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Nota di contenuto	Contents ; Preface ; Invited Talks ; An Iterative BEM for the Inverse Problem of Detecting Corrosion in a Pipe ; 1 Introduction ; 2 Formulation of the inverse problem ; 3 The iterative boundary element method for this Cauchy problem ; 4 Numerical results for the inverse problem ; 5 Conclusions References ; Analysis of the Local Quasicontinuum Method ; 1 Introduction ; 2 The existence theorem for the continuum and the atomistic models ; 3 Local quasicontinuum method ; 4 Estimate of e(QC) ; References

The Artificial Boundary Method-Numerical Solutions of Partial
Differential Equations on Unbounded Domains
1 Introduction ; 2 Two typical problems
; 3 The global (nonlocal) artificial boundary conditions
; 4 Local boundary conditions ; 5 Discrete artificial
boundary conditions
6 Implicit boundary conditions 7 Conclusions
; References ; Optimal order integration on the sphere
; 1 Introduction ; 2 Extremal fundamental systems versus
product rules ; 3 Optimal order
estimates for cubature in Sobolev spaces
; 4 Numerical example ; References
A Survey of Multi-symplectic Runge-Kutta Type Methods for
Hamiltonian Partial Differential Equations
1 Introduction ; 2 Multi-symplecticity of Runge-Kutta type
methods for the general Hamiltonian partial differential equations
3 Multi-symplectic Runge-Kutta type methods for Schrodinger
equations

Sommario/riassunto

This collection of articles covers the hottest topics in contemporary applied mathematics. Multiscale modeling, material computing, symplectic methods, parallel computing, mathematical biology, applied differential equations and engineering computing problems are all included. The book contains the latest results of many leading scientists and provides a window on new trends in research in the field.

Sample Chapter(s)
Chapter 1: An Iterative BEM for the Inverse Problem of Detecting Corrosion in a Pipe (467 KB)
Contents:

- An Iterative BEM for the Inverse Problem
