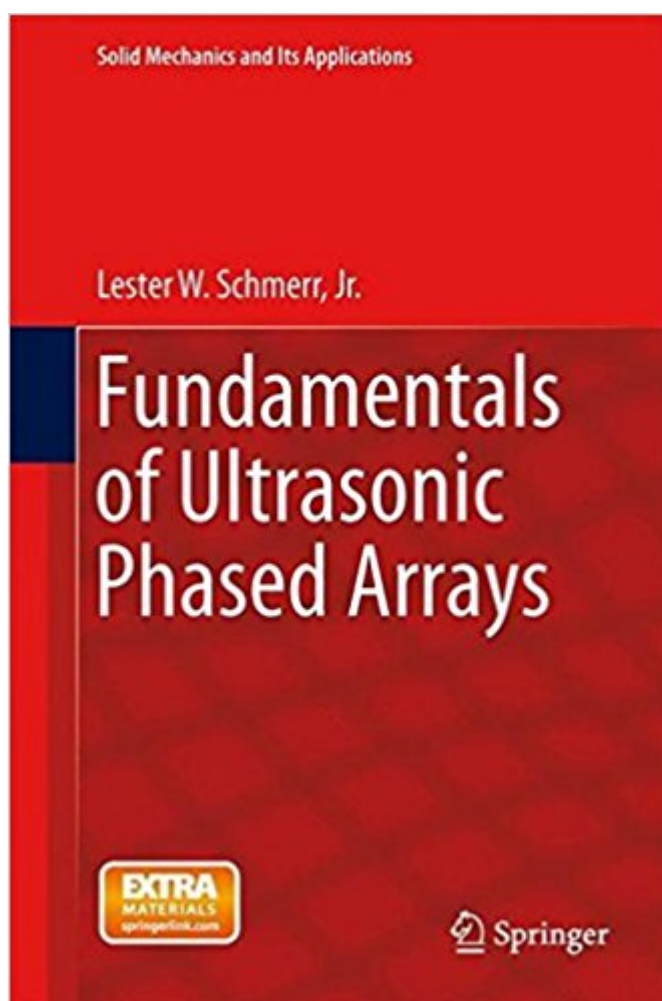


The book was found

Fundamentals Of Ultrasonic Phased Arrays (Solid Mechanics And Its Applications)



Synopsis

This book describes in detail the physical and mathematical foundations of ultrasonic phased array measurements. The book uses linear systems theory to develop a comprehensive model of the signals and images that can be formed with phased arrays. Engineers working in the field of ultrasonic nondestructive evaluation (NDE) will find in this approach a wealth of information on how to design, optimize and interpret ultrasonic inspections with phased arrays. The fundamentals and models described in the book will also be of significant interest to other fields, including the medical ultrasound and seismology communities. A unique feature of this book is that it presents a unified theory of imaging with phased arrays that shows how common imaging methods such as the synthetic aperture focusing technique (SAFT), the total focusing method (TFM), and the physical optics far field inverse scattering (POFFIS) imaging method are all simplified versions of more fundamental and quantitative imaging approaches, called imaging measurement models. To enhance learning, this book first describes the fundamentals of phased array systems using 2-D models, so that the complex 3-D cases normally found in practice can be more easily understood. In addition to giving a detailed discussion of phased array systems, *Fundamentals of Ultrasonic Phased Arrays* also provides MATLAB® functions and scripts, allowing the reader to conduct simulations of ultrasonic phased array transducers and phased array systems with the latest modeling technology.

Book Information

Series: Solid Mechanics and Its Applications (Book 215)

Hardcover: 377 pages

Publisher: Springer; 2015 edition (August 13, 2014)

Language: English

ISBN-10: 3319072714

ISBN-13: 978-3319072715

Product Dimensions: 6.1 x 0.9 x 9.2 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

Average Customer Review: 5.0 out of 5 stars 2 customer reviews

Best Sellers Rank: #1,438,359 in Books (See Top 100 in Books) #118 in Books > Textbooks > Medicine & Health Sciences > Medicine > Clinical > Radiology & Nuclear Medicine > Ultrasonography #126 in Books > Engineering & Transportation > Engineering > Materials & Material Science > Testing #160 in Books > Medical Books > Medicine > Internal Medicine >

Customer Reviews

This book describes in detail the physical and mathematical foundations of ultrasonic phased array measurements. The book uses linear systems theory to develop a comprehensive model of the signals and images that can be formed with phased arrays. Engineers working in the field of ultrasonic nondestructive evaluation (NDE) will find in this approach a wealth of information on how to design, optimize and interpret ultrasonic inspections with phased arrays. The fundamentals and models described in the book will also be of significant interest to other fields, including the medical ultrasound and seismology communities. A unique feature of this book is that it presents a unified theory of imaging with phased arrays that shows how common imaging methods such as the synthetic aperture focusing technique (SAFT), the total focusing method (TFM), and the physical optics far field inverse scattering (POFFIS) imaging method are all simplified versions of more fundamental and quantitative imaging approaches, called imaging measurement models. To enhance learning, this book first describes the fundamentals of phased array systems using 2-D models, so that the complex 3-D cases normally found in practice can be more easily understood. In addition to giving a detailed discussion of phased array systems, Fundamentals of Ultrasonic Phased Arrays also provides MATLAB® functions and scripts, allowing the reader to conduct simulations of ultrasonic phased array transducers and phased array systems with the latest modeling technology.

Les Schmerr received a B.S. degree in Aeronautics and Astronautics from the Massachusetts Institute of Technology in 1965 and a Ph.D. in Mechanics from the Illinois Institute of Technology in 1970. Since 1969 he has been at Iowa State University where he is currently Professor of Aerospace Engineering and Associate Director of the Center for Nondestructive Evaluation. He is also the Permanent Secretary of the World Federation of NDE Centers. His research interests include ultrasonics, elastic wave propagation and scattering, and artificial intelligence. He has developed and taught Ultrasonics and Nondestructive Evaluation courses at both the undergraduate and graduate level. He is the author of the book Fundamental of Ultrasonic Nondestructive Evaluation - A Modeling Approach which was published by Plenum Press in 1998 and the book Ultrasonic Nondestructive Evaluations Systems - Models and Measurements which was published by Springer in 2007. He is a member of IEEE, ASME, ASNT and AIAA.

This book deserve 5 stars !Strongly recommended to go deep inside the topic. MATLAB scrips are included by request.

Excellent depth on the subject of phased arrays for ultrasonic inspection.

[Download to continue reading...](#)

Fundamentals of Ultrasonic Phased Arrays (Solid Mechanics and Its Applications) Structural Analysis: With Applications to Aerospace Structures (Solid Mechanics and Its Applications) The Wonders of the Colorado Desert (Southern California), Vol. 1 of 2: Its Rivers and Its Mountains, Its Canyons and Its Springs, Its Life and Its ... Journey Made Down the Overflow of the Colo
Fundamentals and Applications of Ultrasonic Waves, Second Edition Boundary Integral Equations in Elasticity Theory (Solid Mechanics and Its Applications) Introduction to Practical Peridynamics: Computational Solid Mechanics Without Stress and Strain (Frontier Research in Computation and Mechanics of Materials) Numerical Modelling of Wave Energy Converters: State-of-the-Art Techniques for Single Devices and Arrays Narrowband Direction of Arrival Estimation for Antenna Arrays (Synthesis Lectures on Antennas) The Finite Element Analysis of Shells - Fundamentals (Computational Fluid and Solid Mechanics) Symbolism, Its Origins and Its Consequences (Art, Literature and Music in Symbolism, Its Origins and Its) Solid State Electrochemistry and Its Applications to Sensors and Electronic Devices (Materials Science Monographs) Solid State Chemistry and its Applications Ultrasonic Periodontal Debridement: Theory and Technique Ortz Dog Whistle to Stop Barking - [FREE Lanyard Strap] Silent Bark Control for Dogs - Ultrasonic Patrol Sound Repellent Repeller - Silver Training Deterrent Whistle - Train Your Dog Ultrasonic Methods of Non-destructive Testing (Non-Destructive Evaluation Series) Solid Lubrication Fundamentals and Applications (Materials Engineering) Fracture and Fatigue Control in Structures: Applications of Fracture Mechanics (Prentice-Hall International Series in Civil Engineering and Engineering Mechanics) Probabilistic fracture mechanics and reliability (Engineering Applications of Fracture Mechanics) Fracture Mechanics of Concrete: Applications of Fracture Mechanics to Concrete, Rock and Other Quasi-Brittle Materials Transport Phenomena in Multiphase Flows (Fluid Mechanics and Its Applications)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

