



Ultrasonic Waves in Solid Media (Paperback)

By Joseph L. Rose

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Ultrasonic wave techniques are used increasingly in areas ranging from non-destructive inspection of materials to medical diagnosis. This book brings together basic physics and modern applications. It explains the physical principles of wave propagation and then relates them to ultrasonic wave mechanics and the more recent guided wave techniques that are used to inspect and evaluate aircraft, power plants, and pipelines in chemical processing plants. Among topics covered are wave propagation in plates, rods, hollow cylinders, and multiple layers in solid and composite materials; reflection and refraction; surface and subsurface waves; and horizontal shear wave propagation. Appendices provide background information on ultrasonic non-destructive testing, elasticity theory, and complex variables, and key wave propagation experiments. The text is amplified with numerous examples, laboratory experiments, and homework exercises. Graduate students, researchers, and practising engineers will find Ultrasonic Waves in Solid Media an invaluable reference to this active field.



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