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The Finite Difference Time Domain Method for Electromagnetics: With MATLAB Simulations

By Atef Z. Elsherbeni, Veysel Demir



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The scope of the book is the fundamental techniques in the FDTD method. The book consists of 12 chapters, each chapter built on the concepts provided in the previous chapters.

In each chapter the details of the concepts are discussed at a graduate student level. Using this book, students will be able to construct a program with sufficient functionality to solve some basic problems. The construction of final equations is presented with a detailed step-by-step approach. In most cases the full-set of equations are provided.

While constructing the equations, the reader needs to visualize the positioning and orientation of field components in a three dimensional space. This is very difficult and usually requires extensive experience to be able to imagine the 3D space. Therefore, the book presents the construction of equations accompanied by a nice set of 3D illustrations. The figures greatly facilitate the understanding of the concepts.

While the concepts are being presented, it has been kept in mind that the outcome of the book will be a software package that will be sufficient to solve several types of basic electromagnetic problems. In each chapter the transformation of the concepts into programming is explained. Therefore the chapters are presented in such a way that, by adding/developing a new part of the code, chapter by chapter, at the end a well developed FDTD simulation package will be constructed.

A Solutions Manual is also available.



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Editorial Review

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