

1. Record Nr.	UNINA9910785073303321
Titolo	Frontiers and prospects of contemporary applied mathematics [[electronic resource] /] / editors, Tatsien Li, Pingwen Zhang
Pubbl/distr/stampa	Beijing, China, : Higher Education Press Singapore ; ; New Jersey, : World Scientific, c2005
ISBN	1-281-91933-0 9786611919337 981-277-419-X
Descrizione fisica	1 online resource (276 p.)
Collana	Series in contemporary applied mathematics ; ; 6
Altri autori (Persone)	LiDaqian ZhangPingwen
Disciplina	510.285 620.001/51 620.00151
Soggetti	Engineering mathematics Biomathematics Mathematics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"During the period of the 8th Annual Conference of the China Society for Industrial and Applied Mathematics (CSIAM) held on August 24-30, 2004 in Xiangtan, Hunan Province, China, the Symposium on Frontiers and Prospects of Contemporary Applied Mathematics was held"--Pref.
Nota di bibliografia	Includes bibliographical references.
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

---