

Scientific Computing

Volume 32, Number 4

Articles originally published online June 2010 to August 2010

CONTENTS

- 1695 Variable-Stepsize Interpolating Explicit Parallel Peer Methods with Inherent Global Error Control
G. Yu. Kulikov and R. Weiner
- 1724 A New Multiscale Representation for Shapes and Its Application to Blood Vessel Recovery
Bin Dong, Aichi Chien, Zuowei Shen, and Stanley Osher
- 1740 Numerical Schemes with High Spatial Accuracy for a Variable-Order Anomalous Subdiffusion Equation
Chang-Ming Chen, F. Liu, V. Anh, and I. Turner
- 1761 A Nonlinear Optimization Procedure for Generalized Gaussian Quadratures
James Bremer, Zydrunas Gimbutas, and Vladimir Rokhlin
- 1789 Stochastic Runge–Kutta Methods for Itô SODEs with Small Noise
Evelyn Buckwar, Andreas Rößler, and Renate Winkler
- 1809 An Immersed Boundary Heart Model Coupled with a Multicompartment Lumped Model of the Circulatory System
Yongsam Kim, Wanho Lee, and Eunok Jung
- 1832 A Fast Algorithm for Sparse Reconstruction Based on Shrinkage, Subspace Optimization, and Continuation
Zaiwen Wen, Wotao Yin, Donald Goldfarb, and Yin Zhang
- 1858 Flexible GMRES with Deflated Restarting
L. Giraud, S. Gratton, X. Pinel, and X. Vasseur
- 1879 Quasi-Monte Carlo Method for Infinitely Divisible Random Vectors via Series Representations
Junichi Imai and Reiichiro Kawai
- 1898 Interpreting IDR as a Petrov–Galerkin Method
Valeria Simoncini and Daniel B. Szyld
- 1913 Smoothness and Convex Area Functionals—Revisited
P. Barrera Sánchez, J. J. Cortés, F. J. Domínguez-Mota, G. González Flores, and J. G. Tinoco-Ruiz
- 1929 Iterative Near-Field Preconditioner for the Multilevel Fast Multipole Algorithm
Levent Gürel and Tahir Malas
- 1950 Artificial Boundary Conditions for High-Accuracy Aeroacoustic Algorithms
Ludwig W. Dorodnicyn
- 1980 The Equivalence of Standard and Mixed Finite Element Methods in Applications to Elasto-Acoustic Interaction
Bernd Flemisch, Manfred Kaltenbacher, Simon Triebenbacher, and Barbara I. Wohlmuth
- 2007 Toward Applying Algebraic Multigrid to Transonic Flow Problem
Shlomy Shitrit and David Sidilkover
- 2029 Heterogeneous Multiscale Methods for Mechanical Systems with Vibrations
M. P. Calvo and J. M. Sanz-Serna
- 2047 A Novel Least-Squares Finite Element Method Enriched with Residual-Free Bubbles for Solving Convection-Dominated Problems
Po-Wen Hsieh and Suh-Yuh Yang
- 2074 Development of Noncentered Wavenumber-Based Optimized Interpolation Schemes with Amplification Control for Overlapping Grids
Damien Desvigne, Olivier Marsden, Christophe Bogey, and Christophe Bailly

Continued on inside back cover

Continued from back cover

- 2099 **Adaptive Finite Element Methods on Quadrilateral Meshes without Hanging Nodes**
Xuying Zhao, Shipeng Mao, and Zhongci Shi
- 2121 **Blockwise Adaptivity for Time Dependent Problems Based on Coarse Scale Adjoint Solutions**
V. Carey, D. Estep, A. Johansson, M. Larson, and S. Tavener
- 2146 **Error Bounds for Least Squares Gradient Estimates**
Ian W. Turner, John A. Belward, and Moa'ath N. Oqielat
- 2167 **A Posteriori Error Analysis for the Use of Lookup Tables in Cardiac Electrophysiology Simulations**
Jonathan Cooper, Jonathan P. Whiteley, and David J. Gavaghan
- 2190 **An Implicit Multishift QR-Algorithm for Hermitian Plus Low Rank Matrices**
Raf Vandebril and Gianna M. Del Corso
- 2213 **Numerical Study of an Anisotropic Error Estimator in the $L^2(H^1)$ Norm for the Finite Element Discretization of the Wave Equation**
Marco Picasso
- 2235 **Efficient Parallel AMG Methods for Approximate Solutions of Linear Systems in CFD Applications**
Maximilian Emans
- 2255 **A Nested Newton-Type Algorithm for Finite Volume Methods Solving Richards' Equation in Mixed Form**
Vincenzo Casulli and Paola Zanolli
- 2274 **A New and Fast Orthogonal Linear Discriminant Analysis on Undersampled Problems**
Delin Chu and Siong Thye Goh
- 2298 **Stable and Accurate Interpolation Operators for High-Order Multiblock Finite Difference Methods**
K. Mattsson and Mark H. Carpenter
- 2321 **Computational Modeling of Solid Tumor Growth: The Avascular Stage**
Didier Bresch, Thierry Colin, Emmanuel Grenier, Benjamin Ribba, and Olivier Saut
- 2345 **A Novel Parallel QR Algorithm for Hybrid Distributed Memory HPC Systems**
Robert Granat, Bo Kågström, and Daniel Kressner
- 2379 **A Trilinear Immersed Finite Element Method for Solving the Electroencephalography Forward Problem**
Sylvain Vallaghé and Théodore Papadopoulos
- 2395 **Two-Level Newton and Hybrid Schwarz Preconditioners for Fluid-Structure Interaction**
Andrew T. Barker and Xiao-Chuan Cai
- 2418 **Distributed-Memory Parallel Algorithms for Distance-2 Coloring and Related Problems in Derivative Computation**
Doruk Bozdağ, Ümit V. Çatalyürek, Assefaw H. Gebremedhin, Fredrik Manne, Erik G. Boman, and Füsün Özgüner