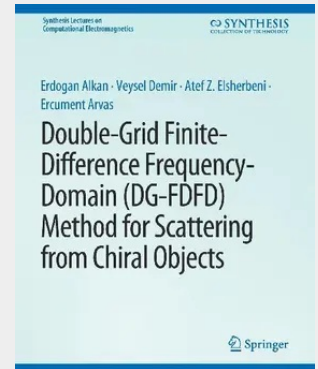


Double-Grid Finite-Difference Frequency-Domain (DG-FDFD) Method for Scattering from Chiral Objects

This book presents the application of the overlapping grids approach to solve chiral material problems using the FDFD method. Due to the two grids being used in the technique, we will name this method as Double-Grid Finite Difference Frequency-Domain (DG-FDFD) method. As a result of this new approach the electric and magnetic field components are defined at every node in the computation space. Thus, there is no need to perform averaging during the calculations as in the aforementioned FDFD technique [16]. We formulate general 3D frequency-domain numerical methods based on double-grid (DG-FDFD) approach for general bianisotropic materials. The validity of the derived formulations for different scattering problems has been shown by comparing the obtained results to exact and other solutions obtained using different numerical methods. Table of Contents: Introduction / Chiral Media / Basics of the Finite-Difference Frequency-Domain (FDFD) Method / The Double-Grid Finite-Difference Frequency-Domain (DG-FDFD) Method for Bianisotropic Medium / Scattering From Three Dimensional Chiral Structures / Improving Time and Memory Efficiencies of FDFD Methods / Conclusions / Appendix A: Notations / Appendix B: Near to Far Field Transformation

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35,30 €

32,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783031005879

Medium: Buch

ISBN: 978-3-031-00587-9

Verlag: Springer

Erscheinungstermin: 13.02.2013

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2013

Serie: Synthesis Lectures on

Computational Electromagnetics

Produktform: Kartoniert

Gewicht: 262 g

Seiten: 119

Format (B x H): 191 x 235 mm

