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Nota di contenuto	Preface -- List of Contributors -- Acknowledgments -- 1 Numerical Analysis Techniques (Ramesh Garg) -- 1.1 Introduction -- 1.2 Standard (Yee's) FDTD Method -- 1.3 Numerical Dispersion of FDTD Algorithms and Hybrid Schemes -- 1.4 Stability of Algorithms -- 1.5 Absorbing Boundary Conditions -- 1.6 LOD-FDTD Algorithm -- 1.7 Robustness of Printed Patch Antennas -- 1.8 Thin Dielectric Approximation -- 1.9 Modeling of PEC and PMC for Irregular Geometries -- References -- 2 Computer Aided Design of Microstrip Antennas (Debatosh Guha and Jawad Y. Siddiqui) -- 2.1 Introduction -- 2.2 Microstrip Patch as Cavity Resonator -- 2.3 Resonant Frequency of Circular Microstrip Patch (CMP) -- 2.4 Resonant Frequency of Rectangular Microstrip Patch (RMP) with Variable Air Gap -- 2.5 Resonant Frequency of an Equilateral Triangular Microstrip Patch (ETMP) with Variable Air Gap -- 2.6 Input Impedance of a Microstrip Patch -- 2.7 Feed Reactance of a Probe-Fed Microstrip Patch -- 2.8 Radiation Characteristics -- 2.9 Radiation Efficiency -- 2.10 Bandwidth -- 2.11 Conclusion -- References -- 3 Generalized Scattering Matrix Approach for Multilayer Patch Arrays (Arun K.

Bhattacharyya) -- 3.1 Introduction -- 3.2 Outline of the GSM Approach -- 3.3 Mutual Coupling Formulation -- 3.4 Finite Array: Active Impedance and Radiation Patterns -- 3.5 Numerical Example -- 3.6 Conclusions -- 3.7 References -- 4 Optimization Techniques for Planar Antennas (Rabindra K. Mishra) -- 4.1 Introduction -- 4.2 Basic Optimization Concepts -- 4.3 Real Coded Genetic Algorithm (RCGA) -- 4.4 Neurospectral Design of Rectangular Patch Antenna -- 4.5 Inset-fed Patch Antenna Design Using Particle Swarm Optimization -- 4.6 Conclusion -- References -- 5 Microstrip Reflectarray Antennas (Jafar Shaker and Reza Chaharmir) -- 5.1 Introduction -- 5.2 General Review of Reflectarrays: Mathematical Formulation and General Trends -- 5.3 Comparison of Reflectarray and Conventional Parabolic Reflector -- 5.4 Cell Elements and Specific Applications: A General Survey. 5.5 Wideband Techniques for Reflectarrays -- 5.6 Development of Novel Loop-Based Cell Elements -- 5.7 Conclusion -- References -- 6 Reconfigurable Microstrip Antennas (Jennifer T. Bernhard) -- 6.1 Introduction -- 6.2 Substrate Modification for Reconfigurability -- 6.3 Conductor Modification for Reconfigurability -- 6.4 Enabling Reconfigurability: Considerations for Reconfiguration Mechanisms -- 6.5 Future Trends in Reconfigurable Microstrip Antenna Research and Development -- References -- 7 Wearable Antennas for Body Area Networks (Peter S. Hall and Yang Hao) -- 7.1 Introduction -- 7.2 Sources on the Human Body -- 7.3 Narrowband Antennas -- 7.4 Fabric Antennas -- 7.5 Ultra Wideband Antennas -- 7.6 Multiple Antenna Systems -- 7.7 Conclusion -- References -- 8 Printed Antennas for Wireless Communications (Satish K. Sharma and Lotfollah Shafai) -- 8.1 Introduction -- 8.2 Broadband Microstrip Patch Antennas -- 8.3 Patch Antennas for Multiband Wireless Communications -- 8.4 Enhanced Gain Patch Antennas -- 8.5 Wideband Compact Patch Antennas -- 8.6 Microstrip Slot Antennas -- 8.7 Microstrip Planar Monopole Antenna -- References -- 9 UHF Passive RFID Tag Antennas (Daniel Deavours and Daniel Dobkin) -- 9.1 Introduction -- 9.2 Application Requirements -- 9.3 Approaches -- 9.4 Fabrication -- 9.5 Conclusion -- References -- 10 Printed UWB Antennas (Zhi Ning Chen, Xianming Qing and Shie Ping See) -- 10.1 Introduction -- 10.2 "Swan" Antenna with Reduced Ground Plane Effect -- 10.3 Slim UWB Antenna -- 10.4 Diversity Antenna -- 10.5 Printed Slot UWB Antenna and Band-Notched Solutions -- References -- 11 Metamaterial Antennas and Radiative Systems (Christophe Caloz) -- 11.1 Introduction -- 11.2 Fundamentals of Metamaterials -- 11.3 Leaky-Wave Antennas -- 11.4 Resonant Antennas -- 11.5 Exotic Radiative Systems -- References -- 12 Defected Ground Structure for Microstrip Antennas (Debatosh Guha, Sujoy Biswas, and Yahia M. M. Antar) -- 12.1 Introduction -- 12.2 Fundamentals of DGS. 12.3 DGS for controlling Microstrip Antenna Feeds and Front-End Characteristics -- 12.4 DGS to Control/Improve Radiation Properties of Microstrip Patch Antennas -- 12.5 DGS for Reduced Mutual Coupling between Microstrip Array Elements and Associated Improvements -- 12.6 Conclusion -- Appendix: A Brief DGS Chronology -- References -- 13 Printed Leaky Wave Antennas (Samir F. Mahmoud and Yahia M. M. Antar) -- 13.1 Introduction -- 13.2 The Leaky Wave as a Complex Plane Wave -- 13.3 Radiation Pattern of a Leaky Wave -- 13.4 Examples of Leaky Mode Supporting Structures -- 13.5 The Excitation Problem -- 13.6 Two-Dimensional Leaky Waves -- 13.7 Further Advances on a Class of Periodic Leaky Wave Antennas -- References -- Appendix I Preliminary Ideas: PTFE-Based Microwave Lamiantes and Making Prototypes -- Appendix II Preliminary Ideas: Microwave Connectors for Printed Circuits and Antennas -- Index.

This book focuses on new techniques, analysis, applications and future trends of microstrip and printed antenna technologies, with particular emphasis to recent advances from the last decade. In this book, the authors address topics such as reconfigurable antennas, ultra-wideband (UWB) antennas, reflectarrays, antennas for RFID systems and wearable antennas for body area networks. Antennas using metamaterials and defected ground structures (DGSs) are also explained. The authors discuss essential aspects including advanced design, analysis and optimization, and cover fundamental concepts and techniques, their practical applications and the future scope of developments. Key Features:

- Addresses emerging hot topics of research and applications in microstrip and printed antennas.
- Considers the fundamental concepts, techniques, applications and future scope of such technologies.
- Discusses modern applications such as wireless base station to mobile handset, satellite earth station to airborne communication systems, radio frequency identification (RFID) to body area networks, etc..
- Contributions from highly regarded experts and pioneers from the US, Europe and Asia.

Microstrip and Printed Antennas: New Trends, Techniques and Applications provides a reference for R&D researchers, professors, practicing engineers, and scientists working in these fields. Graduate students studying/working on related subjects will find this book insightful.
