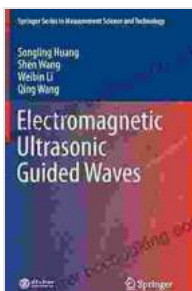


Unlock the Power of Nondestructive Testing with "Electromagnetic Ultrasonic Guided Waves"

In today's modern world, ensuring the structural integrity of critical infrastructure and components has become paramount. From towering skyscrapers to aging bridges, the ability to detect and assess hidden defects and damage without resorting to invasive methods is essential for safety and reliability.

"Electromagnetic Ultrasonic Guided Waves: Measurement Science and Technology" by D. N. Alleyne and P. Cawley is a comprehensive guide that delves into the groundbreaking field of electromagnetic ultrasonic guided waves (EM-UGWs), offering a wealth of knowledge for researchers, engineers, and practitioners.



Electromagnetic Ultrasonic Guided Waves (Springer Series in Measurement Science and Technology)

by Karen Bush

★★★★☆ 4.4 out of 5

Language : English
File size : 16738 KB
Text-to-Speech : Enabled
Enhanced typesetting : Enabled
Word Wise : Enabled
Print length : 444 pages
Screen Reader : Supported



What are EM-UGWs?

EM-UGWs are high-frequency acoustic waves that propagate along the surface of solid structures, such as pipelines, plates, and rods. They are generated by electromagnetic transducers and travel through the material without causing any damage, making them ideal for nondestructive testing.

Unlike traditional ultrasonic methods that utilize piezoelectric transducers, EM-UGWs possess unique advantages. They can propagate over long distances, enabling the inspection of large structures with minimal access. Additionally, they are sensitive to a wide range of defects, including cracks, corrosion, and disbonds.

Key Features of the Book

"Electromagnetic Ultrasonic Guided Waves" covers a broad spectrum of topics related to EM-UGWs, providing a deep understanding of the theory, measurement techniques, and applications.

- **Theoretical Foundation:** The book begins by establishing the fundamental principles of EM-UGWs, including wave propagation, dispersion, and reflection from defects.
- **Measurement Techniques:** A comprehensive overview of various measurement methods is presented, such as pulse-echo, pitch-catch, and phased arrays, enabling readers to select the most appropriate technique for their specific applications.
- **Sensor Design and Fabrication:** Detailed guidance on the design, fabrication, and characterization of EM-UGW transducers is provided, empowering readers to develop their own customized sensors.

- **Signal Processing and Analysis:** Advanced signal processing algorithms for extracting meaningful information from EM-UGW signals are discussed, including time-frequency analysis and artificial intelligence.
- **Applications in Nondestructive Testing:** The book showcases numerous practical applications of EM-UGWs in nondestructive testing, such as pipeline inspection, bridge monitoring, and aircraft structural evaluation.

Benefits for Readers

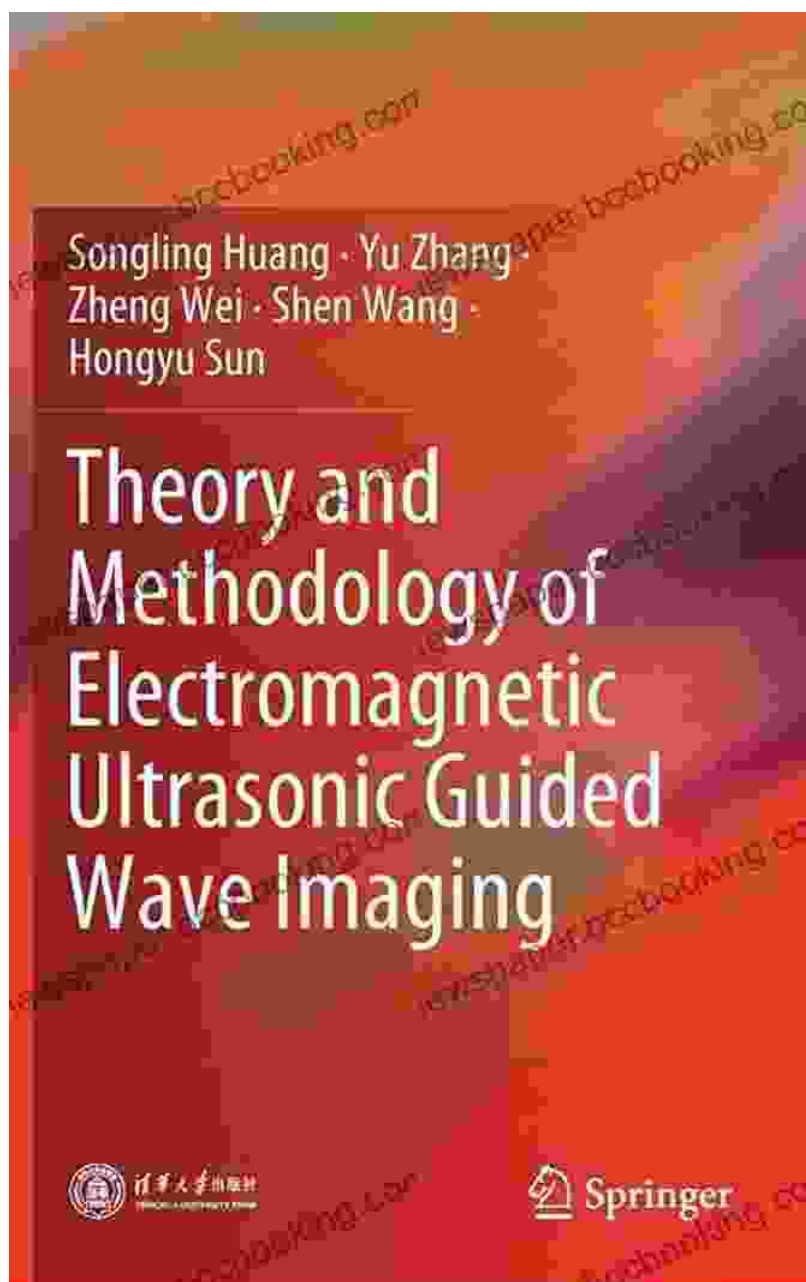
By delving into "Electromagnetic Ultrasonic Guided Waves," readers will gain invaluable expertise in this cutting-edge technology, enabling them to:

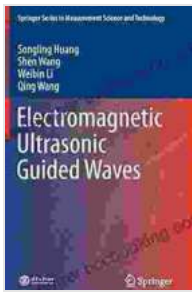
- Master the principles and measurement techniques of EM-UGWs.
- Design and fabricate custom sensors for specific applications.
- Process and analyze EM-UGW signals to detect and characterize defects.
- Apply EM-UGWs in various nondestructive testing scenarios.
- Stay at the forefront of this rapidly evolving field.

"Electromagnetic Ultrasonic Guided Waves: Measurement Science and Technology" is an indispensable resource for anyone involved in the field of nondestructive testing. Its comprehensive coverage, practical examples, and expert insights provide readers with a thorough understanding of this powerful technology, enabling them to enhance the safety and reliability of critical infrastructure and components.

Whether you are a seasoned researcher, an experienced engineer, or a student aspiring to enter the field, this book will equip you with the knowledge and skills to harness the full potential of electromagnetic ultrasonic guided waves.

Free Download your copy today and unlock the secrets of nondestructive testing with EM-UGWs!



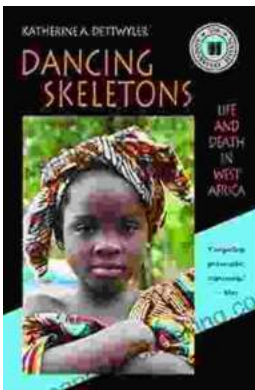


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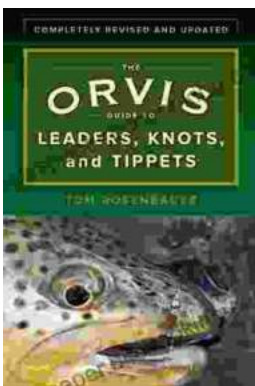
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