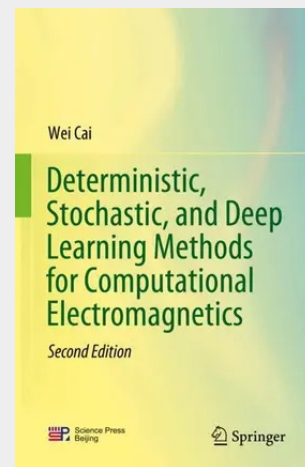


Deterministic, Stochastic, and Deep Learning Methods for Computational Electromagnetics

This book provides a well-balanced and comprehensive picture based on clear physics, solid mathematical formulation, and state-of-the-art useful numerical methods in deterministic, stochastic, deep neural network machine learning approaches for computer simulations of electromagnetic and transport processes in biology, microwave and optical wave devices, and nano-electronics. Computational research has become strongly influenced by interactions from many different areas including biology, physics, chemistry, engineering, etc. A multifaceted approach addressing the interconnection among mathematical algorithms and physical foundation and application is much needed to prepare graduate students and researchers in applied mathematics and sciences and engineering for innovative advanced computational research in many applications areas, such as biomolecular solvation in solvents, radar wave scattering, the interaction of lights with plasmonic materials, plasma physics, quantum dots, electronic structure, current flows in nano-electronics, and microchip designs, etc.

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