Computational Methods in Fracture Mechanics

Description:
Series Key Engineering Materials, Volume 454

Special topic volume with invited peer reviewed papers only.

existence of crack-like flaws cannot be precluded in any engineering structure. At the same time, the increasing demand for energy- and material-conservation dictates that structures be designed with smaller and smaller safety factors. Consequently, accurate quantitative estimates of the flaw-tolerance of structures are of direct concern to the prevention of fracture in load-bearing components of all kinds: ranging from space satellites and aircraft to bone prosthesis and home appliances.

This special-topic book comprises nine papers that cover various aspects of current areas of research in Fracture Mechanics, using innovative and new computational approaches based upon the BEM and meshless methods. A number of topics are addressed, such as dynamic and viscoelastic fracture problems, crack surface contact, fatigue and cohesive crack propagation, and the analysis of cracks in composite and anisotropic bodies. Also presented are innovative formulations for fracture problems, such as Symmetric Galerkin formulations and a Local Boundary Integral Equation for the BEM and a variational element-free technique.

This is a welcome guide to a fascinating subject.

Contents:
Table of Contents (9 papers, 10 per page listed)

SGBEM for Cohesive Cracks in Homogeneous Media
Luis Távara, Vladislav Mantic, Alberto Salvadori, Leonard J. Gray, Federico París p1

On the Solution of the 3D Crack Surface Contact Problem Using the Boundary Element Method
Wilhelm Weber, Karsten Kolk, Kai Willner, Günther Kuhn p11

A Variational Technique for Element Free Analysis of Static and Dynamic Fracture Mechanics
P.H. Wen, M.H. Alabadi p31

Boundary Element Analysis of Three-Dimensional Interface Cracks in Transversely Isotropic Bimaterials Using the Energy Domain Integral
N.O. Larrosa, J.E. Ortiz, A.P. Cisilino p47

Symmetric-Galerkin Boundary Element Transient Analysis of the DSIFs for the Interaction of a Crack with a Circular Inclusion
A.V. Phan, L.J. Gray, A. Salvadori p79

Stress Intensity Factor Evaluation of Anisotropic Cracked Sheets under Dynamic Loads Using Energy Domain Integral
M. Mauler, P. Sollero, E.L. Albuquerque p97

Computer Modelling of Dynamic Fracture Experiments
Piotr Fedelinski p113

On NGF Applications to LBIE Potential and Displacement Discontinuity Analyses
L.S. Miers, J.C.F. Telles p127

Nonlinear Viscoelastic Fracture Mechanics Using Boundary Elements
Stavros Syngellakis, Jiang Wei Wu p137
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