

FSCC-98

First Southern Conference on Computing

December 4-5, 1998
University of Southern Mississippi
Hattiesburg, Mississippi

Friday, Dec 4th: 11:30-12:00 Room: Payne Center Auditorium

Welcome and Opening Remarks

Friday, Dec 4th: 12:00-12:45 Room: Payne Center Auditorium

Keynote Address

—

Chair: M. Mascagni

§Steve Piacsek, *Parallel Approaches to Navy Ocean Modeling*

Session 1A — Friday, Dec 4th: 13:00-14:20 Room: Payne Center Auditorium

Ocean Modeling and Related Applications

—

Chair: L. Perkins

§Patrick C. Gallacher and Michael Schaferkotter, *The Physics of Frontal Instabilities in a Buoyant Plume*

§Louise Perkins and P. Orlin, *Explicit Phase Accurate Non-linear Methods*

Session 1B — Friday, Dec 4th: 13:00-14:20 Room: Pine Tree Room

Numerical Methods I

—

Chair: H. Zhang

§Hong Zhang, *Pseudozeros of Polynomials and Their Potential Impact on Polynomial Algorithms*

§Vasile Berinde, *On Some Weak Smoothness Conditions and Newton's Method*

§Deborah Dent, Marcin Paprzycki and Anna Kucaba-Pietal, *Comparing the Performance of Solvers for Systems of Nonlinear Equations*

Session 1C — Friday, Dec 4th: 11:30-14:20 Room: Payne Conference Room

Applications I

—

Chair: D. Ali

§Nicole D. Terry and James Jennings, *Towards Increasing the Level of Automation in Text-Based Interfaces*

§James Ridgway and Dia L. Ali, *Utilizing Mobile Agents in e-Commerce Applications*

§B. Kasche, Fey and W. Erhard, *3D Optoelectronic Arithmetic Unit and its Application for Algorithm of Medical Image Processing*

Session 2A — Friday, Dec 4th: 14:50-16:50 Room: Payne Center Auditorium

Random Number and Monte Carlo Research at USM — Chair: Michael Mascagni

§Chi-Ok Hwang, *New First Passage Algorithms and Applications*

§Li Yaohang, *A Distributed Monte Carlo Integration Tool, Work in Progress*

§Michael Mascagni, *SPRNG: A Library for Parallel Pseudorandom Number Generation*

§Mike Zhou, *SPRNG and CONDOR: A Tool for Distrubted Monte Carlo*

§William F. Gilreath, *Hash Sort: A Linear Time Complexity Multiple-Dimensional Sort Algorithm*

§** Hong Qiu, *A Deterministic PDE Algorithm Based on a Monte Carlo Algorithm*

Session 2B — Friday, Dec 4th: 14:50-16:50 Room: Pine Tree Room

Numerical Methods II — Chair: J. Kolibal

§M. Eckhoff and Joseph Kolibal, *Assessing Finite Element Solutions to the Stochastic Sturm-Liouville Equation*

§C. He and N.H. Rhee, *Shifted Iterative Schemes for the Structured Markov Chains*

Session 2C — Friday, Dec 4th: 14:50-16:50 Room: Payne Conference Room

Computation — Chair: C. Burgess

§W. Douglas Maurer, *Indentation, Double Blanks, and Language Design*

§Mirek Kubat and Wei Kian Chen, *Weighted Projection in Nearest-Neighbor Classifiers*

§Peggy Wright, *Missing Data Values in Knowledge Discovery: Their Significance and Resolution*

§T.E. O'Neil and Chun Ng, *Notes on the Performance of the CCG Algorithm for 3-CNF Satisfiability*

Friday, Dec 4th: 17:00-17:45 Room: Payne Conference Room

Keynote Address — Chair: M. Paprzycki

§S.S. Iyengar, *Wavelet Based Techniques for Image Processing Applications*

Friday, Dec 4th: 18:00-20:00 Room: Payne Conference Room

Reception — Attendance Welcome

Saturday, Dec 5th: 8:00-8:30 Room: Polymer Science Lounge

Refreshments — Attendance Welcome

Saturday, Dec 5th: 8:30-9:15 Room: Polymer Science Auditorium (PS 101)

Keynote Address — Chair: S. Oppenheimer

§Jianping Zhu, *An Efficient High Order Algorithm for Solving Reaction Diffusion Equations*

Session 3A — Saturday, Dec 5th: 9:30-10:50 Room: PS 105

Computational Approaches to Predictions of Molecular Structures, Properties and Reactions I — Chair: J. Leszczynski

§Steven R. Davis, *Comparison of Potential Energy Surfaces Calculated at Single and Multideterminantal Levels*

§Grace Foo and Ras B. Pandey, *A Hybrid Computational Approach to Complex Problems in Complex Macromolecular Systems*

§Frank Hagelberg, *Electron-Nucleon Dynamics Investigations on Small Molecular Systems*

§Mel Leavy, *Density Function Theories for Excited States*

Session 3B — Saturday, Dec 5th: 9:30-10:50 Room: PS 106

Applications II — Chair: A. Ali

§Seth F. Oppenheimer, W.L. Kingery, K. Willeford, F.X. Han, *A Quadrature Technique for Reaction Rate Identification*

§Bogdan D. Czejdo, Steven M. Guerin, Yoshiaki Kamino and Mikolaj Baszun, *Cooperative Engineering Design over Internet*

§Mark Bilderback, Prashant Soni and Ioana Banicescu, *Integrating Efficient Partitioning Techniques for Graph Oriented Applications*

Session 3C — Saturday, Dec 5th: 9:30-10:50 Room: PS 101

Spatial Data Computation I — Chair: M. Cobb and F. Petry

§Ruth Wilson, Maria Cobb, Miya Chung, Kevin Shaw, *A Spatial Indexing Framework Using a Quadtree Organization for Geographic Data Storage and Retrieval*

§Anselmo Cocchi and Enrico Nardelli, *Algorithmic Issues in Node Management Policies for Distributed R-Trees*

§Adriano Di Pasquale and Enrico Nardelli, *Efficient Spatial Data Management Using Balanced and Distributed Search Trees*

§Mark Gill and Dia L. Ali, *3D Computer Graphics for Communicating Non-Intuitive Concepts: Quantum Computing*

Session 3D — Saturday, Dec 5th: 9:30-10:50 Room: PS 130

Numerical Methods III

—

Chair: J.M. Tyler

§J.D. Callahan and J.M. Tyler, *Cost Effective VRML Visualization for Finite Element Methods*

§Peter K Moore, *An Adaptive H-Refinement Finite Element For Solving Systems of Parabolic Partial Differential Equations in Three Space Dimensions*

§Wen Zhang, *Simulation of Microstructural Evolution in Sintering by Method of Lines*

§Xuefeng Li, *Entropy Consistent, Implicit TVD Methods with High Accuracy for Conservation Laws*

Session 4A — Saturday, Dec 5th: 11:00-12:20 Room: PS 105

Computational Approaches to Predictions of Molecular Structures, Properties and Reactions II — Chair: J. Lee

§Joon C. Lee, *Dynamic Light Scattering Experiment on Computer: Diffusion in Random Pores*

§David Magers, *Computation of Ring Strain in Small Heterocycles*

§Jane S. Murray, *Recent Applications of the General Interaction Properties Function to the Prediction of Condensed Phase Properties*

§Michael McKee and Ohyun Kwon, *Calculations of Band Gaps in Polyaniline from Theoretical Studies of Oligomers*

Session 4B — Saturday, Dec 5th: 11:00-12:20 Room: PS 106

Parallel/Distributed/Concurrent Methods I

—

Chair: C. Breshears

§Clay P. Breshears and Graham Fagg, *A Computation Allocation Model for Distributed Computing Under MPI_Connect*

§Cedell A. Alexander, Aric B. Lambert, Donna S. Reese, James C. Harden, Ron B. Brightwell, *Near-Critical Path Analysis: A Tool for Parallel Program Optimization*

§Bogdan D. Czejdo, Thomas Gallagher and Brian Ham, *Verification of Concurrent Engineering Software Using a Multiprogramming Computer Simulator*

§Wilson Rivera-Gallego, *On Scalability of Parallel Genetic Algorithms*

Session 4C — Saturday, Dec 5th: 11:00-12:20 Room: PS 101

Spatial Data Computation II

—

Chair: M. Cobb and F. Petry

§Todd Lovitt, Barbara Ray and Kevin Shaw, *Using Virtual Reality for Training and Mission Rehearsal*

§Stephanie A. Myrick, *Use of GIS for U.S. Navy Anti-submarine Warfare and Mine Counter Measures Support*

§John Sample, *Applying Symbology for a Geospatial Database*

§Arpad Barsi, *Processing of Satellite Imagery by Neural Networks*

Saturday, Dec 5th: 12:20-13:30 Room: Polymer Science Lounge

Lunch — Attendance Welcome

Saturday, Dec 5th: 13:30-14:15 Room: Polymer Science Auditorium

Keynote Address — Chair: M. Cobb

§F. Petry, *Uncertainty Issues in GIS and Spatial Databases*

Session 5A — Saturday, Dec 5th: 14:30-15:50 Room: PS 105

Computational Approaches to Predictions of Molecular Structures, Properties and Reactions III — Chair: R. Pandey

§Alexandre Pelmenschikov and Jerzy Leszczynski, *Adsorption of 1,3,5-Trinitrobenzene on the Siloxane Sites of Clay Minerals: Ab Initio Calculations of Molecular Models*

§Peter A. Politzer, *Computational Studies of Energetic Materials*

§Jiri Sponer, Pavel Hobza, Jerzy Leszczynski, *Interactions of Nucleic Acid Bases by ab initio Calculations: Recent Results*

§Charles Weatherford, *Wave Packet Solution of the Time-Dependent Schroedinger Equation in 3D Using a New Implicit Split Operator Procedure*

Session 5B — Saturday, Dec 5th: 14:30-15:50 Room: PS 106

Parallel/Distributed/Concurrent Methods II — Chair: B. Czejd

§Bogdan D. Czejd, Natalie E. Louque and Ronnie Yates, *Automatic Generation of Synchronization Primitives from Graphical Concurrency Constraints*

§Ryan B. Harvey and Gabriel J. Clothier, *Simulation of a Multiprogramming System Using a Multiple Processor Model*

§Akira Kojima and Seiji Fujino, *A Parallelizing Compiler for Multiple-Precision*

§Oh-Heum Kwon and Kyung-Yong Chwa, *Scheduling Parallel Tasks with Unrelated Execution*

Session 5C — Saturday, Dec 5th: 14:30-15:50 Room: PS 101

Session 5C — Chair: M. Cobb and F. Petry

§Catherine Benetz, *Issues and Experiments in Distributing Spatial Objects*

§Orlando Karam, *On Querying In Distributed Spatial Object Databases*

§John Monde, *An Efficient Object-Oriented Distributed Contouring Algorithm*

Session 5D — Saturday, Dec 5th: 14:30-15:50 Room: PS 130

§Sean Bowers, Jody L. Morrison and Marcin Paprzycki, *Comparing Performance of Neural Networks Applied to the Multifont Recognition Problem*

§Desmond Fletcher, *Web-based Probabilistic Neural Network for Reduction of Bias in Faculty Evaluations*

§Khaled El-Sawi and Dia L. Ali, *Mobile Agent Markup Language*

Session 6A — Saturday, Dec 5th: 16:00-17:20 Room: PS 105

Computational Approaches to Predictions of Molecular Structures, Properties and Reactions IV — Chair: N. Zhanpeisov

§Andrzej Wierzbicki, *Molecular Modeling of Adsorption on Crystal Surfaces of Biominerals*

§Nurbosyn U. Zhanpeisov, Masakazu Anpo, *Interaction of NO molecules with highly dispersed titanium oxides incorporated into Silicalite and Zeolites. Theoretical ab initio Study*

§Frank Bentrem, Grace M. Foo and Ras B. Pandey, *Interfacial Dynamics in an Electrophoretic Deposition of Polymer Chains in (2 + 1)-Dimensions*

§Zoita Berinde, *On Some Topological Indices Obtained from the CEP Matrix*

Session 6B — Saturday, Dec 5th: 16:00-17:20 Room: PS 106

Parallel/Distributed/Concurrent Methods III

—

Chair: J. Kolibal

§Jeremy W. Mullendore, *The Timed k-server Problem*

§S. Fang and Joseph Kolibal, *Assessing Parallel Bernstein Interpolation in Large Scale Models*

§A. Kiayias, A. Pagourtzis, K. Sharma and S. Zachos, *The Complexity Of Determining the Order of Solutions*

§Md. Najmul Karim and Ahmed El-Amawy, *Reduced Connection Multiple Bus Systems: A Probabilistic Approach*