

CONTENTS

INVITED PAPERS

Multi-Scale Computational Methods: Research Activities <i>Achi Brandi</i>	1
Some Applications of the Probing Technique in Domain Decomposition <i>Tony F. C. Chan, Tarek P. Mathew</i>	8
On the Free Formation of Constructing Stiffness Matrices <i>Chen Shao-chun, Shi Zhong-ci</i>	18
Formal Power Series and Numerical Algorithms for Dynamical Systems <i>Feng Kang</i>	28
A Finite Element Method for Linear Elastic Equations on Unbounded Domains <i>Houde Han, Xiaonan Wu</i>	36
Strategies for the Design of Parallel Algorithms <i>Kang Lishan, Chen Yu-ping</i>	41
Analysis of Computer-Extended Perturbation Series <i>Yue-Kuen Kwok</i>	56
Finite Dimensional Approximation and Its Computation for Bifurcation Problems of Variational Inequalities <i>Lei Jingan, Liu Chunlei</i>	66
Cartesian Grids and Rotated Difference Methods for Multi-Dimensional Flow <i>Randall J. LeVeque</i>	76
Bifurcation with Symmetry Breaking for the Flow Between Two Concentric Rotating Spheres <i>Li Kaitai, Liu Xiaozhong</i>	86
The Corner Singularity and Boundary Layer and Computation for Hierachic Plate Method <i>Li Likang, I. Babuska</i>	109
New Trends in Preconditioned Krylov Subspace Methods <i>Yousef Saad</i>	121

Parallel Multilevel B-Spline Preconditioners for the Biharmonic Problem <i>Jiachang Sun, Bingkun Li</i>	137
Finite Element-Characteristic Method and Analysis for a Compressive Miscible Displacement Problem in Porous Media <i>Yuan Yirang</i>	152
CONTRIBUTED PAPERS	
Improved Pulse-Spectrum Technique for Solving the Inverse Problem of Two-Dimensional Diffusive Coefficient <i>Hong-Yang Chao</i>	167
Stability Criteria of Multiple Nesting Grid Difference Methods for Hyperbolic Initial-Boundary Value Problems <i>Chuandan Chen</i>	172
The CG Method for Image Reconstruction from Projections <i>Daoqi Chen</i>	177
A Multigrid Algorithm for the Plane Elasticity by the Mixed Finite Element Approximation <i>Huang Ziping</i>	182
On Iterative Method with Multi-Parameters for Numerical Solution of Linear Systems <i>Chang Jin Jiang, Shao Jiang Li</i>	187
Parallel Explicit Block Iterative Method for Solving Elliptic PDE's <i>Kang Zuo</i>	192
A Viscosity Splitting Numerical Simulation Method for Two-Phase Miscible Displacement Problem <i>Liang Dong</i>	197
Parallel Algorithms of Iterated Defect Correction Methods <i>Li Shoufu, Chen Lirong</i>	202
Lattice Gas Simulation for the Benard Pattern <i>Li Yuanziang</i>	207
Symmetric Domain Decomposition and Symmetric Space Decomposition <i>Rao Chuanxia, Kang Lishan</i>	211

Boundary Element Analysis of General Elastic Plane Problem <i>Tan Junyu</i>	216
Mathematical Modeling of Coupled Plates and Their Finite Element Approximations <i>Wang Lieheng</i>	221
A Study of Operation Level Parallelism Exploiting Algorithms Supporting for Parallel Computing <i>Wen Diping, Yang Xuejun</i>	226
On Variation of Subdiagonal Elements in a Shifted QR Iteration <i>Jingkun Wu</i>	231
Calculation of Shocked One-Dimensional Flows by the Bisection Method <i>Xionghua Wu</i>	236
A Data Structure for Nested Dissection <i>Yan Ningning, Cui Junzhi, Huang Hongci</i>	241
Least Square Method and Massive Parallel Computing-Data Fitting and Extrapolation Procedure Based on Associative Memory <i>Yang Shuguang</i>	246
A C Spline Bending Interpolation Scheme <i>Yinwei Zhan</i>	251
Diagonally Implicit Symplectic Runge-Kutta Schemes for Hamiltonian Systems <i>Zhang Meiqing</i>	259
Parallel Iterative Domain Decomposition Method for Elliptic Equation-Subdomain and Dual Subdomain Decomposition <i>Zhang Sheng, Huang Jian-guo</i>	263
A Basic Parallel Iterative Method for Solving Symmetric Tridiagonal Extremal Eigenpair Problem <i>Zhenyue Zhang</i>	267
A New Simplex Method <i>Zhu Mingquan</i>	272