Waves and Fields in Inhomogeneous Media

"...it is one of the best wave propagation treatments to appear in many years." GERARDO G. TANGO, CPG, CONSULTING SEISMOLOGIST-ACOUSTICIAN, COVINGTON, LA

This comprehensive text thoroughly covers fundamental wave propagation behaviors and computational techniques for waves in inhomogeneous media. The author describes powerful and sophisticated analytic and numerical methods to solve electromagnetic problems for complex media and geometry as well. Problems are presented as realistic models of actual situations which arise in the areas of optics, radio wave propagation, geophysical prospecting, nondestructive testing, biological sensing, and remote sensing.

Key topics covered include:

- Analytical methods for planarly, cylindrically and spherically layered media
- Transient waves, including the Cagniard-de Hoop method
- Variational methods for the scalar wave equation and the electromagnetic wave
- Mode-matching techniques for inhomogeneous media
- The Dyadic Green's function and its role in simplifying problem-solving in inhomogeneous media
- Integral equation formulations and inverse problems
- Time domain techniques for inhomogeneous media

This book will be of interest to electromagnetics and remote sensing engineers, physicists, scientists, and geophysicists.

This IEEE Press reprinting of the 1990 version published by Van Nostrand Reinhold incorporates corrections and minor updating.

Mathematical Foundations for Electromagnetic Theory

by Donald G. Dudley, University of Arizona at Tueson

This volume in the series lays the mathematical foundations for the study of advanced topics in electromagnetic theory. Important subjects covered include linear spaces, Green's functions, spectral

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