

1. Record Nr.	UNINA9910819953803321
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Titolo	FDTD modeling of metamaterials : theory and applications // Yang Hao, Raj Mittra
Pubbl/distr/stampa	Norwood, Mass., : Artech House, c2009
ISBN	1-59693-161-2
Edizione	[1st ed.]
Descrizione fisica	1 online resource (395 p.)
Altri autori (Persone)	MittraRaj
Disciplina	620.1/297 22 621.30284
Soggetti	Metamaterials - Mathematical models Electromagnetism - Computer simulation Time-domain analysis Finite differences
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	FDTD Modeling of Metamaterials: Theory and Applications; Contents; Preface; Acknowledgments; Chapter 1: Introduction; Chapter 2: Fundamentals and Applications of Electromagnetic Bandgap Structures; Chapter 3: A Brief Introduction to the FDTD Method for Modeling Metamaterials; Chapter 4: FDTD Modeling of EBGs and Their Applications; Chapter 5: Left-Handed Metamaterials (LHMs) and Their Applications; Chapter 6: Numerical Modeling of Left-Handed Material (LHM) Using a Dispersive FDTD Method; Chapter 7: FDTD Modeling and Figure-of-Merit(FOM) Analysis of Practical Metamaterials Chapter 8: Accurate FDTD Modeling of a Perfect Lens Chapter 9: Spatially Dispersive FDTD Modeling of Wire Medium; Chapter 10: FDTD Modeling of Metamaterials for Optics; Chapter 11: Overviews and Final Remarks; List of Abbreviations; About the Authors; Index
Sommario/riassunto	Master powerful new modeling tools that let you quantify and represent metamaterial properties with never-before accuracy. This first-of-its-kind book brings you up to speed on breakthrough finite-difference time-domain techniques for modeling metamaterial characteristics and behaviors in electromagnetic systems. This practical resource comes complete with sample FDTD scripts to help you pave the way to new

metamaterial applications and advances in antenna, microwave, and optics engineering. You get in-depth coverage of state-of-the-art FDTD modeling techniques and applications for electromagnetic bandgap (EBG) structures, left-handed metamaterials (LHMs), wire medium, metamaterials for optics, and other practical metamaterials. You find steps for computing dispersion diagrams, dealing with material dispersion properties, and verifying the left-handedness. Moreover, this comprehensive volume offers guidance for handling the unique properties possessed by metamaterials, including how to define material parameters, characterize the interface of metamaterial slabs, and quantify their spatial as well as frequency dispersion characteristics. The book also presents conformal and dispersive FDTD modeling of electromagnetic cloaks, perfect lens, and plasmonic waveguides, as well as other novel antenna, microwave, and optical applications. Over 190 illustrations support key topics throughout the book.

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