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Nota di contenuto	Intro -- FUNCTIONALLY GRADED MATERIALS -- FUNCTIONALLY GRADED MATERIALS -- CONTENTS -- PREFACE -- A LINEAR MULTI-LAYERED MODEL AND ITS APPLICATIONS IN FRACTURE AND CONTACT MECHANICS OF ELASTIC FUNCTIONALLY GRADED MATERIALS -- 1. INTRODUCTION -- 2. MATHEMATICAL MODELING OF FGMS -- 2.1. Basic Equations -- 2.1.1. Plane Problem -- 2.1.2. Antiplane Problem -- 2.1.3. Axisymmetric Problem -- 2.1.3. Axisymmetric Torsion Problem -- 2.2. Exponential Model -- 2.2.1. General Solutions of Plane Problem in Fourier Transform Domain -- 2.2.2. General Solutions of Antiplane Problem in Fourier Transform Domain -- 2.2.3. General Solutions of Axisymmetric Problem in Hankel Transform Domain -- 2.2.4. General Solutions of Axisymmetric Torsion Problem in Hankel Transform Domain -- 2.3. HML Model -- 2.3.1. General Solutions of Plane Problem in Fourier Transform Domain -- 2.3.2. General Solutions of Antiplane Problem in Fourier Transform Domain -- 2.3.3. General Solutions of Axisymmetric Problem in Hankel Transform Domain -- 2.3.4. General Solutions of Axisymmetric Torsion Problem in Hankel Transform Domain -- 2.4. Linear Multi-Layered (LML) Model -- 2.4.1. General Solutions of Plane Problem in Fourier Transform Domain -- 2.4.2. General Solutions of Antiplane Problem in Fourier Transform Domain -- 2.4.3. General Solutions of Axisymmetric Problem in Hankel Transform Domain -- 2.4.4. General Solutions of Axisymmetric Torsion Problem in Hankel Transform Domain -- 3. FRACTURE MECHANICS OF FGMS -- 3.1. Plane Fracture -- 3.1.1. Transfer Matrix and Dual Integral Equations -- 3.1.2. Cauchy Singular Integral Equations -- 3.1.3.

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Sommario/riassunto

Functionally graded materials (FGMs) are composites with gradually varying material content. This new book presents current research in the study of FGMs, including the fracture and contact problems of functionally graded materials; FGMs obtained by combustion synthesis techniques; thermoplastic simulation of FGMs; the thermal buckling analysis of functionally graded arbitrary straight-sided quadrilateral plates; the mechanical response of metal-ceramic FGMs and simulation of quasi-static crack propagation in FGMs.