Mathematical Methods in Electro-Magneto-Elasticity [

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Springer Berlin Heidelberg,
2007

Monografía

The mechanics of Coupled Fields is a discipline at the edge of modern research connecting Continuum Mechanics with Solid State Physics. It integrates the Mechanics of Continuous Media, Heat Conductivity and the theory of Electromagnetism that are usually studied seperately. For an accurate description of the influence of static and dynamic loadings, high temperatures and strong electromagneticfields in elastic media and constructive installations, a new aproach is required; an approach that has the potential to establish a synergism between the above-mentioned fields. Throughout the book a vast number of problems are considered: two-dimensional problems of electro-magneto-elasticity as well as static and dynamical problems for piecewise homogenous compound piezoelectric plates weakened by cracks and openings. The boundary conditions, the constuctive equations and the mathematical methods for their solution are thoroughly presented, so that the reader can get a clear quantative and qualitative understnding of the phenomena taking place. This book is for the specialists in Continuous Mechanics, Acoustics and Defectoscopy, and also for advanced undergraduate and graduate -level students in Applied Mathematics, Physics, Engineering Mechanics and Physical Sciences

Título: Mathematical Methods in Electro-Magneto-Elasticity Recurso electrónico-En línea] by Demosthenis I. Bardzokas, Michael L. Filshtinsky, Leonid A. Filshtinsky

Editorial: Berlin, Heidelberg Springer Berlin Heidelberg 2007

Descripción física: digital

Tipo Audiovisual: Engineering Magnetism Engineering mathematics Materials Engineering Continuum Mechanics and Mechanics of Materials Magnetism, Magnetic Materials Materials Science Appl.Mathematics /Computational Methods of Engineering Physics and Applied Physics in Engineering

Mención de serie: Lecture Notes in Applied and Computational Mechanics 1613-7736 32

Documento fuente: Springer eBooks

Nota general: Engineering (Springer-11647)

Electrodes -- Harmonic Oscillations of Continuous Piezoceramic Cylinders with Inner Defects -- Electroacoustic Waves in Piezoceramic Media with Defects -- Fundamentals of Magnetoelasticity -- Influence of the Induced Currents on the Dynamic Intensity of Piece-Wise Uniform Electro-Conductive Bodies in Magnetic Fields -- Influence of Magnetizability of Material on the Stress State of a Ferromagnetic Medium with Heterogeneities -- Optimal Control of Physical Fields in Piezoelectric Bodies with Defects

Restricciones de acceso: Accesible sólo para usuarios de la UPV

Tipo recurso electrónico: Recurso a texto completo

Detalles del sistema: Forma de acceso: Web

ISBN: 9783540710318 978-3-540-71031-8

Autores: Filshtinsky, Michael L. Filshtinsky, Leonid A.

Entidades: SpringerLink (Servicio en línea)

Enlace a formato físico adicional: Printed edition 9783540710301

Punto acceso adicional serie-Título: Lecture Notes in Applied and Computational Mechanics 1613-7736 32
