

**TUESDAY  
MAY 2**

9:00 AM – 10:00 AM

**KEYNOTE ADDRESS**

***Genomics and Computation: A new paradigm for biology research in the new millennium***  
**Jill Mesirov, Whitehead Institute for Biomedical Research**

**(Break 10:00 - 10:30)**

10:30 AM – 12:30 PM

**SESSION 1**

***Routing and Switching***

**Chair: Charles Weems**

**University of Massachusetts**

**Switch Scheduling in the Multimedia Router (MMR)**

D. Love and S. Yalamanchili, Georgia Institute of Technology, J. Duato, Universidad Politécnica de Valencia, Spain, M.B. Caminero and F.J. Quiles, Universidad de Castilla – La Mancha, Spain

**Micro-architectures of High Performance, Multi-user System Area Network Interface Cards**

Boon Seong Ang, Hewlett-Packard Laboratories, Derek Chiou, Larry Rudolph, and Arvind, Massachusetts Institute of Technology

**Broadcasting in Hypercubes Under Circuit Switched Model**

J.-C. Bermond and S. Pérennes, CNRS-INRIA-UNSA, France, A. Bonnacaze, Université de Toulon-Var, France, T. Kodate, and P. Sole, CNRS-INRIA, France

**Improving Routing Performance in Myrinet Networks**

J. Flich, M.P. Malumbres, and P. López, J. Duato, Universidad Politécnica de Valencia, Spain, R. Felderman, University of Southern California

**Efficient Virtual Interface Architecture Support for the IBM SP Switch-Connected NT Clusters**

M. Banikazemi, V. Moorthy, and D.K. Panda, The Ohio State University, L. Herger and B. Abali, IBM T.J. Watson Research Center

**Adaptive Routing in RS/6000 SP-like Bidirectional Multistage Interconnection Networks**

M. Banikazemi and D.K. Panda, The Ohio State University, C.B. Stunkel and B. Abali, IBM T.J. Watson Research Center

10:30 AM – 12:30 PM

**SESSION 2**

***Computational Science***

**Chair: Jill Mesirov**

**Whitehead Institute**

**A General Parallel Simulated Annealing Library and Its Application in Airline Industry**

Georg Kliewer and Stefan Tschöke, University of Paderborn, Germany

**Parallel Computation for Chromosome Reconstruction on a Cluster of Workstations**

Suchendra M. Bhandarkar, Salem Machaka, Sanjay S. Shete, and Jonathan Arnold, University of Georgia

**Parallel Maximum-Likelihood Inversion for Estimating Wavenumber-Ordered Spectra in Emission Spectroscopy**

Hoda El-Sayed, Marc Salit, John Travis, Judith Devaney, and William George, National Institute of Standards and Technology (USA)

**A Provably Optimal, Distribution-Independent Parallel Fast Multipole Method**

Fatih E. Sevilgen and Natsuhiko Futamura, Syracuse University, Srinivas Aluru, Iowa State University

**Efficiency of Dynamic Load Balancing Based on Permanent Cells for Parallel Molecular Dynamics Simulation**

Ryoko Hayashi and Susumu Horiguchi, Japan Advanced Institute of Science and Technology

**Parallel Performance Study of Monte Carlo Photon Transport Code on Shared-, Distributed, and Distributed-Shared-Memory Architectures**

Amitava Majumdar, University of California San Diego

10:30 AM – 12:30 PM

**SESSION 3**

***Scheduling I***

**Chair: Jennifer Schopf**

**Northwestern University**

**Optimal Remapping of Bulk Synchronous Computations on Multiprogrammed Distributed Systems**

N.-T. Fong, C.-Z. Xu, and L.Y. Wang, Wayne State University

**Gang Scheduling with Memory Considerations**

Anat Batat and Dror G. Feitelson, The Hebrew University of Jerusalem

**A Decision-Process Analysis of Implicit Coscheduling**

R. Poovendran, P. Keleher, and J.S. Baras, University of Maryland

**Improving Throughput and Utilization in Parallel Machines Through Concurrent Gang**

Fabricio A.B. da Silva, Université Pierre et Marie Curie, France, Isaac D. Scherson, University of Southern California

**Scheduling with Advanced Reservations**

Warren Smith and Valerie Taylor, Northwestern University, Ian Foster, Argonne National Laboratory & University of Chicago

**Improving Parallel Job Scheduling by Combining Gang Scheduling and Backfilling Techniques**

Yanyong Zhang and Anand Sivasubramaniam, The Pennsylvania State University, Hubertus Franke and Jose Moreira, IBM T.J. Watson Research Center

**TUESDAY  
MAY 2**

**(Lunch 12:30 - 1:30)**

1:30 PM – 3:30 PM

**SESSION 4**

**Memory Systems**

**Chair: Allan Gottlieb**

**New York University & NEC  
Research Institute**

**A Mechanism for Speculative  
Memory Accesses Following  
Synchronizing Operations**

Takayuki Sato, Kazuhiko Ohno,  
and Hiroshi Nakashima, Toyohashi  
University of Technology, Japan

**Safe Caching in a Distributed  
File System for Network  
Attached Storage**

Randal C. Burns and Robert M.  
Rees, IBM Almaden Research  
Center, Darrell D.E. Long,  
University of California, Santa Cruz

**Exploration of the Spatial  
Locality on Emerging  
Applications and the  
Consequences for Cache  
Performance**

Martin Kämpe, Chalmers  
University of Technology, Sweden,  
Fredrik Dahlgren, Ericsson Mobile  
Communications, Sweden

**Using Time Skewing to  
Eliminate Idle Time Due to  
Memory Bandwidth and Network  
Limitations**

David Wonnacott, Haverford  
College

**The Memory Bandwidth  
Bottleneck and Its Amelioration  
by a Compiler**

Chen Ding and Ken Kennedy, Rice  
University

**Support for Recoverable  
Memory in the Distributed  
Virtual Communication Machine**

Marcel-Catalin Rosu, IBM T.J.  
Watson Research Center, Karsten  
Schwan, Georgia Institute of  
Technology

1:30 PM – 3:30 PM

**SESSION 5**

**Tools**

**Chair: David Abramson  
Monash University**

**Multiclock Esterel: A Reactive  
Framework for Asynchronous  
Design**

Basant Rajan and RK  
Shyamasundar, Tata Institute of  
Fundamental Research, India

**Register Assignment for  
Software Pipelining with  
Partitioned Register Banks**

Jason Hiser, University of Virginia,  
Steve Carr and Philip Sweany,  
Michigan Technological University,  
Steven J. Beaty, Metropolitan  
State College of Denver

**Deterministic Replay of  
Distributed Java Applications**

Jong-Deok Choi, Ravi Konuru, and  
Harini Srinivasan, IBM T.J. Watson  
Research Center

**Evaluation of P<sup>3</sup>T+: A  
Performance Estimator for  
Distributed and Parallel  
Programs**

T. Fahringer and A. Požgaj,  
University of Austria, J. Luitz,  
Vienna University of Technology,  
H. Moritsch, University of Vienna,  
Austria

**Applying Interposition  
Techniques for Performance  
Analysis of OPENMP Parallel  
Applications**

Marc González, Xavier Martorell,  
José Oliver, Albert Serra, Eduard  
Aygudé, Jesús Labarta and  
Nacho Navarro, Universitat  
Politècnica de Catalunya, Spain

**FIND-MPI: A Tool for Injecting  
Faults into MPI Applications**

Douglas M. Blough, Georgia  
Institute of Technology, Peng Liu,  
University of California, Irvine

1:30 PM – 3:30 PM

**SESSION 6**

**Algorithms**

**Chair: Joseph JaJa  
University of Maryland**

**Semigroup and Prefix  
Computations on an Improved  
Generalized Mesh-Connected  
Computers with Multiple Buses**

Yi Pan, University of Dayton,  
S.Q.Zheng, University of Texas at  
Dallas, Keqin Li, State University  
of New York, New Paltz, Hong  
Shen, Griffith University, Australia

**On Parallel Sorting of an  
Intransitive Total-Ordered Set  
Using Semi-Heap**

Jie Wu, Florida Atlantic University

**Skiplist-Based Concurrent  
Priority Queue Algorithms**

Itay Lotan, Stanford University, Nir  
Shavit, Sun Microsystems  
Laboratories

**Sorting on the OTIS-Mesh**

Andre Osterloh, TU Ilmenau,  
Germany

**Sorting Multisets in Anonymous  
Rings**

Paola Flocchini, Danny Krizanc,  
and Nicola Santoro, University of  
Ottawa, Canada, Evangelos  
Kranakis, Carleton University,  
Canada, Flaminia Luccio,  
University of Trieste, Italy

**Efficient Binary Morphological  
Algorithms on a Massively  
Parallel Processor**

Andreas I. Svolos, Charalampos  
G. Konstantopoulos, and Christos  
Kaklamanis, University of Patras &  
Computer Technology Institute, Greece

**(Break 3:30 – 4:00)**

**TUESDAY  
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4:00 PM - 6:00 PM

**PANEL 1**

***Top 10 Most Influential Parallel  
and Distributed Processing  
Concepts in the Last Millennium***

*Panelists will be asked to present their "top 10 lists" for the most influential parallel and distributed processing concepts in the last millennium. The panelists were chosen to represent a broad range of technical areas. After the panelists have given their lists, there will be an open discussion among the audience and panelists. At the end of the discussion, a ballot will be distributed for the audience to vote on the top 10 (in arbitrary order). The results of the poll will be announced the day after the panel.*

**PANEL ORGANIZER & CHAIR**

H.J. Siegel, Purdue University

**PANELISTS**

Mani Chandy, Caltech

Ken Kennedy, Rice University

Tom Leighton, MIT

Jane Liu, University of Illinois

Kang Shin, University of Michigan

Marc Snir, IBM/Yorktown

Larry Snyder, University of  
Washington

Thomas Sterling, JPL