

1. Record Nr.	UNINA9910453548303321
Titolo	Acoustic interactions with submerged elastic structures . Part II Propagation, ocean acoustics and scattering [[electronic resource] /] / [edited by] Ardeshir Guran ... [et. al.]
Pubbl/distr/stampa	Singapore ; ; River Edge, NJ, : World Scientific, 2001
ISBN	1-281-96084-5 9786611960841 981-281-195-8
Descrizione fisica	1 online resource (389 p.)
Collana	Series on stability, vibration, and control of systems. Series B ; ; v. 5
Altri autori (Persone)	GuranA (Ardeshir) UberallHerbert <1931->
Disciplina	534.2
Soggetti	Underwater acoustics Elastic analysis (Engineering) Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"... volume is intended to honor contributions of Professor Herbert Uberall to acoustics and wave propagation."--Pref. "With a foreword by Hans A. Bethe." "A Herbert Uberall Festschrift Volume."
Nota di bibliografia	Includes bibliographical references and indexes.
Nota di contenuto	Foreword; Preface; Contributors; Contents; Chapter 1: Discrete Spectral Analysis for Solitary Waves; 1. Introduction; 2. Pseudospectral Method; 3. Formation of Solitons in the KdV Systems; 4. Other Solitonic Systems; 5. Closing Remarks; 6. Acknowledgements; 7. References; Chapter 2: Propagation and Interaction of Waves in Nonlinear-Elastic Solids with Microstructures; 1. Introduction; 2. Basic Approaches to the Construction of Mathematical Models of Elastic Media with Inner Structure; 3. Structural-Phenomenological Models; 4. Dispersion Equations; 5. Evaluation of Material Constants 6. Nonlinear Plane Stationary Waves 7. Nonlinear Wave Beams; 8. Resonant Interaction of Elastic Waves in Nonlinearly-Elastic Solid with Microstructure; 9. Research Plans; 10. References; Chapter 3: Matched Field Processing: A Powerful Tool for the Study of Oceans and Scatterers; 1. Introduction; 2. Deep Ocean Tomography; 3. The

Determination of Shallow Water Bottom Properties; 4. Targets; 5. Conclusions; 6. Acknowledgements; 7. References; Chapter 4: Progress in Underwater Acoustic Modeling; 1. Introduction; 2. Model Categories; 3. Applications; 4. Future Directions; 5. References

Chapter 5: Reflectivity Response of a Submerged Layer with Density Sound Velocity and Absorption Gradients1. Introduction; 2. The Gradient Medium; 3. Acoustic Field in an Inhomogeneous Medium; 4. Reflection by an Inhomogeneous Layer Submerged in Water; 5. Conclusions; 6. References; Chapter 6: Mathematical Aspects of Wave Phenomena in a Wave Guide with Elastic Walls and Operator Polynomials; 1. Introduction; 2. The Mathematical Background; 3. The Physical Model under Consideration. Wave Numbers; 4. Modes; 5. The Energy Fluxes; 6. The Non-Homogeneous Problem: Preliminary Consideration

7. The Non-Homogeneous Problem in the Cross-Section. Definition of the Generalized Solution8. The Generalized Eigenfunctions of the Problem in the Cross-Section; 9. The Non-Homogeneous Problem in the Cross-Section; 10. The Abstract Differential Equation Formulation for the Non-Homogeneous Problem; 11. Fourier Method for the Wave Guide with Elastic Walls; 12. Critical Frequencies; 13. Conclusions; 14. References; Chapter 7: On Some General Mathematical Properties of the System Elastic Plate - Acoustic Medium; 1. BVCP in an Arbitrary Plane Domain

2. Boundary Value Contact Problem in an Infinite Domain3. On the Uniqueness of a Solution of BVCP; 4. Optical Theorem for Acoustic Scattering; 5. Conclusion; 6. Acknowledgment; 7. References; Chapter 8: Acoustic Scattering from Finite Length Cylinders Encapped by Two Hemispheres; 1. Introduction; 2. Study of the Cylindrical Objects; 3. Study of the Spherical Objects; 4. Study of Objects Consisting of a Cylindrical Part Bounded by Two Hemispherical Endcaps; 5. Conclusion; 6. Acknowledgements; 7. References

Chapter 9: Acoustic Scattering from a Circular Cylindrical Shell Immersed in Water. Generation and Reradiation of Guided Waves

Sommario/riassunto

The interaction of acoustic fields with submerged elastic structures, both by propagation and scattering, is being investigated at various institutions and laboratories world-wide with ever-increasing sophistication of experiments and analysis. This book offers a collection of contributions from these research centers that represent the present state-of-the-art in the study of acoustic elastic interaction, being on the cutting edge of these investigations. This includes the description of acoustic scattering from submerged elastic objects and shells by the Resonance Scattering Theory of Flax,
