



Mathematical Methods in Electro-Magneto-Elasticity [

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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 separately. For an accurate description of the influence of static and dynamic loadings, high temperatures and strong electromagnetic fields in elastic media and constructive installations, a new approach 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 constitutive equations and the mathematical methods for their solution are thoroughly presented, so that the reader can get a clear quantitative and qualitative understanding 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

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