Broadband Wireless Le 3g And Beyond

This book constitutes the thoroughly refereed post-conference proceedings of the 12th International Conference on Wired/Wireless Internet Communication, WWIC 2014, held in Paris, France, during May 27-28, 2014. The 22 revised full papers presented were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on wireless and wired networks; resource management and next generation services; next generation services, network architecture and applications.

Broadband Wireless Mobile (3G and 4G) will be the next key developments in wireless communications. Immense interest has been fuelled by large demand for high frequency utilisation as well as a large number of users requiring simultaneous multidimensional high data rate access for the applications of wireless mobile internet and e-commerce. Broadband wireless mobile extends the corporate LAN to common areas such as meeting rooms and enables in-building public wireless hotspots such as airport lounges to provide wireless portable computer connectivity. People will be able to access information as if they were at their desk and will be able to communicate reliably and access securely the information most important to them, such as email, corporate data and the Internet. The 3G/4G systems will use a new network architecture (eg All-IP NET) to deliver broadband services in a more generic configuration to mobile customers and supports multidimensional services and emerging interactive multimedia communications. The world of telecommunications will continue to migrate toward wireless technologies and will ultimately provide users with mobile access to all types of media and information in a variety of forms including media phones and portable

computers. * Provides coverage of 4G mobile - the newest development by ITU (International telecommunication Union) * Covers range of emerging wireless applications including WAP and iMode * Provides a world perspective on the topic as the authors are from USA, Europe and Japan An essential reference for engineers and researchers in the field of wireless communications systems (and electrical engineering), network planners and operators, as well as a valuable reference for students and management, marketing, sales or investor personnel in the area of wireless communications.

A highly practical guide rooted in theory to include the necessary background for taking the reader through the planning, implementation and management stages for each type of cellular network. Present day cellular networks are a mixture of the technologies like GSM, EGPRS and WCDMA. They even contain features of the technologies that will lead us to the fourth generation networks. Designing and optimising these complex networks requires much deeper understanding. Advanced Cellular Network Planning and Optimisation presents radio, transmission and core network planning and optimisation aspects for GSM, EGPRS and WCDMA networks with focus on practical aspects of the field. Experts from each of the domains have brought their experiences under one book making it an essential read for design practitioners, experts, scientists and students working in the cellular industry. Key Highlights Focus on radio, transmission and core network planning and optimisation Covers GSM, EGPRS, WCDMA network planning & optimisation Gives an introduction to the networks/technologies beyond WCDMA, and explores its current status and future potential Examines the full range of potential scenarios and problems faced by those who design cellular networks and provides advice and solutions all backed up with real-world examples

This text will serve as a handbook to anyone engaged in the design, deployment, performance and business of Cellular Networks. "Efficient planning and optimization of mobile networks are key to guarantee superior quality of service and user experience. They also form the essential foundation for the success of future technology development, making this book a valuable read on the road towards 4G." —Tero Ojanperä, Chief Technology Officer, Nokia Networks

This volume presents the proceedings of the CLAIB 2011, held in the Palacio de las Convenciones in Havana, Cuba, from 16 to 21 May 2011. The conferences of the American Congress of Biomedical Engineering are sponsored by the International Federation for Medical and Biological Engineering (IFMBE), Society for Engineering in Biology and Medicine (EMBS) and the Pan American Health Organization (PAHO), among other organizations and international agencies and bringing together scientists, academics and biomedical engineers in Latin America and other continents in an environment conducive to exchange and professional growth.

InfoWorld is targeted to Senior IT professionals. Content is segmented into Channels and Topic Centers. InfoWorld also celebrates people, companies, and projects.

UMTS is the wireless network technology behind the rollout of Third Generation (3G) mobile telecoms networks which will bring video, music and internet services to the cellphone and a range of electronic products. Chris Braithwaite and Mike Scott use their extensive experience of training engineers across Europe, and their backgrounds in working with Nokia, Ericsson and Orange to deliver a uniquely practical guide written from the perspective of the engineer and network planner. This guide is a valuable addition to the literature on UMTS which to date has been dominated by theoretical and reference works. The authors consider each of the key

topics of UMTS/WCDMA and 3G rollout in terms of Coverage, Capacity and Quality of Service-the key considerations for all engineers and managers working in 3G telecoms. *A real-world design guide with cookbook-style instructions and rules of thumb, not another R&D-level book or crib to the standards. *Covers the hot engineering issues in UMTS planning, design and implementation. *UMTS is the natural evolutionary choice for operations of GSM networks, currently representing a customer base of more than 747 million end users in over 180 countries and representing over 70% of today's digital wireless market[source: GSM Association]

The Cognitive Approach in Cloud Computing and Internet of Things Technologies for Surveillance Tracking Systems discusses the recent, rapid development of Internet of things (IoT) and its focus on research in smart cities, especially on surveillance tracking systems in which computing devices are widely distributed and huge amounts of dynamic real-time data are collected and processed. Efficient surveillance tracking systems in the Big Data era require the capability of quickly abstracting useful information from the increasing amounts of data. Real-time information fusion is imperative and part of the challenge to mission critical surveillance tasks for various applications. This book presents all of these concepts, with a goal of creating automated IT systems that are capable of resolving problems without demanding human aid. Examines the current state of surveillance tracking systems, cognitive cloud architecture for resolving critical issues in surveillance tracking systems, and research opportunities in cognitive computing for surveillance tracking systems Discusses topics including cognitive computing architectures and approaches, cognitive computing and neural networks, complex analytics and machine learning, design of a symbiotic agent for recognizing

real space in ubiquitous environments, and more Covers supervised regression and classification methods, clustering and dimensionality reduction methods, model development for machine learning applications, intelligent machines and deep learning networks includes coverage of cognitive computing models for scalable environments, privacy and security aspects of surveillance tracking systems, strategies and experiences in cloud architecture and service platform design

Network Management: Principles And Practice is a reference book that comprehensively covers various theoretical and practical concepts of network management. It is divided into four units. The first unit gives an overview of network management. The

This is the 41st edition of the Yearbook of Statistics. The data included in the Yearbook have been collected and processed by the Telecommunication Development Bureau (BDT) from replies received to ITU questionnaires sent to telecommunication ministries or regulators and national statistics offices. As such, the ITU Yearbook of Statistics provides the most authoritative source of data about the evolution of the telecommunication sector, the availability of ICTs in households and usage of ICTs by individuals.

Fourth-Generation Wireless Networks: Applications and Innovations presents a comprehensive collection of recent findings in access technologies useful in the architecture of wireless networks.

Focusing on the most promising broadband applications and services and the business strategies that are most viable to ensure favorable return on investment, this report is authored by industry professionals and examines the current and potential markets for a range of broadband applications and services and offers business strategies that providers can adopt to

help ensure profitability. Detailed case studies from service providers around the world also provide invaluable insights into the challenges and opportunities present in today's global broadband industry. This report is an important resource for any communications company that hopes to profit from the evolutions in broadband applications and services.

This book provides a big picture of the key wireless industries, what systems and technologies they use, how they operate, their market trends, and what services they provide. If you are involved or you are getting involved in the wireless industry, your life is changing. The growth and decline of wireless industries can be well over 40% per year and it rapidly changes. Some wireless systems that were "hot technologies" just 10 years ago with billions of dollars in investment with national or global presence are simply gone. This information covered in this book ranges from the basics to what's new in wireless. You will learn that each wireless industry has its own unique advantages and limitations, which offer important economic and technical choices for managers, salespeople, technicians, and others involved with wireless telephones and systems. This book provides the background for a good understanding of the major wireless technologies, issues, and options available. The book starts with a basic introduction to wireless communication. It covers the different types of industries, who controls and regulates them, and provides a basic definition of each of the major wireless technologies. A broad overview of the telecom voice, data, and multimedia applications is provided. You will discover the fundamentals of wireless technologies and their terminology are described along with how the radio frequency spectrum is divided, the basics of radio frequency transmission and modulation, antennas and radio networks. The different types of analog and digital mobile telephone systems and their evolution are covered. Included is the basic operation, attributes

and services for analog cellular(1st generation), digital cellular (2nd generation), packet based cellular (2 = generation), and wideband cellular (3rd generation) communication systems. Private land mobile radio (PLMR) dispatch and two-way radio systems are explained along with how they are changing from proprietary analog systems to advanced digital multimedia communication systems. The basics of mobile data are provided along with the available types of packet and circuit switched data systems and how they operate. Descriptions of paging systems are provided and you will discover how paging systems are evolving from one-way numeric messaging to two-way interactive information services. Important characteristics of satellite systems are covered. An overview of fixed wireless systems including point to point microwave, wireless cable, and broadband wireless is included. The fundamentals of radio and television broadcast systems are covered along with how they are converting from analog to digital systems and why in just a few years service to existing radios and telephones will stop. The fundamentals of residential cordless, public cordless and WPBX telephone systems covered. Wireless local area networks (WLANs) basics are provided including the different versions of 802.11. Short-range Bluetooth wireless is explained along with how it is used by accessories such as headsets, keyboards, cameras, and printers. The fundamentals of billing and customer care systems are provided along with these systems collect and process service and usage charges.

This is the 42nd edition of the Yearbook of Statistics. The data included in the Yearbook have been collected and processed by the Telecommunication Development Bureau (BDT) from replies received to ITU questionnaires sent to telecommunication ministries or regulators and national statistics offices. As such, the ITU Yearbook of Statistics provides the most

authoritative source of data about the evolution of the telecommunication sector, the availability of ICTs in households and usage of ICTs by individuals.

It looks different. It acts different. There's no right way to hold it. It responds to the touch of your fingertips. It's the Internet in your lap. It connects to the world, yet it is as personal as a well-worn book. Taking Your iPad to the Max is written so that anyone, from a computer-savvy teenager to a 92-year-old great-grandmother, can quickly get up to speed on Apple's latest hit. As bloggers at The Unofficial Apple Weblog (tuaw.com), we have the happy privilege of working with Apple products every day. The iPad is so different from any computer you've ever used, and we realize many people could use a helping hand, to feel comfortable buying and using an iPad. We take you from selecting and buying an iPad, to connecting it to the Internet, and then demonstrate just how to use the incredible power of the iPad and all its apps to enhance your life. Whether you're using your iPad to surf the Internet, admire family photos, listen to music, watch movies, or read a book, we're here to guide you. We show you how your iPad can be a virtual shopping mall, opening the door to purchases of music, books, videos, and movies. We help you organize your daily life through the use of Calendar, Notes, and Contacts, communicate with friends and colleagues with Mail, and find your way with Maps. The iPad is more than the ultimate leisure device; it's also a work tool. Taking Your iPad to the Max guides you through the basics of Apple's iWork suite for iPad. Learn to create business or personal documents with Pages, make professional presentations with Keynote, and keep data and finances under control with Numbers.

The new edition of Advanced Wireless Communications: 4G Cognitive and Cooperative Broadband 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

This textbook introduces the advanced topics of: (i) wireless communications, (ii) free-space optical (FSO) communications, (iii) indoor optical wireless (IR) communications, and (iv) fiber-optics communications and presents these different types of communication systems in a unified fashion for better practical use. Fundamental concepts, such as propagation principles, modulation formats, channel coding, diversity principles, MIMO signal processing, multicarrier modulation, equalization, adaptive modulation and coding, detection principles, and software defined transmission are first described and then followed up with a detailed look at each particular system. The book is self-contained and structured to provide straightforward guidance to readers looking to capture fundamentals and gain theoretical and practical knowledge about wireless communications, optical communications, and fiber-optics communications, all which can be readily applied in studies, research, and practical applications. The textbook is intended for an upper undergraduate or graduate level course in optical communication. It features problems, an appendix with all background material needed, and homework.

With the increased functionality demand for mobile speed and access in our everyday lives, broadband wireless networks have emerged as the solution in providing high data rate communications systems to meet these growing needs. Broadband Wireless Access Networks for 4G: Theory, Application, and Experimentation presents the latest trends and research on mobile ad hoc networks, vehicular ad hoc networks, and routing

algorithms which occur within various mobile networks. This publication smartly combines knowledge and experience from enthusiastic scholars and expert researchers in the area of wideband and broadband wireless networks. Students, professors, researchers, and other professionals in the field will benefit from this book's practical applications and relevant studies.

This book presents the state of the art in the field of mobile and wireless networks, and anticipates the arrival of new standards and architectures. It focuses on wireless networks, starting with small personal area networks and progressing onto the very large cells of wireless regional area networks, via local area networks dominated by WiFi technology, and finally metropolitan networks. After a description of the existing 2G and 3G standards, with LTE being the latest release, LTE-A is addressed, which is the first 4G release, and a first indication of 5G is provided as seen through the standardizing bodies. 4G technology is described in detail along with the different LTE extensions related to the massive arrival of femtocells, the increase to a 1 Gbps capacity, and relay techniques. 5G is also discussed in order to show what can be expected in the near future. The Internet of Things is explained in a specific chapter due to its omnipresence in the literature, ad hoc and mesh networks form another important chapter as they have made a comeback after a long period of near hibernation, and the final chapter discusses a particularly recent topic: Mobile-Edge Computing (MEC) servers.

From semiconductors to networks and exchanges, busy telecom engineers can now get up to speed on the latest advances in the field with this vital tool for the rapid understanding and mastering of the latest implementation and development techniques. The broadband wireless communications field is growing at an explosive rate, stimulated by a host of important emerging applications ranging from 3G, 4G and wireless LAN. Wideband CDMA and CDMA2000 will be used for 3G. OFDM+CDMA might be a good choice for 4G, CDMA overlay will possibly be used for new-generation broadband wireless LAN. For system planners and designers, the projections of rapidly escalating demand for such wireless services present major challenges and meeting these challenges will require sustained technical innovation on many fronts. The text of this book has been developed through years of research by the author and his graduate students at the University of Hong Kong. The aim of this book is to provide a R&D perspective on the field of broadband wireless communications by describing the recent research developments in this area and also by identifying key directions in which further research is needed. As a background, I presume that the reader has a thorough understanding of digital communications and spread spectrum/CDMA. The book is arranged into 13 chapters. In chapter 1, some key specifications of 3G WCDMA are described and discussed. These techniques include channel coding, rate matching, modulation and spreading, power control, cell search, transmit diversity, soft-handoff, and so son. In Chapter 2, the coherent RAKE reception of Wideband CDMA signals

with complex spreading is considered. A dedicated pilot channel, which is separate from data channels, is used for the purpose of channel estimation.

This is a collection of 95 papers presented at the premier technical forum for 3G mobile and related technologies. The meeting brings together researchers and technologists from manufactures, service providers, operators, application developers, regulators and standards bodies to share the latest information and promote the development of 3G services, systems and networks. Conference Themes and Scope: Radio Access IP based Networks Services & Applications Messaging Devices

NOTE: NO FURTHER DISCOUNT FOR THIS PRINT PRODUCT- OVERSTOCK SALE -- Significantly reduced list price Discusses the Broadband Initiatives Program for rural areas. Utility workers, especially broadband provider workers, and citizens residing in America's rural communities may be interested in this resource. Related products: Information-Centric Warfare can be found here: https: //bookstore.gpo.gov/products/sku/008-000-00965-1 Convergence: Illicit Networks and National Security in the Age of Globalization can be found here: https: //bookstore.gpo.gov/search/apachesolr_search/Convergence YouTube War: Fighting in a World of Cameras in Every Cell Phone and Photoshop on Every Corner can be found here: https: //bookstore.gpo.gov/products/sku/008-000-01071-4 "

This very up-to-date and practical book, written by engineers working closely in 3GPP, gives insight into the newest technologies and standards adopted by 3GPP, with

detailed explanations of the specific solutions chosen and their implementation in HSPA and LTE. The key technologies presented include multi-carrier transmission, advanced single-carrier transmission, advanced receivers, OFDM, MIMO and adaptive antenna solutions, advanced radio resource management and protocols, and different radio network architectures. Their role and use in the context of mobile broadband access in general is explained. Both a high-level overview and more detailed step-by-step explanations of HSPA and LTE implementation are given. An overview of other related systems such as TD SCDMA, CDMA2000, and WIMAX is also provided. This is a 'must-have' resource for engineers and other professionals working with cellular or wireless broadband technologies who need to know how to utilize the new technology to stay ahead of the competition. The authors of the book all work at Ericsson Research and are deeply involved in 3G development and standardisation since the early days of 3G research. They are leading experts in the field and are today still actively contributing to the standardisation of both HSPA and LTE within 3GPP. * Gives the first explanation of the radio access technologies and key international standards for moving to the next stage of 3G evolution: fully operational mobile broadband * Describes the new technologies selected by the 3GPP to realise High Speed Packet Access (HSPA) and Long Term Evolution (LTE) for mobile broadband * Gives both higher-level overviews and detailed explanations of HSPA and LTE as specified by 3GPP Rapid deployment and acceptance of broadband networks, including the 802.11 a/b/g,

3G cellular networks, WiMAX, and emerging 4G cellular IP networks, have sparked a growing reliance on voice over IP and the quickly emerging IP TV and Mobile TV. Providing the necessary background and technical understanding to stay abreast of and even ahead of the IP trend, IP Communications and Services for NGN explores IP development for the delivery of next generation mobile services. Packed with detailed illustrations, this cutting-edge reference examines the primary IP protocols (IPv4 and IPv6), real-time protocols, and three major IP services (VoIP, IPTV, and Mobile TV). It clearly explains the different architectures of fixed, mobile, and wireless networks along with the major advantages and disadvantages of each. It includes coverage of the latest in: The VoIP Market SCTP and Vertical Handoff RSVP: Resource Reservation Protocol MPLS: MultiProtocol Label Switching SIP: Session Initiation Protocol IMS: IP Multimedia Subsystem RTSP: Real-Time Streaming Protocol RTP: Real-Time Transport Protocol IPTV System Architectures and IPTV System Descriptions With a detailed listing of commonly used acronyms, along with a clear description of the role IP is likely to play in the development of next generation mobile services, this book provides educators, industry practitioners, regulators, and subscribers with the ideal starting point for developing the understanding required to deploy, train, and use IP services effectively and efficiently.

Bing (satellite and hybrid communication networks, U. of Maryland) discusses the design and development of wireless access protocols, emphasizing how such

protocols can efficiently support disparate classes of multimedia traffic. After introducing and surveying the evolution of wireless access protocols, he describes many important protocols that are deployed or experimented with in various broadband wireless environments, such as asynchronous transfer mode, satellite networks, mobile cellular and personal communications systems, local loops, and local-area and home networks. Seeking a broad audience ranging from novices to veterans who are undertaking research in the area, he does discuss engineering aspects but focuses on the physical understanding and keeps the mathematics to a minimum. Annotation copyrighted by Book News, Inc., Portland, OR

Europe's leading experts from industry and academia present the results of the research into advanced mobile technologies and services performed within the scope of the ACTS R& D program in two new book volumes. Invaluable for industry professionals and researchers, the state-of-the-art in European R& D into wireless technologies is detailed in these two works.

After the dramatic failures of the dot coms in 2000 and 2001, many observers were quick to report on the death of electronic commerce. Investor confidence sagged, stock prices of technology firms in nearly all of the related sectors suffered. In reality, the picture is not nearly as dismal as the press would have us

believe. E-commerce is not dead, but it has moved beyond its overhyped beginning stage. This book is an effort to sort through the hype, providing a realistic assessment of the state of electronic commerce today, and the important areas of opportunity and challenge for tomorrow. The book sees all kind of developments where e-business is becoming an integral part of 'traditional' business processes, with special emphasis on practical and policy importance. E-commerce scholars from a number of disciplines and countries contribute to assess the impact of the dot com bust and the current state of e-commerce. The 18th Tyrrhenian Workshop on digital communications is devoted to wi- less communications. In the last decade, wireless communications research boosted launching new standards and proposing new techniques for the - cess technology. We moved from the UTRA standard capable to transmit 0. 5bit/s/Hz to WLAN which is promising 2. 7bit/s/Hz. Now wireless c- munication systems are facing a ?ourishing of new proposal moving from multiple antennas at transmitter and receiver side (MIMO systems), to new powerfulForwardErrorCorrectionCodes,toadaptiveradioresourcemana- mentalgorithms. Thenewchallenge,however,isthemovetowardsmultimedia communications and IP technology. This move implies e?orts in several new aspects. First of all an open network, as IP is, imposes the necessity of a - cure

network, to guarantee the privacy of the ongoing communications, avoid the use of the networks by unauthorized customers, avoid the misuses and the charge to third parties of the cost of the connection. Also, quality of service (QoS) of the communications is becoming a must in IP networks which are carrying services which need a guaranteed QoS as telephony, real time s- vices, etc. To get this new target some form of access control to the network must be setup. Recently, new form of communication networks has appeared to collect data for several applications (sensor networks, ad hoc networks, etc.) and they need a connection with a backbone network which could be a wireless one with a larger range than the sensor or ad hoc networks.

Broadband Wireless Communications3G, 4G and Wireless LANSpringer Designed to help networking professionals take advantage of the innovative features of broadband wireless networks, this helpful volume provides a detailed tutorial--complete with hands-on examples, installation tips, and configuration and troubleshooting techniques--that demostrates how to design, implement, and effectively utilize the latest in wireless technology. Original. (Intermediate) Market research guide to e-commerce and internet business a tool for strategic planning, competitive intelligence, employment searches or financial research. Contains trends, statistical tables, and an industry glossary. Includes one page

profiles of e-commerce and internet business firms - includes addresses, phone numbers, executive names.

In this book, the author addresses technologies that are being used in emerging cellular markets. These include GSM/EGPRS and CDMA which are being deployed at a rapid pace, while technologies such as UMTS (3G)/ HSPA (3.5G) which have started to find a place in these high growth markets, are also considered. The book examines other technologies including LTE (3.9G) which have already moved out of research labs into the commercial world. 2G-CDMA is widely used, while further developments, e.g. CDMA2000 are also finding acceptance in the commercial arena. IMS/Convergence is increasingly popular all over the world; UMA, which is deployed mostly in North America; and DVB which is gaining worldwide popularity, especially in South Asia, are all reviewed. Each chapter discusses a different technology and is structured into three parts. The technology is examined at an overview level, first explaining what the technology is and then considering the technical features of the technology. The chapter concludes by looking at the planning/implementation aspects of the technology. Key Features: Useful for all cellular industry professionals as provides an overview of the currently deployed technologies in mass scale, and the forthcoming technologies that are expected to make an impact in the future,

such as 4th Generation Cellular Networks. One of the first books on the market to encompass all the major cellular technologies, as well as considering the design and implementation perspective. Wireless Technology will play a key role in uplifting the economies of the Emerging countries globally. Ashok Chandra, Wireless Advisor to Govt. of India

This practical, one-stop guide will quickly bring you up to speed on LTE and LTE-Advanced. With everything you need to know about the theory and technology behind the standards, this is a must-have for engineers and managers in the wireless industry. • First book of its kind describing technologies and system performance of LTE-A • Covers the evolution of digital wireless technology, basics of LTE and LTE-A, design of downlink and uplink channels, multi-antenna techniques and heterogeneous networks • Analyzes performance benefits over competing technologies, including WiMAX and 802.16m • Reflects the latest LTE Release-10 standards • Includes numerous examples, including extensive system and link results • Unique approach is accessible to technical and non-technical readers alike

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The Wireless Metropolitan Area Network (WirelessMAN) is a promising Broadband Wireless Access (BWA) technology that provides high-speed, high-bandwidth efficiency

and high-capacity multimedia services for both residential and enterprise applications. Mobile WiMAX: Toward Broadband Wireless Metropolitan Area Networks examines the basic concepts, rec

The broadband wireless communications field is growing at an explosive rate, stimulated by a host of important emerging applications ranging from 3G, 4G and wireless LAN. For system planners and designers, the projections of rapidly escalating demand for such wireless services present major challenges and meeting these challenges will require sustained technical innovation on many fronts. The aim of this book is to provide a R&D perspective on the field of broadband wireless communications by describing the recent research developments in this area and also by identifying key directions in which further research is needed.

The wireless community is on the verge of the standardization of fourth generation (4G) systems. Research has generated a number of solutions for significant improvement of system performance. The development of enabling technologies such as adaptive coding and modulation, iterative (turbo) decoding algorithms and space-time coding, means that industry can now implement these solutions. Advanced Wireless Communications: 4G Technologies focuses on the system elements that provide adaptability and reconfigurability and discusses how these features can improve 4G system performance. There are several different systems comprising 4G, including adaptive WCDMA (Wideband Code Division Multiple Access), ATDMA (Adaptive Time

Division Multiple Access), Multicarrier (OFDMA) and Ultra Wide Band (UWB) receiver elements. This book provides a comparative study of these technologies and focuses on their future co-existence. Topics covered include: Space Time Coding, including discussions on diversity gain, the encoding and transmission sequence, the combining s cheme and ML decision rule for two-branch transmit diversity scheme with one and M receivers. Ultra Wide Band Radio, UWB multiple access in Gaussian channels, the UWB channel, UWB system with M-ary modulation, M-ary PPM UWB multiple access, coded UWB schemes, multi-user detection in UWB radio, UWB with space time processing and beam forming for UWB radio. Antenna array signal processing with focus on Space-Time receivers for CDMA communications, MUSIC and ESPRIT DOA estimation, joint array combining and MLSE receivers, joint combiner and channel response estimation and complexity reduction in the wide-band beam forming Channel modeling and measurement, adaptive MAC, adaptive routing and TCP layer are also addressed. This book will supply the reader with a comprehensive understanding of the relationship between the systems performance, its complexity/reliability and cost-effectiveness. It gives an insight into the impact of existing and new technologies on the receiver structure and provides an understanding of current approaches and evolving directions for personal and indoor communication.

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