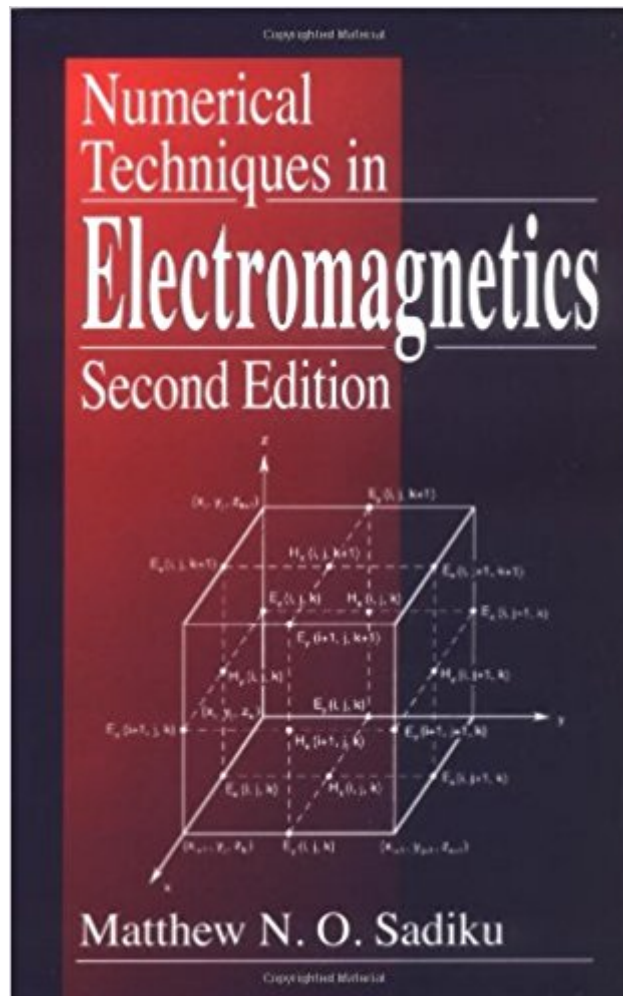




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# Numerical Techniques In Electromagnetics, Second Edition



## Synopsis

As the availability of powerful computer resources has grown over the last three decades, the art of computation of electromagnetic (EM) problems has also grown - exponentially. Despite this dramatic growth, however, the EM community lacked a comprehensive text on the computational techniques used to solve EM problems. The first edition of Numerical Techniques in Electromagnetics filled that gap and became the reference of choice for thousands of engineers, researchers, and students. The Second Edition of this bestselling text reflects the continuing increase in awareness and use of numerical techniques and incorporates advances and refinements made in recent years. Most notable among these are the improvements made to the standard algorithm for the finite difference time domain (FDTD) method and treatment of absorbing boundary conditions in FDTD, finite element, and transmission-line-matrix methods. The author also added a chapter on the method of lines. Numerical Techniques in Electromagnetics continues to teach readers how to pose, numerically analyze, and solve EM problems, give them the ability to expand their problem-solving skills using a variety of methods, and prepare them for research in electromagnetism. Now the Second Edition goes even further toward providing a comprehensive resource that addresses all of the most useful computation methods for EM problems.

## Book Information

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## Customer Reviews

Book covers a lot of stuff. But there are some problems. 1) Too many typos! 2) The binding is horrible!, you cannot keep this book on your desk and study, because it will close automatically.

That is too many pages and width of the book is small. That annoys me, making me avoid using this book. Still a good book to have

This book is a decent overview of numerical techniques in electromagnetics (and in general). I have mixed feelings about it, however. I think the math coverage is OK, although it is somewhat abstract. E.g., MoM and FEM are introduced through variational methods, which is probably an elegant yet unintuitive way to understand them. A more heuristic approach might have been better. Many techniques are covered (FDTD, MoM, FEM, TLM, Monte Carlo, method of lines), but I wish this book spent more time on the really important methods (FDTD, MoM, FEM) and less on the more obscure ones (TLM, method of lines). I would gladly trade these two methods for some coverage on geometrical optics, physical optics, GTD, and UTD. One nice thing is that the numerical methods are illustrated with simpler EM problem formulations, e.g., Poisson's equation, instead of going into the full complexity of solving general wave problems. The short intro to analytical and numerical techniques is appreciated. There are a few glaring typos in this book that I've noticed, e.g., in figure captions. This is annoying, but I guess the errors are obvious enough that you won't be led astray. I hope there's not more subtle errors elsewhere in the text. There's a fair bit of Fortran 77 and C++ source code included. I don't think there's a machine readable files available, so they'd be mostly for illustration purposes. I originally rated this text 3 stars, but after getting into numerical EM more since then, I'd upgrade it to 4.

Makes an otherwise complex subject seem simple by the way it is presented. I found it to be an exceptionally well written text, and would encourage anyone who is interested in the subject to buy it. A great book!

this book is nice....there are so many things covered there....that it is not possible for the author to go too deep into solution of the wave equation itself...i would have loved a better introduction to the field equations...something i found surprising given that it is a book in EM. But, even if you can catch up and apply a few of the concepts that he lays out for you in the book you have learnt something. and the book is a worthy buy.

Can't design motors without a little computer-aided engineering ...this is a good overview of the theory of subjects such as finite element analysis, boundary element analysis, finite difference analysis, etc. I used this text in my graduate level course on the subject.

Nice book I like it. Just Buy it!

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