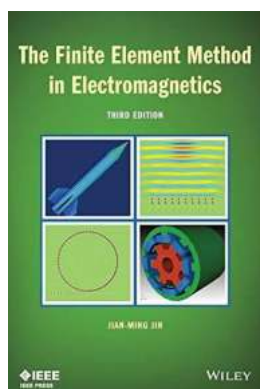


The Finite Element Method in Electromagnetics: A Comprehensive Guide by IEEE Press

Are you fascinated by the field of electromagnetics? Are you interested in exploring advanced computational techniques used in electromagnetic analysis and design? If so, then you need to get your hands on "The Finite Element Method in Electromagnetics" published by IEEE Press.

With the rapid advancement in technology, electromagnetic analysis and design have become crucial in various industries such as telecommunications, aerospace, and automotive engineering. The Finite Element Method (FEM) has emerged as a powerful computational technique, providing accurate and efficient solutions for electromagnetic problems.

Written by Jian-Ming Jin, a renowned expert in computational electromagnetics, this book serves as a comprehensive guide to understanding and implementing FEM in electromagnetics. With over 40 years of research and teaching experience, Jin brings his expertise to present a clear and concise to the principles and applications of FEM in the context of electromagnetics.



The Finite Element Method in Electromagnetics (IEEE Press) by Jian-Ming Jin (3rd Edition, Kindle Edition)

★★★★☆ 4.2 out of 5

Language : English
File size : 57309 KB
Text-to-Speech : Enabled
Screen Reader : Supported
Enhanced typesetting : Enabled
Print length : 860 pages



Why Choose "The Finite Element Method in Electromagnetics"?

This book stands out among the many available resources on FEM in electromagnetics due to its unique features:

1. Comprehensive Coverage

Jin provides an in-depth discussion on the theoretical foundations of FEM, including variational principles, basis functions, numerical integration, and matrix equations. He then covers a wide range of electromagnetic applications, such as static problems, eigenvalue problems, scattering problems, and time-varying problems.

The book also explores advanced topics, including hybridization with other numerical methods, such as the method of moments, multi-scale analysis, and optimization techniques. Each topic is explained with clarity, making it suitable for both beginners and experienced researchers.

2. Practical Examples

The book offers numerous examples and case studies to demonstrate the application of FEM in solving real-world electromagnetic problems. These examples provide step-by-step explanations and MATLAB codes, allowing readers to easily implement and adapt the methods to their own projects.

Through these examples, Jin bridges the gap between theory and practice, providing readers with the necessary tools and knowledge to apply FEM effectively in their research and design endeavors.

3. Up-to-Date References

Jin includes a comprehensive list of references for further exploration of specific topics. The references encompass a wide range of research articles and books, making this text an excellent starting point for readers interested in delving deeper into advanced techniques or specialized applications of FEM in electromagnetics.

The Power of FEM in Electromagnetics

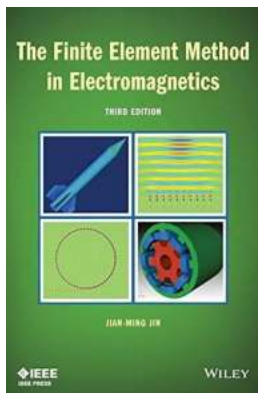
The Finite Element Method has become a powerful tool in the field of electromagnetics due to its ability to accurately model complex geometries and provide precise solutions for a wide range of problems. Whether you are involved in antenna design, microwave circuit analysis, or electromagnetic compatibility studies, FEM can significantly enhance your analysis capabilities.

By leveraging FEM, engineers and researchers can achieve a deeper understanding of electromagnetic phenomena and optimize their designs for performance, efficiency, and reliability. The ability to simulate and analyze complex electromagnetic interactions using FEM has revolutionized various industries, leading to advancements in wireless communication, radar technologies, and medical imaging systems.

If you are looking to expand your knowledge and expertise in the field of electromagnetics, "The Finite Element Method in Electromagnetics" published by IEEE Press is an invaluable resource. The comprehensive coverage, practical examples, and up-to-date references make it a must-have for anyone interested in delving into the world of FEM in electromagnetics.

Whether you are a student, researcher, or professional in the field, this book provides a solid foundation for understanding the principles, implementation, and

practical applications of FEM. Harness the power of FEM and unlock new possibilities in your electromagnetics journey with this comprehensive guide.



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A new edition of the leading textbook on the finite element method, incorporating major advancements and further applications in the field of electromagnetics

The finite element method (FEM) is a powerful simulation technique used to solve boundary-value problems in a variety of engineering circumstances. It has been widely used for analysis of electromagnetic fields in antennas, radar scattering, RF and microwave engineering, high-speed/high-frequency circuits, wireless communication, electromagnetic compatibility, photonics, remote sensing, biomedical engineering, and space exploration.

The Finite Element Method in Electromagnetics, Third Edition explains the method's processes and techniques in careful, meticulous prose and covers not only essential finite element method theory, but also its latest developments and applications—giving engineers a methodical way to quickly master this very powerful numerical technique for solving practical, often complicated, electromagnetic problems.

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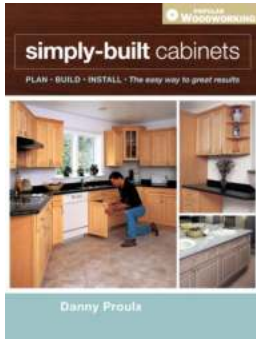
- A wider range of applications, including antennas, phased arrays, electric machines, high-frequency circuits, and crystal photonics
- The finite element analysis of wave propagation, scattering, and radiation in periodic structures
- The time-domain finite element method for analysis of wideband antennas and transient electromagnetic phenomena
- Novel domain decomposition techniques for parallel computation and efficient simulation of large-scale problems, such as phased-array antennas and photonic crystals

Along with a great many examples, *The Finite Element Method in Electromagnetics* is an ideal book for engineering students as well as for professionals in the field.



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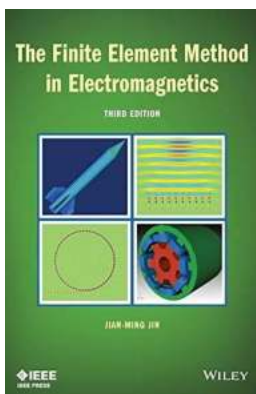
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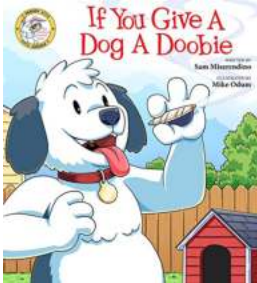
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