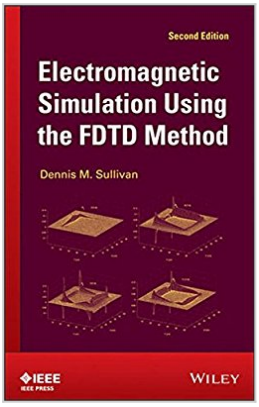

Electromagnetic Simulation Using the FDTD Method

By Dennis M. Sullivan

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A straightforward, easy-to-read introduction to the finite-difference time-domain (FDTD) method

Finite-difference time-domain (FDTD) is one of the primary computational electrodynamics modeling techniques available. Since it is a time-domain method, FDTD solutions can cover a wide frequency range with a single simulation run and treat nonlinear material properties in a natural way.

Written in a tutorial fashion, starting with the simplest programs and guiding the reader up from one-dimensional to the more complex, three-dimensional programs, this book provides a simple, yet comprehensive introduction to the most widely used method for electromagnetic simulation. This fully updated edition presents many new applications, including the FDTD method being used in the design and analysis of highly resonant radio frequency (RF) coils often used for MRI. Each chapter contains a concise explanation of an essential concept and instruction on its implementation into computer code. Projects that increase in complexity are included, ranging from simulations in free space to propagation in dispersive media. Additionally, the text offers downloadable MATLAB and C programming languages from the book support site (http://booksupport.wiley.com).

Simple to read and classroom-tested, *Electromagnetic Simulation Using the FDTD Method* is a useful reference for practicing engineers as well as undergraduate and graduate engineering students.

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Editorial Review

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About the Author

DENNIS M. SULLIVAN is Professor of Electrical and Computer Engineering at the University of Idaho, Moscow. An award-winning author and researcher, he has done extensive work in several areas of simulation, including EM dosimetry, hyperthermia cancer treatment, nonlinear optics, and quantum semiconductors. In 1997, Dr. Sullivan won the R. P. W. King Award from the IEEE Antennas and Propagation Society for the "Best Paper by a Young Investigator" for his paper "Z Transform Theory and FDTD Method." He is an IEEE Fellow, and is also the author of *Quantum Mechanics for Electrical Engineers*, published by Wiley-IEEE Press.

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