DESCRIPTION

This unique book presents simple, easy-to-use, but effective short codes as well as virtual tools that can be used by electrical, electronic, communication, and computer engineers in a broad range of electrical engineering problems.

Electromagnetic modeling is essential to the design and modeling of antenna, radar, satellite, medical imaging, and other applications. In this book, author Levent Sevgi explains techniques for solving real-time complex physical problems using MATLAB-based short scripts and comprehensive virtual tools.

Unique in coverage and tutorial approach, Electromagnetic Modeling and Simulation covers fundamental analytical and numerical models that are widely used in teaching, research, and engineering designs—including mode and ray summation approaches with the canonical 2D nonpenetrable parallel plate waveguide as well as FDTD, MoM, and SSPE scripts. The book also establishes an intelligent balance among the essentials of EM MODSIM: The Problem (the physics), The Theory and Models (mathematical background and analytical solutions), and The Simulations (code developing plus validation, verification, and calibration).

Classroom tested in graduate-level and short courses, Electromagnetic Modeling and Simulation:

- Clarifies concepts through numerous worked problems and quizzes provided throughout the book
- Features valuable MATLAB-based, user-friendly, effective engineering and research virtual design tools
- Includes sample scenarios and video clips recorded during characteristic simulations that visually impact learning—available on wiley.com
• Provides readers with their first steps in EM MODSIM as well as tools for medium and high-level code developers and users

_Electromagnetic Modeling and Simulation_ thoroughly covers the physics, mathematical background, analytical solutions, and code development of electromagnetic modeling, making it an ideal resource for electrical engineers and researchers.

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#### ABOUT THE AUTHOR

LEVENT SEVGI, BSEE, MSEE, PhD, works at the Electronics and Communication Engineering Department at Dogus University in Istanbul, while serving as a full-time faculty member at University of Massachusetts, Lowell (UML) during his sabbatical. A former chair of the Electronic Systems Department in TUBITAK-MRC, Information Technologies Research Institute, Dr. Sevgi is also the author or coauthor of nearly 200 journal, magazine, conference papers, and tutorials; a Fellow of the IEEE; AdCom Member of the IEEE Antennas and Propagation Society (AP-S; 2013-2015); the writer/editor of the “Testing Ourselves” column in the IEEE _Antennas and Propagation Magazine_; and a member of the IEEE AP-S Education Committee.

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#### SERIES

IEEE Press Series on Electromagnetic Wave Theory

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