc Networks 831 -- 15.9 Optimization of Multicast Wireless Ad-Hoc Network Using Soft Graph Coloring and Non-Linear Cubic Games 843 -- 15.10 Joint Optimization of Routing and Medium Contention in Multihop Multicast Wireless Network 855 -- 15.11 Routing and Network Stability 861 -- 15.12 Lagrangian Decomposition of the Multicommodity Flow Optimization Problem 867 -- 15.13 Flow Optimization in Heterogeneous Networks 868 -- 15.14 Dynamic Resource Allocation in Computing Clouds 879 -- 16 Network Formation Games 887 -- 16.1 General Model of Network Formation Games 887 -- 16.2 Knowledge Based Network Formation Games 893 -- 16.3 Coalition Games in Wireless Ad Hoc Networks 897 -- 16.4 HD Game Based TCP Selection 912 -- 16.4.1 Evolutionary Stable Strategy 914 -- 16.4.2 TCP Protocol Competition in Wireless Networks 918 -- References 919 -- Index 923.

Sommario/riassunto

"The new edition of Advanced Wireless Network: Cognitive, Cooperative & Opportunistic 4G Technology, 2nd Edition, including the latest developments In the evolution of wireless communications, the dominant challenges are in the areas of networking and their integration with the Future Internet. Even the classical concept of cellular networks is changing and new technologies are evolving to replace it. To reflect these new trends, Advanced Wireless Communications & INTERNET builds upon the previous volumes, enhancing the existing chapters, and including a number of new topics. Systematically guiding readers from the fundamentals through to

advanced areas, each chapter begins with an introductory explanation of the basic problems and solutions followed with an analytical treatment in greater detail. The most important aspects of new emerging technologies in wireless communications are comprehensively covered including: next generation Internet; cloud computing and network virtualization; economics of utility computing and wireless grids and clouds. This gives readers an essential understanding of the overall environment in which future wireless networks will be operating. Furthermore, a number of methodologies for maintaining the network connectivity, by using tools ranging from genetic algorithms to stochastic geometry and random graphs theory, and a discussion on percolation and connectivity, are also offered. The book includes a chapter on network formation games, covering the general models, knowledge based network formation games, and coalition games in wireless ad hoc networks. Illustrates points throughout using real-life case studies drawn from the author's extensive international experience in the field of telecommunications Fully updated to include the latest developments, key topics covered include: Advanced routing and network coding; Network stability control; Relay-assisted Wireless Networks; Multicommodity flow optimization problems, flow optimization in heterogeneous networks, and dynamic resource allocation in computing clouds Methodically guides readers through each topic from basic to advanced areas Focuses on system elements that provide adaptability and re-configurability, and discusses how these features can improve wireless communications system performance"--

"The concept of the book will be organized within the framework of wireless access to future internet, so that a number of topics above physical layer will be added"--
