

Contents

Part I	Nonlinear Surface Acoustic Waves and Applications	
<hr/>		
State-of-the-Art Elastic SAW Convolvers		
By H.P. Grassl, L. Reindl, and H.-W. Wörz (With 9 Figures) . . .		2
Multiple Scale Techniques Applied to Nonlinear Elastic and Piezoelectric Surface Waves		
By G.E. Tupholme		14
Nonlinear Evolution of Piezoelectric SAWs		
By E.A. David and D.F. Parker (With 4 Figures)		21
Nonlinear Piezoelectric Surface Acoustic Waves Using the Multiple Scales Technique		
By A.P. Harvey, R.E. Craine, and S. Syngellakis (With 1 Figure)		30
Linear and Nonlinear Surface Waves on Magnetostrictive Crystals in a Bias Magnetic Field		
By Abo-El-Nour Abd-Alla and G.A. Maugin (With 2 Figures) . .		36
Nonlinear Mode Coupling Between Rayleigh and Love Waves on an Isotropic Layered Half-Space		
By N. Kalyanasundaram		47
Finite Amplitude Love Waves on an Incompressible Elastic Layered Half Space		
By M. Teymur (With 1 Figure)		54
Nonlinear Surface Acoustic Waves and Their Associated Surface Acoustic Solitons		
By A.A. Maradudin		62
Experiments on Nonlinear Effects in Ground-Surface Vibration		
By P.P. Dimitriu (With 6 Figures)		72

Part II Surface Waves on Anisotropic Substrates

Aspects of the Behaviour of Surface Waves in Transversely Isotropic Elastic Media	
By P. Chadwick (With 3 Figures)	80
A New Method for Surface Impedance and Surface Wave Calculations	
By S.A. Gundersen and J. Lothe (With 3 Figures)	91

Part III Surface Waves on Rough Surfaces

Surface Acoustic Waves on Rough Surfaces	
By A.A. Maradudin (With 12 Figures)	100
Rayleigh Waves Along a Corrugated Surface	
By A. Boström (With 3 Figures)	129
Localization Effects in the Scattering of Acoustic Waves from a Random Stress-free Grating Surface	
By A.R. McGurn and A.A. Maradudin (With 3 Figures)	135
A Comparison of Some Methods for Corrugated Waveguides	
By S.-E. Sandström (With 1 Figure)	143
Love Waves in a Slab with Rough Boundaries	
By A. Wirgin (With 2 Figures)	145

Part IV Surface Waves on Electromagnetic Bodies

Shear Horizontal Surface Acoustic Waves on Solids	
By G.A. Maugin (With 6 Figures)	158
Calculation of Interdigital Transducer Interaction with SAWs and BAWs	
By F. Seifert, A.R. Baghai-Wadji, K.C. Wagner, and G. Kovacs (With 7 Figures)	173
Bleustein-Gulyaev Surface Waves of Arbitrary Form	
By W. Larecki	185
A Dynamic Problem for a Piezoelectric Medium	
By J.P. Nowacki and C. Trimarco	193
Electromechanical Surface Waves in Layered Elastic Dielectrics with Polarization Gradient	
By K. Majorkowska-Knap and J. Lenz (With 5 Figures)	201

Surface Waves in a Semiconductor with Relaxation of Charge Carrier Field	
By B. Maruszewski (With 3 Figures)	211

Part V	Surface Waves on Composites
---------------	------------------------------------

Acoustic Properties of Periodic Layers	
By G.W. Farnell (With 20 Figures)	218
Surface Waves on a Laminated Half-Space	
By W.A. Green (With 1 Figure)	236
Surface and Interface Waves in a Sandwich Plate with Interface Soft Layers	
By S.K. Datta, A.H. Shah, T. Chakraborty, and R.L. Bratton (With 5 Figures)	243
Rayleigh Waves in Materials Reinforced by Two Families of Fibres	
By D.I. Milosavljević (With 1 Figure)	251
Dispersion of Harmonic Waves in Elastic and Viscoelastic Periodic Composite Materials	
By Y. Chevalier (With 4 Figures)	260

Part VI	Waves on Curved and Fluid-Loaded Surfaces, in Viscoelasticity and in Thermoelasticity
----------------	--

Mathematical and Computational Aspects of the Determination of Elastic Surface Waves Along Cylindrical Cavities of General Cross Section	
By A. Bamberger, P. Joly, and M. Kern (With 2 Figures)	270
Low Frequency Propagation of Elastic Waves in a Fluid-Filled Borehole	
By A. Bamberger, P. Joly, M. Kern, L. Nicoletis, and J. Quiblier (With 4 Figures)	282
Surface Vibration of a Semi-infinite Viscoelastic Medium	
By P.M. O'Leary (With 4 Figures)	291
Surface Waves on an Isotropic Viscoelastic Half-Space: The Method of Generalized Rays	
By P. Borejko and F. Ziegler (With 9 Figures)	299
Acoustical Scattering by a Shallow Surface-Breaking Crack in an Elastic Solid Under Light Fluid Loading	
By R.H. Tew, J.R. Ockendon, and G.A.D. Briggs (With 6 Figures)	309

Determination of the Rheological Parameters of Viscoelastic Liquids Using Shear Surface Waves	
By P. Kielczyński and W. Pajewski	317
The Influence of Off-Centre Defects on SAW Characteristics	
By J. Kapelewski and W. Przybylski	322
On the Propagation of Surface Waves	
By T.P. Ivanov (With 6 Figures)	328
Surface Waves in Thermoelasticity with Relaxation Times	
By R. Wojnar (With 1 Figure)	335
Surface Waves in a Nonlocal Elastic Medium	
By C. Rymarz (With 5 Figures)	342
Index of Contributors	351