

1. Record Nr.	UNINA9910454347303321
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Titolo	Wave processes in solids with microstructure [[electronic resource] /] / Vladimir I. Erofeyev
Pubbl/distr/stampa	Singapore ; ; River Edge, NJ, : World Scientific, c2003
ISBN	1-281-93444-5 9786611934446 981-279-450-6
Descrizione fisica	1 online resource (276 p.)
Collana	Series on stability, vibration, and control of systems. Series A ; ; v. 8
Disciplina	532.0593
Soggetti	Wave equation Wave mechanics Wave-motion, Theory of Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. 233-252) and index.
Nota di contenuto	Contents ; Preface ; Introduction ; 1. The Fundamental Hypothesis of Microstructured Elastic Solids. Structural-Phenomenological Model ; 1.1 Mathematical Models of Solids with Microstructure ; 1.2 Definition of Material Constants 2. Gradient Elasticity Media. Dispersion. Dissipation. Non-Linearity 2.1 Dynamic Equations. Energy and Momentum Variation Law 2.2 Dispersion Properties of Longitudinal and Shear Waves. Surface Rayleigh Waves 2.3 Dissipative Properties ; 2.4 Nonlinear Plain Stationary Waves 2.5 Quasi-Plain Wave Beams ; 2.6 Self-Modulation of Quasi-Harmonic Shear Waves ; 2.7 Resonant Interaction of Quasi-Harmonic Waves 2.8 Noise Waves ; 3. Gradient Elasticity Media. Damaged Medium. Magnetoelasticity 3.1 Waves in Damaged Medium with Microstructure 3.2 Magneto-Elastic Waves in the Medium with Microstructure

4. Cosserat Continuum	; 4.1 Basic Equations of
Micropolar Elasticity Theory	; 4.2
Dispersion Properties of Volume Waves	;
4.3 Wave Reflection from the Free Interface of Micropolar Halfspace.	
Rayleigh Surface Waves	
4.4 Normal Waves in a Micropolar Layer	
4.5 Nonlinear Resonant Interaction of Longitudinal and Rotation Waves	
; 4.6 Waves in Cosserat Pseudocontinuum	;
4.7 Waves in the Cosserat Continuum with Symmetric Stress Tensor	
; 5. Waves in Two-Component Mixture of Solids	
5.1 Dispersion Properties	

Sommario/riassunto

This book systematically discusses the modern theory of propagation and interaction of elastic waves in solids with microstructure. Mathematical models of solids taking into account microstructure, geometrical and physical nonlinearity, damage media, interaction of deformation and magnetic field are obtained. Different wave effects characteristic of solids with microstructure are studied. The opportunity to use these effects in problems of ultrasonic testing of materials and devices of constructions is considered.
Contents:
</i>The Fundamental Hypothesis of Microstructured Elast