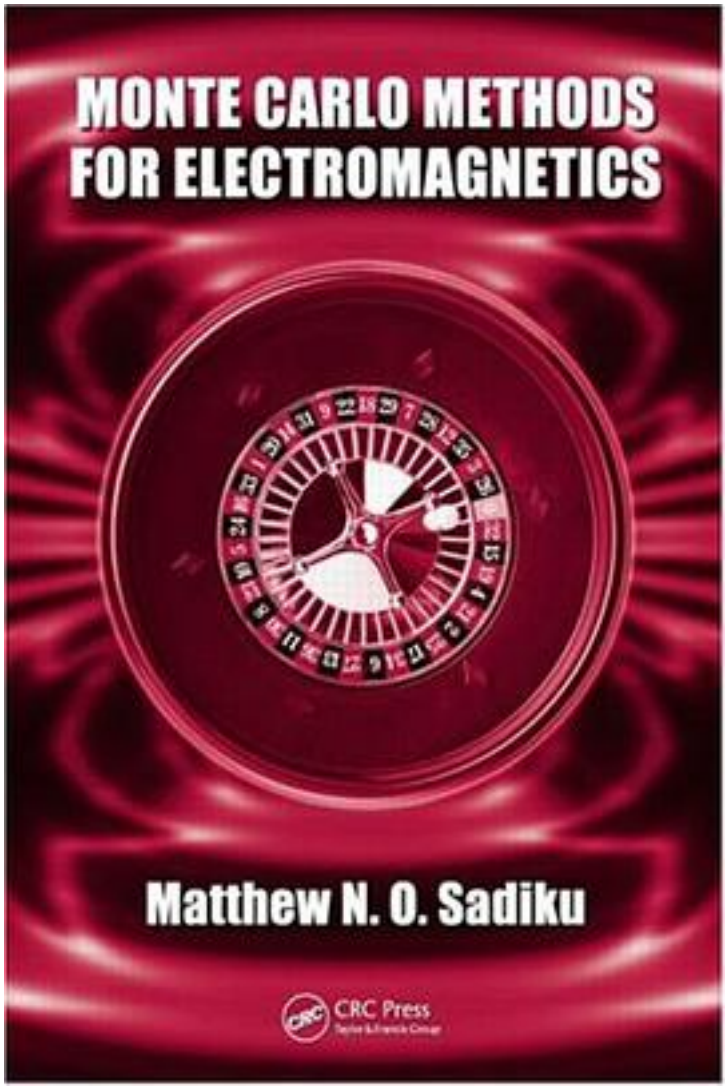
Monte Carlo Methods for Electromagnetics



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Until now, novices had to painstakingly dig through the literature to discover how to use Monte Carlo techniques for solving electromagnetic problems. Written by one of the foremost researchers in the field, "Monte Carlo Methods for Electromagnetics" provides a solid understanding of these methods and their applications in electromagnetic computation. Including much of his own work, the author brings together essential information from several different publications. Using a simple, clear writing style, the author begins with a historical background and review of electromagnetic theory. After addressing probability and statistics, he introduces the finite difference method as well as the fixed and floating random walk Monte Carlo methods. The text then applies the Exodus method to Laplace's and Poisson's equations and presents Monte Carlo techniques for handing Neumann problems. It also deals with whole field computation using the Markov chain, applies Monte Carlo methods to time-varying diffusion problems, and explores wave scattering due to random rough surfaces. The final chapter covers multidimensional integration. Although numerical techniques have become the standard tools for solving practical, complex electromagnetic problems, there is no book currently available that focuses exclusively on Monte Carlo techniques for electro magnetics. Alleviating this problem, this book describes Monte Carlo methods as they are used in the field of electro magnetics.

作者介绍:

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