

Preface

The aim of the book is to reveal the potential of the Boundary Integral Equation Method as an efficient computational tool for treating wave propagation problems in homogeneous and smoothly inhomogeneous piezoelectric solids with defects like cracks and holes.

The interdisciplinary character of the study is based on continuum and fracture mechanics, theory of wave propagation, non-destructive evaluation, computational mechanics and mathematical physics in their pure theoretical and applied sense.

The main results and contributions are the coupled electro-mechanical models, the computational method, its validation and simulations revealing different effects useful for the engineering design and practice.

The main ideas, mechanical models, computational tools and simulation results are designed for master degree students, Ph.D. students and researches who like to specialize in the field of dynamic computational fracture mechanics and its connections with wave propagation theory and continuum mechanics.

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