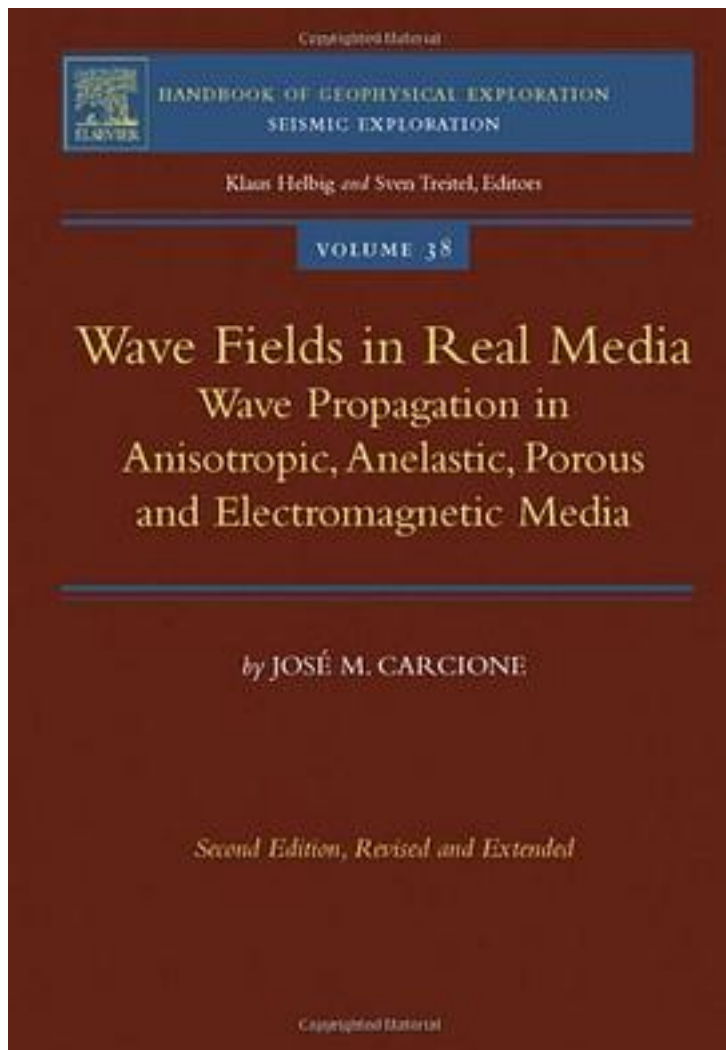# Wave Fields in Real Media, Volume 38, Second Edition

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在线阅读本书

This book examines the differences between an ideal and a real description of wave propagation, where ideal means an elastic (lossless), isotropic and single-phase medium, and real means an anelastic, anisotropic and multi-phase medium. The analysis starts by introducing the relevant stress-strain relation. This relation and the equations of momentum conservation are combined to give the equation of motion. The differential formulation is written in terms of memory variables, and Biot's theory is used to describe wave propagation in porous media. For each rheology, a plane-wave analysis is performed in order to understand the physics of wave propagation. The book contains a review of the main direct numerical methods for solving the equation of motion in the time and space domains. The emphasis is on geophysical applications for seismic exploration, but researchers in the fields of earthquake seismology, rock acoustics, and material science - including many branches of acoustics of fluids and solids - may also find this text useful.

* Presents the fundamentals of wave propagation in anisotropic, anelastic and porus media * Contains a new chapter on the analogy between acoustic and electromagnetic waves, incorporating the subject of electromagnetic waves * Emphasizes geophysics, particularly, seismic exploration for hydrocarbon reservoirs, which is essential for exploration and production of oil

作者介绍:

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