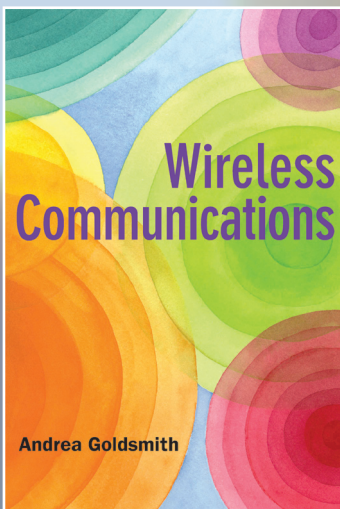


Wireless Communications Systems



Wireless Communications

Andrea Goldsmith
Stanford University, California, USA

Wireless technology is a truly revolutionary paradigm shift, enabling multimedia communications between people and devices from any location. It also underpins exciting applications such as sensor networks, smart homes, telemedicine, and automated highways. This book provides a comprehensive introduction to the basic principles, design techniques and analytical tools of wireless communications, focusing primarily on core principles of wireless system design. It begins with an overview of wireless systems and standards. The characteristics of the wireless channel are then described, including capacity limits. Various modulation and coding schemes are then discussed in detail, including state-of-the-art adaptive modulation and diversity techniques. The concluding chapters deal with multiple and random access in wireless networks, cellular system design, and ad-hoc network design.

'Andrea Goldsmith has successfully created a book that balances the pressing needs of practical design and an appreciation for deep insights that come from theory. Written by a pioneer in adaptive modulation techniques for fading channels, this book is excellent in developing a working knowledge of modern wireless communication techniques that have been invented over the past decade. It is likely to become the standard textbook for wireless communications for the next 10 years.'

VOLKAN RODOPLU, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Contents: 1. Overview of wireless communications; 2. Path loss and shadowing; 3. Statistical multipath channel models; 4. Capacity of wireless channels; 5. Digital modulation and detection; 6. Performance of digital modulation over wireless channels; 7. Diversity; 8. Coding for wireless channels; 9. Adaptive modulation and coding; 10. Multiple antennas and space-time communications; 11. Equalization; 12. Multicarrier modulation; 13. Spread spectrum; 14. Multiuser systems; 15. Cellular systems and infrastructure-based wireless networks; 16. Ad-hoc networks.

2005 648pp 221 illustrations 295 exercises
978 0 521 83716 3 (0521837162) • HB • £40.00

Fundamentals of Wireless Communication

David Tse
University of California, Berkeley, USA
and Pramod Viswanath
University of Illinois, Urbana-Champaign, USA

The past decade has seen many advances in physical layer wireless communication theory and their implementation in wireless systems. This textbook takes a unified view of the fundamentals of wireless communication and explains the web of concepts underpinning these advances at a level accessible to an audience with a basic background in probability and digital communication. An abundant supply of exercises and figures reinforce the material in the text.

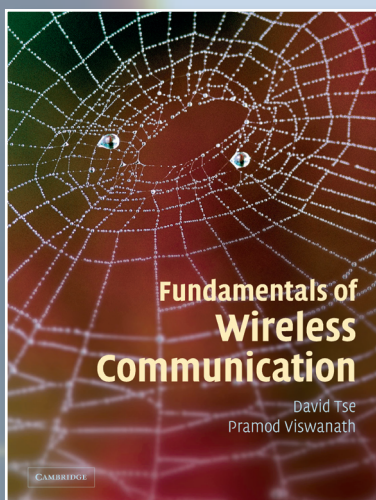
'...a superb textbook covering the field of modern wireless communications. The book truly covers the fundamentals of a wireless system design and incorporates a lucid exposition of the most recent advances such as MIMO and opportunistic communication. The results are derived with exceeding clarity and often linked to an information theoretical framework, thus providing the reader with a clear understanding of optimal design choices for both point-to-point and multiple access wireless communication ...'

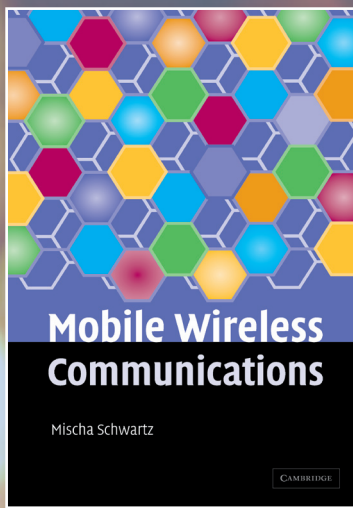
DR ROBERTO PADOVANI, QUALCOMM INCORPORATED, SAN DIEGO

Contents

1. Introduction; 2. The wireless channel; 3. Point-to-point communication: detection, diversity and channel uncertainty; 4. Cellular systems: multiple access and interference management; 5. Capacity of wireless channels; 6. Multiuser capacity and opportunistic communication; 7. MIMO I: spatial multiplexing and channel modeling; 8. MIMO II: capacity and multiplexing architectures; 9. MIMO III: diversity-multiplexing tradeoff and universal space-time codes; 10. MIMO IV: multiuser communication; A. Detection and estimation in additive Gaussian noise; B. Information theory background.

2005 586pp 211 illustrations 237 exercises
978 0 521 84527 4 (0 521 84527 0) • HB • £40.00





Mobile Wireless Communications

Mischa Schwartz
Columbia University, New York, USA

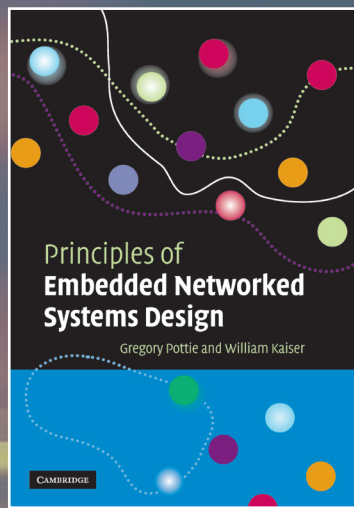
Wireless communication has become a ubiquitous part of modern life, from global cellular telephone systems to local and even personal-area networks. This book provides a tutorial introduction to digital mobile wireless networks, illustrating theoretical underpinnings with a wide range of real-world examples. It begins with a review of propagation phenomena, and goes on to examine channel allocation, modulation techniques, multiple access schemes, and coding techniques. GSM and IS-95 systems are reviewed and 2.5G and 3G packet-switched systems are discussed in detail. Performance analysis and accessing and scheduling techniques are covered, and the book closes with a chapter on wireless LANs and personal-area networks.

Features

- Provides an accessible introduction to the theory and practice of modern wireless networks
- Contains many worked examples and homework exercises
- Solutions manual available for instructors

Contents: 1. Introduction and overview; 2. Characteristics of the mobile radio environment – propagation phenomena; 3. Cellular concept and channel allocation; 4. Dynamic channel allocation and power control; 5. Modulation techniques; 6. Multiple access techniques: FDMA, TDMA, CDMA – system capacity comparisons; 7. Coding for error detection and correction; 8. Second-generation, digital, wireless systems; 9. Performance analysis: admission control and handoffs; 10. 2.5G/3G mobile wireless systems: packet-switched data; 11. Access and scheduling techniques in cellular systems; 12. Wireless LANs and personal-area networks.

2004 470pp 309 illustrations
978 0 521 84347 8 (0 521 84347 2) • HB • £40.00



Principles of Embedded Networked Systems Design

Gregory Pottie
and William Kaiser
Both from the University of California, Los Angeles, USA

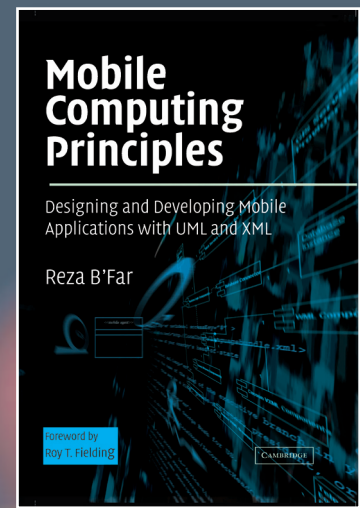
Embedded network systems (ENS) provide a set of technologies that can link the physical world to large scale networks in applications such as monitoring of borders, infrastructure, health, the environment, automated production, supply chains, homes, and places of business. This book details the fundamentals for this interdisciplinary and fast-moving field. Ethical, legal, and social implications are addressed.

Features

- Provides all relevant underlying theory and explains key design principles
- Includes many practical reference designs
- Large number of examples and problems to illustrate the concepts
- Online solutions and lecture notes are available for instructors

Contents: 1. Introduction to embedded network systems; 2. Representation of signals; 3. Signal propagation; 4. Sensor principles; 5. Source detection and identification; 6. Digital communications; 7. Multiple source estimation and multiple access communications; 8. Networking; 9. Network position and synchronization services; 10. Energy management; 11. Data management; 12. Articulation, mobility, and infrastructure; 13. Node architecture; 14. Network data integrity; 15. Experimental systems design; 16. Ethical, legal and social implications of ENS; 17. Design principles for ENS; Appendix A. Gaussian Q-function; Appendix B. Optimization.

2005 544pp 260 illustrations 169 exercises
978 0 521 84012 5 (0 521 84012 0) • HB • £50.00



Mobile Computing Principles

Designing and Developing Mobile Applications with UML and XML

Reza B'Far
Foreword by Roy T. Fielding

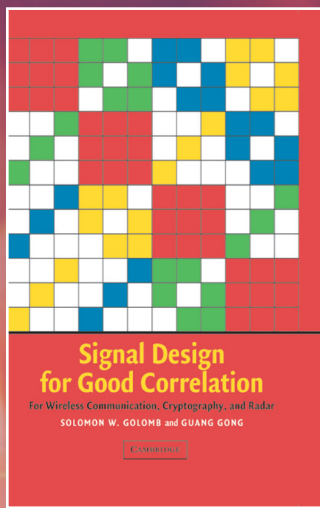
The author explores the differences between mobile and stationary applications and the architectural and software development concepts needed to build mobile applications using UML as a tool to guide the developer through the development process and to document the design and implementation of the application.

Features

- Comprehensive
- Cutting edge
- Gives general concepts but still practical

Contents: Part I. Introductions to the Main Topics: 1. Introduction to mobile computing; 2. Introduction to mobile development frameworks and tools; 3. XML: document and meta-data format for mobile; 4. Introduction to UML; Part II. Device Independent and Multi-Channel User Interface Development Using UML: 5. Generic user interface development; 6. Developing mobile GUIs; 7. Voice user Interfaces and mobile applications; 8. Multi-channel and multi-modal user interfaces; Part III. Additional Dimensions of Mobile Application Development: 9. Mobile agents and peer-to-peer architectures for mobile computing; 10. Wireless connectivity and mobile applications; 11. Synchronization and replication of mobile data; 12. Mobility and location information; 13. Active transactions; 14. Mobile security; Part IV. Putting the Project Together: 15. The mobile development process; 16. Architecture, design, and technology selection; 17. Mobile application implementation hurdles; 18. Testing; 19. A case study.

2005 878pp 150 illustrations
978 0 521 81733 2 (0 521 81733 1) • HB • £50.00



Signal Design for Good Correlation

For Wireless Communication, Cryptography, and Radar

Solomon W. Golomb

University of Southern California, USA

and Guang Gong

University of Waterloo, Ontario, Canada

This up-to-date text and reference presents all the necessary mathematical background to explain how signals with favorable correlation properties are generated, and to show how they satisfy the appropriate correlation constraints. Applications such as CDMA telephony, coded radar, and stream cipher generation are treated in depth.

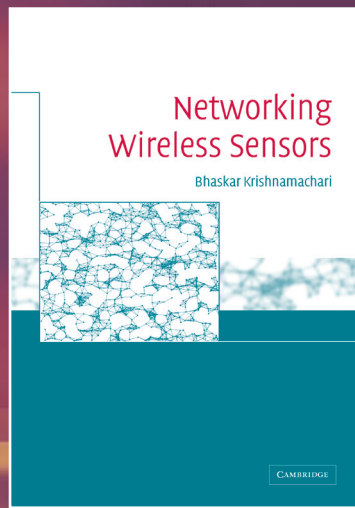
Features

- *The first comprehensive treatment of all the known methods to obtain balanced binary sequences with two-valued autocorrelation, many of them only recently discovered*
- *Provides a unifying theme for a wide variety of communications applications including CDMA telephony, coded radar, and stream cipher generation*

Contents: 1. General properties of correlation; 2. Applications of correlation to the communication of information; 3. Finite fields; 4. Feedback shift register sequences; 5. Randomness measurements and m-sequences; 6. Transforms of sequences and functions; 7. Cyclic difference sets and binary sequences with two-level correlation; 8. Cyclic Hadamard sequences, part 1; 9. Cyclic Hadamard sequences, part 2; 10. Signal sets with low cross-correlation; 11. Correlation of Boolean functions; 12. Applications to radar, sonar, and synchronization.

2005 464pp

978 0 521 82104 9 (0 521 82104 5) • HB • £40.00



Networking Wireless Sensors

Bhaskar Krishnamachari

University of Southern California, USA

Wireless sensor networks promise an unprecedented fine-grained interface between the virtual and physical worlds. They are one of the most rapidly developing new information technologies, with applications in a wide range of fields. This book is motivated by the urgent need to provide a comprehensive and organized survey of the field.

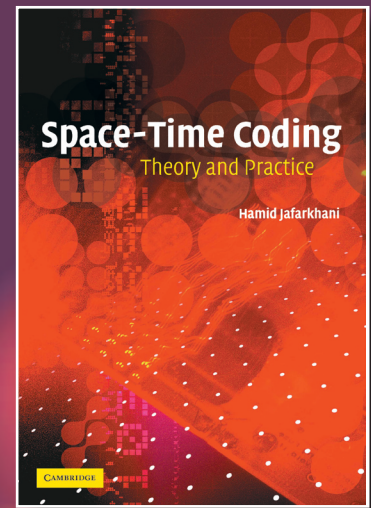
Features

- *Comprehensive coverage of topics in wireless sensor networks, describing well over 100 key algorithms, protocols, and analytical results*
- *Many exercises involving in-depth reasoning, calculations, and simulations*
- *Author developed one of the first regular courses on Wireless Sensor Networks*

Contents: 1. Introduction; 2. Network deployment; 3. Localization; 4. Time synchronization; 5. Wireless characteristics; 6. Medium access and sleep scheduling; 7. Sleep-based topology control; 8. Energy-efficient and robust routing; 9. Data-Centric networking; 10. Transport reliability and congestion control; 11. Conclusions.

2005 220pp 60 illustrations 60 exercises

978 0 521 83847 4 (0 521 83847 9) • HB • c. £45.00



Space-Time Coding Theory and Practice

Hamid Jafarkhani

University of California, Irvine, USA

This book covers the fundamental principles of space-time coding for wireless communications over multiple-input multiple-output (MIMO) channels, and sets out practical coding methods for achieving the performance improvements predicted by the theory. The book is written so the theory and practice sections can be used independently of each other.

Features

- *Theory and practice sections can be used independently of each other*
- *Written by a co-inventor of space-time block coding*

Contents: 1. Introduction; 2. Capacity of multiple-input multiple-output channels; 3. Space-time code design criteria; 4. Orthogonal space-time block codes; 5. Quasi-orthogonal space-time block codes; 6. Space-time trellis codes; 7. Super-orthogonal space-time trellis codes; 8. Differential space-time modulation; 9. Spatial multiplexing and receiver design; 10. Non-orthogonal space-time block codes; 11. Additional topics in space-time coding.

2005 315pp 128 illustrations 61 exercises

978 0 521 84291 4 (0 521 84291 3) • HB • £45.00

FORTHCOMING

Space-Time Wireless Communications

From Parameter Estimation to High-Speed MIMO Processing

Helmut Bölcskei

ETH Zurich

David Gesbert

Eurecom Institute

Constantinos Papadias

Bell Labs, Lucent Technologies

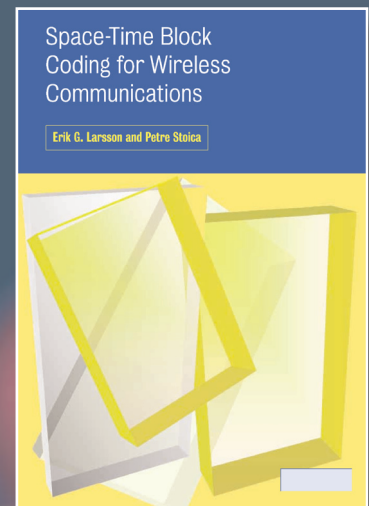
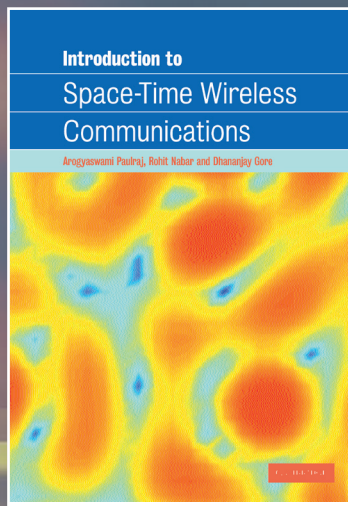
Alle-Jan van der Veen

Delft University of Technology

Space-time signal processing is a set of techniques that offer improved bandwidth, reliability and spectral efficiency in wireless networks. This book gives an overall view of this most important field in communications research and development by providing a unified treatment of three key topics: signal estimation in antenna arrays, space-time channel identification, and space-time coding.

2006 600 pages 200 illustrations

9780521851053 (0 521 85105 X) • HB • £60.00



FORTHCOMING

Principles of Space-Time Coding

Giuseppe Caire
University of Southern California, USA
 Mohamed Damen
University of Alberta, USA
 Hesham El Gamal
Ohio State University, USA

Space-time coding techniques play a central role in modern wireless communications systems. This self-contained and unified treatment provides a comprehensive description of space-time coding techniques and the most common design approaches. Ideal for graduate courses on space-time coding, it will also appeal to practitioners in wireless communications.

Contents: 1. Preface; 2. Introduction; 3. Information theoretic foundations; 4. Communication theoretic foundations; 5. Preview of space-time coding; 6. Space-time constellations; 7. Space-time coding; 8. Signal processing and complexity; 9. Differential space-time coding: group theory and more; 10. Signaling for non-coherent channels; 11. An outlook on multi-user MIMO systems; 12. Finally: conclusions and future work.

2006 350 pages 80 illustrations
 978 0 521 83790 3 (0 521 83790 1)
 HB • c. £45.00

Introduction to Space-Time Wireless Communications

Arogyaswami Paulraj
Stanford University, California, USA
 Rohit Nabar
ETH Zentrum, Switzerland
 and Dhananjay Gore
Qualcomm Inc., California, USA

Wireless networks are under constant pressure to provide ever higher data rates to increasing numbers of users with greater reliability. Space-time processing technology is a powerful tool for improving system performance that already features in the UMTS and CDMA2000 mobile standards. This book is an accessible introduction to the theory of space-time wireless communications.

Features

- Provides broad coverage that is simple without sacrificing any accuracy
- Focuses on MIMO technology, but single input-multiple output (SIMO) and multiple input-single output (MISO) models are also developed
- Homework exercises and other support material are available on a companion website

Contents: 1. Introduction; 2. Space-time propagation; 3. Space-time channel and signal models; 4. Capacity of space-time channels; 5. Spatial diversity; 6. Space-time coding without channel knowledge at the transmitter; 7. Space-time receivers; 8. Exploiting channel knowledge at the receiver; 9. Space-time OFDM and spread spectrum modulation; 10. MIMO-multiuser; 11. Space-time co-channel interference mitigation; 12. Performance limits and tradeoffs in MIMO channels.

2003 308pp 147 illustrations
 978 0 521 82615 0 (0 521 82615 2) • HB • £45.00

Space-Time Block Coding for Wireless Communications

Erik G. Larsson
KTH, Sweden
 and Petre Stoica
Uppsala Universitet, Sweden

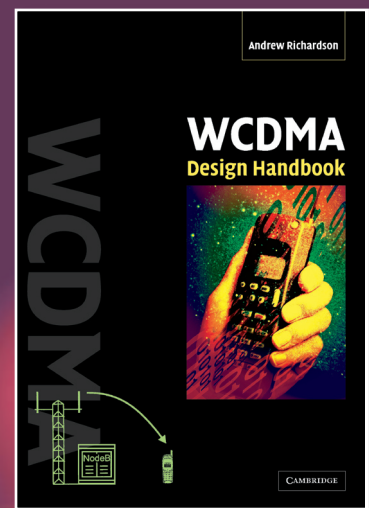
A detailed coverage of an important technique that promises greatly improved performance in wireless networks by using multiple antennas at the transmitter and receiver. The authors begin with a review of multiple-input, multiple-output (MIMO) channel modeling and error probability analysis. They then analyze the concepts of receive and transmit diversity, as well as linear space-time block coding and its associated receiver structures. Several special topics are treated, including space-time coding for informed transmitters and space-time coding in a multiuser environment.

Features

- Covers the orthogonal space-time block coding techniques that are embedded in the UMTS and WCDMA mobile standards
- Provides details of space-time block coding theory and how STBC techniques can improve wireless system performance
- Includes homework exercises

Contents: 1. Introduction; 2. The time-invariant linear MIMO channel; 3. MIMO information theory; 4. Error probability analysis; 5. Receive diversity; 6. Transmit diversity and space-time coding; 7. Linear STBC for flat fading channels; 8. Linear STBC for frequency-selective channels; 9. Coherent and non-coherent receivers; 10. Space-time coding for informed transmitters; 11. Space-time coding in a multiuser environment; Appendices.

2003 302pp 40 illustrations 71 exercises
 978 0 521 82456 9 (0 521 82456 7) • HB • £45.00



FORTHCOMING

Introduction to Coding Theory

Ron Roth

*Technion – Israel Institute of Technology,
Haifa, Israel*

Error-correcting codes constitute one of the key ingredients in achieving the high degree of reliability required in modern data transmission and storage systems. This book introduces the reader to the theoretical foundations of error-correcting codes, with an emphasis on Reed-Solomon codes and their derivative codes. While mathematical rigor is maintained, the text is designed to be accessible to a broad readership, including students of computer science, electrical engineering, and mathematics, from senior-undergraduate to graduate level.

Features

- **Contains classical introductory material and classical research material as well as more recent developments**
- **Accessible to computer scientists, electrical engineers and mathematicians**
- **Over 340 exercises (many with hints) and more than 100 worked examples**

Contents: 1. Introduction; 2. Linear codes; 3. Introduction to finite fields; 4. Bounds on the parameters of codes; 5. Reed-Solomon codes and related codes; 6. Decoding of Reed-Solomon codes; 7. Structure of finite fields; 8. Cyclic codes; 9. List decoding of Reed-Solomon codes; 10. Codes in the Lee metric; 11. MDS codes; 12. Concatenated codes; 13. Graph codes; 14. Trellis codes and convolutional codes; Appendix A. Basics in modern algebra; Bibliography; List of symbols.

Dec 2005 586pp 183 illustrations
348 exercises
978 0 521 84504 5 (0 521 84504 1)
HB • c. £40.00

Mobile Web Services

Ariel Pashtan

Aware Networks, Illinois, USA

Mobile web services are designed to provide access to web content anywhere, any time. This book describes the key network elements, software components, and software protocols that are needed to realize these services, including the concept of user context and its potential to create personalized services. It includes Java and XML code examples and a case study that shows how all the elements of system design fit together.

Features

- **Describes clearly which network elements, software components, and software protocols are needed to implement a mobile web service**
- **Contains practical code examples in Java and XML**
- **Includes a detailed case study that illustrates mobile web service implementation in practice**

Contents: 1. The wireless web landscape; 2. Wireless system architecture; 3. Wireless terminals and wireless content; 4. User mobility and location management; 5. Wireless network security; 6. Personalization and privacy; 7. Ontologies and RDF Schema; 8. Ontology of mobile user context; 9. XSLT for web content presentation; 10. Network cluster for service delivery; 11. Context-aware tourist information system.

2005 284pp 96 illustrations
978 0 521 83049 2 (0 521 830494) • HB • £35.00

WCDMA Design Handbook

Andrew Richardson

Imagicom Ltd, UK

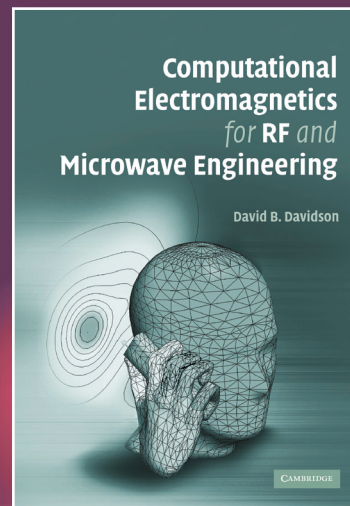
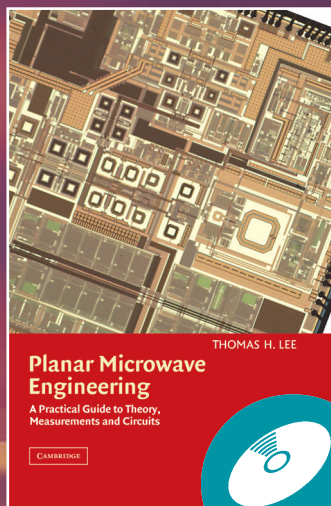
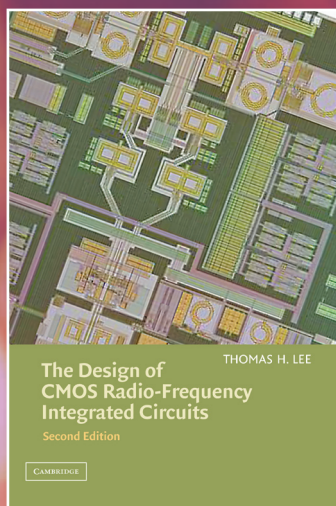
Developed out of a successful professional engineering course, this practical handbook provides a comprehensive explanation of the Wideband CDMA (Code Division Multiple Access) air interface of 3rd generation UMTS cellular systems. Addressing all aspects of the design of the WCDMA radio interface from the lower layers to the upper layers of the protocol architecture. The book considers each of the layers in turn, to build a complete understanding of the design and operation of the WCDMA radio interface including the physical layer, RF and baseband processing, MAC, RLC, OPDCP/BMP, Non-Access stratum and RRC.

Features

- **It considers the design and operation of the complete WCDMA protocol stack in detail**
- **Addresses all the layers of the protocol stack in detail**
- **Provides clear explanations through the extensive use of diagrams of the WCDMA system**

Contents: 1. Introduction; 2. WCDMA in a nutshell; 3. Spreading codes and modulation; 4. Physical layer; 5. RF aspects; 6. Symbol rate processing functions. 7. Chip rate processing functions. 8. Layer 2 – MAC; 9. Layer 2 – RLC; 10. PDPC and BMC protocols; 11. Non access stratum; 12. Idle mode functions; 13. Layer 3 – RRC; 14. Measurements.

2005 592pp 482 illustrations
978 0 521 82815 4 (0 521 82815 5) • HB • £65.00



WIRELESS COMMUNICATIONS HARDWARE

The Design of CMOS Radio-Frequency Integrated Circuits Second Edition

Thomas H. Lee
Stanford University, California, USA

This is an expanded and revised edition of Tom Lee's acclaimed guide to the design of gigahertz RF integrated circuits. Major changes include a new chapter on the principles of wireless systems and an update to the chapter on architectures to include examples of complete designs.

'Tom Lee has written a terrific book. Everyone that visits my office wants to borrow it, and I tell them to go buy their own.'

DAVID RUTLEDGE, CALIFORNIA INSTITUTE OF TECHNOLOGY

Contents: 1. A nonlinear history of radio; 2. Overview of wireless principles; 3. Passive RLC networks; 4. Characteristics of passive IC components; 5. A review of MOS device physics; 6. Distributed systems; 7. The Smith chart and S-parameters; 8. Bandwidth estimation techniques; 9. High-frequency amplifier design; 10. Voltage references and biasing; 11. Noise; 12. LNA design; 13. Mixers; 14. Feedback systems; 15. RF power amplifiers; 16. Phase-locked loops; 17. Oscillators and synthesizers; 18. Phase noise; 19. Architectures; 20. RF circuits through the ages.

2004 816pp 592 illustrations 185 exercises
978 0 521 83539 8 (0 521 83539 9) • HB • £45.00

Planar Microwave Engineering

A Practical Guide to Theory, Measurement and Circuits

Thomas Lee
Stanford University, California, USA

This insightful book contains a wealth of circuit layouts, design tips, and practical measurement techniques for building and testing practical RF and microwave systems.

'... a fantastic CD-ROM ... that is full of all sorts of useful toys to help engineers design their circuits, both microwave and lower frequencies ... well written, printed and clear ... This book answers all your practical questions (or wakes you up to some you did not know existed!) in this complex field. Most highly recommended for all working in it.'

CIRCUIT WORLD

Contents: Foreword; 1. A microhistory of microwave technology; 2. Introduction to RF and microwave technology; 3. The Smith Chart and S-parameters; 4. Impedance matching; 5. Connectors, cables and waveguide; 6. Lumped passive components; 7. Microstrip, stripline and planar passive elements; 8. Impedance measurement; 9. Microwave diodes; 10. Mixers; 11. Transistors; 12. Small-signal amplifiers; 13. Low-noise amplifiers; 14. Noise figure measurement; 15. Oscillators; 16. Synthesizers; 17. Oscillator phase noise; 18. Phase noise measurement; 19. Sampling oscilloscopes, spectrum analyzers and probes; 20. Power amplifiers; 21. Antennas; 22. Lumped filters; 23. Microstrip filters.

2004 880pp 627 illustrations
978 0 521 83539 8 (0 521 83526 7) • HB • £45.00

Computational Electromagnetics for RF and Microwave Engineering

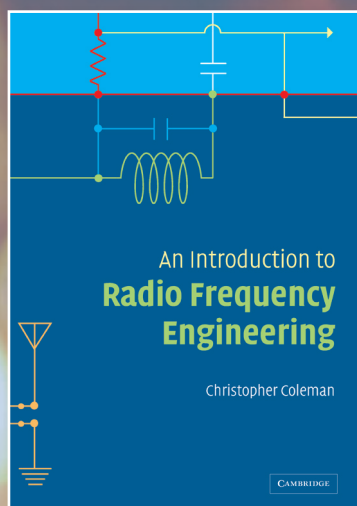
David Davidson
University of Stellenbosch, South Africa

Computational Electromagnetics (CEM) has emerged as a crucial enabling technology for radio-frequency, microwave and wireless engineering. The three most popular 'full-wave' methods are introduced in this book and commercial or public domain codes implementing them are applied to real-world engineering problems.

Features

- Examines the strengths and weaknesses of every major computational electromagnetics technique
- Includes numerous practical applications with an emphasis on verification of the results and supported by additional material available on a dedicated web site
- Practical hints on using codes reliably and optimally. There will also be a number of MATLAB scripts, implementing much of the theory discussed in the book, available on the website.

2005 430pp 161 illustrations
978 0 521 83859 7 (0 521 83859 2) • HB • £45.00



An Introduction to Radio Frequency Engineering

Christopher Coleman
University of Adelaide, Australia

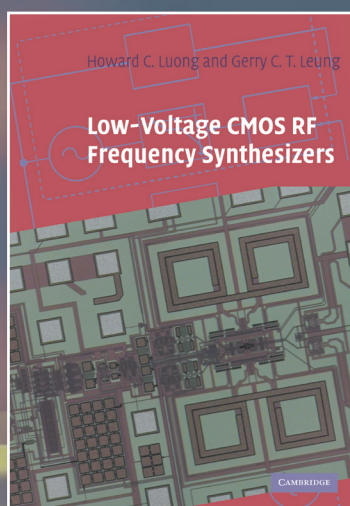
An excellent introduction to radio frequency engineering, using a straightforward and easily understood approach combined with numerous worked examples, illustrations and homework problems. The author has focussed on minimising the mathematics needed to grasp the subject while providing a solid theoretical foundation for the student. The book provides a broad coverage of RF systems, circuit design, antennas, propagation and digital techniques.

'... this book is timely and could well provide third-to-fifth-year electronics students an added interest in their work but, more importantly, a means for qualified engineers in industry to update their knowledge in this specialised field. ... the book is well-printed and robustly bound with a colourful glossy cover. The print is easy-to-read on a good quality, crisp, paper and the numerous line drawings are excellent in quality.'

CIRCUIT WORLD

Contents: 1. Basic concepts; 2. Frequency selective circuits and matching; 3. Active devices and amplifiers; 4. Mixers, modulators and demodulators; 5. Oscillators and phase locked loops; 6. Transmission lines and scattering matrices; 7. Power amplifiers; 8. Filters; 9. Electromagnetic waves; 10. Antennas; 11. Propagation; 12. Digital techniques in radio; Index.

2004 332pp 338 illustrations 73 exercises
978 0 521 83481 0 (0 521 83481 3) • HB • £40.00



Low-Voltage CMOS RF Frequency Synthesizers

Howard Luong
and Gerry Chi Tak Leung
Both from Hong Kong University of Science and Technology,
Kowloon, Hong Kong

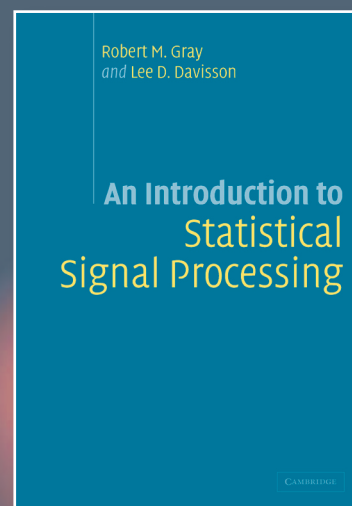
This book provides the reader with architectures and design techniques to enable CMOS frequency synthesizers to operate at low-supply voltage at high-frequency with good phase noise and low power consumption. In addition to updating the reader on many of these techniques in depth, this book will also introduce useful guidelines and step-by-step procedure on behaviour simulations of frequency synthesizers.

Features

- *In-depth description and comparison of different architectures*
- *Illustrates wide variety of potential applications of the architectures and design techniques discussed*
- *Up-to-date treatment of the subject, including many new interesting design techniques*

Contents: 1. Introduction; 2. Synthesizer fundamentals; 3. Design of building blocks; 4. Low-voltage design consideration and techniques; 5. Behavioral simulation; 6. A 2-V 900-MHz monolithic CMOS dual-loop frequency synthesizer for GSM receivers; 7. A 1.5-V 900-MHz monolithic CMOS fast-switching frequency synthesizer for wireless applications; 8. A 1-V 5.2-GHz fully-integrated CMOS synthesizer for WLAN IEEE 802.11a; 9. Conclusion; References; Index.

2004 198pp 183 illustrations
978 0 521 83777 4 (0 521 83777 4) • HB • £60.00



An Introduction to Statistical Signal Processing

Robert Gray
Stanford University, California, USA
and Lee Davisson
University of Maryland, College Park, USA

This book describes the essential tools and techniques of statistical signal processing. At every stage theoretical ideas are linked to specific applications in communications and signal processing. The book begins with a development of basic probability, random objects, expectation, and second order moment theory followed by a wide variety of examples of the most popular random process models and their basic uses and properties.

Specific applications to the analysis of random signals and systems for communicating, estimating, detecting, modulating, and other processing of signals are interspersed throughout the book.

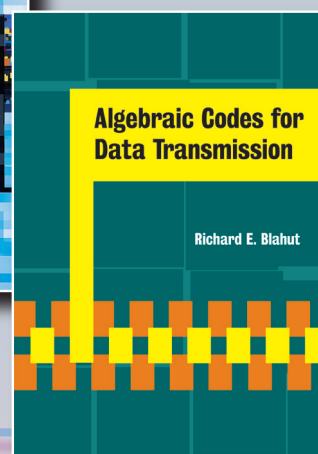
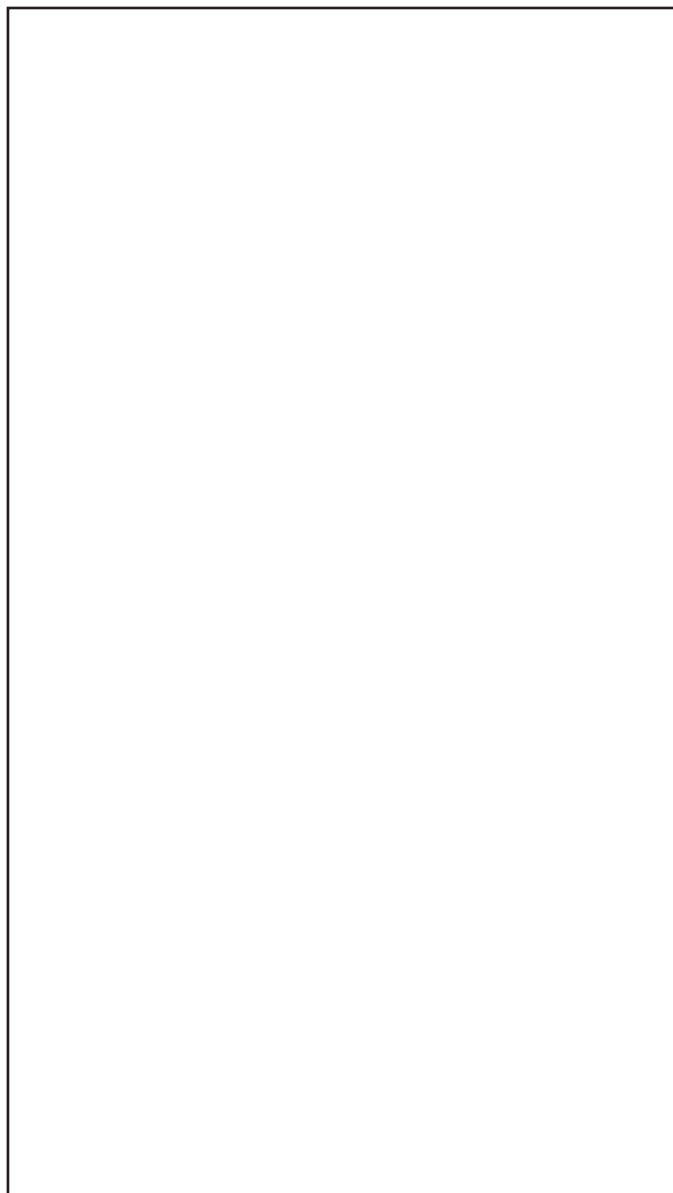
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