

IRREGULAR'00
SEVENTH INTERNATIONAL WORKSHOP ON
SOLVING IRREGULARLY STRUCTURED PROBLEMS
IN PARALLEL

General Chair: Sartaj Sahni, University of Florida

Program Co-chairs:

Timothy Davis, University of Florida
Sanguthevar Rajasekeran, University of Florida
Sanjay Ranka, University of Florida

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Ramesh Sitaraman, University of Massachusetts
R. Vaidyanathan, Louisiana State University
Kathy Yelick, University of California, Berkeley

Invited Speakers:

William Hager, University of Florida
Vipin Kumar, University of Minnesota
Panos Pardalos, University of Florida

FOREWORD

The Seventh International Workshop on Solving Irregularly Structured Problems in Parallel (*Irregular '00*) is an annual workshop addressing issues related to deriving efficient parallel solutions for unstructured problems, with particular emphasis on the inter-cooperation between theoreticians and practitioners of the field. Irregular'00 is the seventh in the series, after Geneva, Lyon, Santa Barbara, Paderborn, Berkeley, and Puerto Rico.

Twelve of the submitted papers have been selected for presentation by the Program Committee on the basis of referee reports. The final scientific program of Irregular '00 consists of four sessions and three invited talks.

We wish to thank all of the authors who responded to the call for papers and our invited speakers. Thank the members of the Program Committee and anonymous reviewers for reviewing and selecting papers. We also would like to thank the IPDPS'00 conference co-chair José Rolim and members of the steering committee for helping us in organizing this workshop.

January 2000

Timothy Davis
Sanguthevar Rajasekeran
Sanjay Ranka
Sartaj Sahni

Irregular'00 Final Program

8:30am-9:15am

Invited Talk by William Hager (University of Florida): Load Balancing and Continuous Quadratic Programming.

9:15am-10:25 Finite element methods—applications and algorithms

Parallel Management of Large Dynamic Shared Memory Space: A Hierarchical FEM Application, Xavier Cavin, Institut National Polytechnique de Lorraine and Laurent Alonso, INRIA Lorraine.

Efficient Parallelization of Unstructured Reductions on Shared Memory Parallel Architectures, Siegfried Benkner, University of Vienna and Thomas Brandes, German National Research Center for Information Technology (GMD).

Parallel FEM Simulation of Crack Propagation—Challenges, Status, and Perspectives, Bruce Carter, Chuin-Shan Chen, Gerd Heber, Antony R. Ingraffea, Roland Krause, Chris Myers, and Paul A. Wawrzynek, L. Paul Chew, Keshav Pingali, Paul Stodghill, and Stephen Vavasis, Cornell University; Nikos Chrisochoides and Demian Nave University of Notre Dame; and Guang R. Gao, University of Delaware.

10:25 -10:55 Coffee break

10:55 -12:05pm Architecture and system software support

Support for Irregular Computations in Massively Parallel PIM Arrays, Using an Object-Based Execution Model, Hans P. Zima, University of Vienna and Thomas L. Sterling, California Institute of Technology.

Executing Communication-Intensive Irregular Programs Efficiently, Vara Ramakrishnan and Isaac D. Scherson, University of California, Irvine.

Non-Memory-based and real-time zerotree building for wavelet zerotree coding systems, Dongming Peng and Mi Lu, Texas A & M University.

12:05 -1:20 Lunch break

1:20pm-2:05pm

Invited Talk by Vipin Kumar (University of Minnesota): Graph Partitioning for Dynamic, Adaptive and Multi-phase Computations (joint work with Kirk Schloegel and George Karypis).

2:05pm-3:15 Graph partitioning - algorithms and applications

A Multilevel Algorithm for Spectral Partitioning with Extended Eigen-Models, Suely Oliveira and Takako Soma, University of Iowa.

An Integrated Decomposition and Partitioning Approach, Jarmo Rantakokko, University of California, San Diego

Ordering Unstructured Meshes for Sparse Matrix Computations on Leading Parallel Systems, Leonid Oliker and Xiaoye Li, Lawrence Berkeley Nat. Lab.; Gerd Heber, Cornell University; and Rupak Biswas, MRJ/Nasa Ames Res. Center.

3:15-3:45 Coffee break

3:45-4:30

Invited Talk by Panos Pardalos (University of Florida): A GRASP for computing approximate solutions for the Three-Index Assignment Problem

4:30-5:40pm Graph algorithms and sparse matrix methods

On Identifying Strongly Connected Components in Parallel, Ali Pinar, University of Illinois; Lisa Fleischer, Columbia University; and Bruce Hendrickson, Sandia National Laboratories.

A Parallel, Adaptive Refinement Scheme for Tetrahedral and Triangular Grids, Alan Stagg, Los Alamos National Laboratory; Jackie Hallberg, US Army Eng. Res. and Dev. Center, Coastal and Hydraulics Lab.; and Joseph Schmidt, Reston, Virginia.

PaStiX: A Parallel Sparse Direct Solver Based on a Static Scheduling for Mixed 1D/2D Block Distributions, Pascal Henon, Pierre Ramet, and Jean Roman, Universite Bordeaux I.