DESCRIPTION

Bridges the gap between FDTD theory and the implementation of practical simulation techniques

This is the first publication that guides readers step by step through the implementation of electromagnetic simulation techniques based on FDTD methods. These simulation techniques serve as an essential bridge between FDTD methods and their applications. Moreover, the book helps readers better understand the underlying logic of FDTD methods so that they can design FDTD projects using either commercial electromagnetic software packages or their own codes in order to solve practical engineering problems.

The book begins with two chapters that introduce the basic concepts of the 3-D Cartesian FDTD method, followed by discussions of advanced FDTD methods such as conformal techniques, dispersive media, circuit elements, and near-to-far field transformation. Next, the book:

* Presents basic concepts of parallel processing techniques and systems, including parallel FDTD techniques and systems

* Explores simulation techniques based on FDTD methods
Illustrates practical simulation techniques using engineering applications

Introduces advanced simulation techniques

Each chapter concludes with references to help readers investigate particular topics in greater depth. Each chapter also includes problem sets that challenge readers to put their new FDTD and simulation skills into practice.

By bridging the gap between FDTD theory and practical simulation techniques, this publication is an invaluable guide for students and engineers who need to solve a wide range of design problems in RF, antenna, and microwave engineering.

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**ABOUT THE AUTHOR**

**Wenhua Yu, PhD**, is a Visiting Professor and the Group Leader of the Electromagnetic Communication Lab in the Electrical Engineering Department of Penn State University. Prior to joining the Penn State faculty, Dr. Yu held teaching positions at the Communication University of China and the Beijing Institute of Technology. Dr. Yu, a Senior Member of the IEEE, founded Computer and Communication Unlimited in 2005, where he serves as President and CEO.

**Xiaoling Yang, MS**, is a Research Associate in the Electromagnetic Communication Lab at Penn State University. His research interests include numerical methods, visual languages, and software development.

**Yongjun Liu, MS**, worked at the Beijing Broadcasting Institute before joining the Electromagnetic Communication Lab at Penn State University in 2001.

**Raj Mittra, PhD**, is a Professor in the Electrical Engineering Department of Penn State University. He is Director of the Electromagnetic Communication Lab, which is affiliated with the Communication and Space Sciences Lab. Dr. Mittra, a Life Fellow of the IEEE, is a recipient of the Guggenheim Fellowship Award, IEEE Centennial Medal, IEEE Millennium Medal, IEEE Electromagnetics Award, and the IEEE/AP-S Distinguished Achievement Award. Dr. Mittra is President of RM Associates, a consulting organization that provides services to industrial and governmental organizations throughout the world.