Invited speakers

Large Scale Computations in Nuclear Engineering: CFD for Multiphase Flows and DNS top. 3 Turbulent Flows with/without Magnetic Field

Scalable algebraic multilevel preconditioners with application to CFD

Acceleration of iterative solution of series of systems due to better initial guess

Optimisation in Aerodynamics Design

Aerodynamic Study of Vertical Axis Wind Turbines

Parallel Shape Optimization of a Missile on a Grid Infrastructure

Analysis of Aerodynamic Indices for Racing Sailing Yachts: a Computational Study and Benchmark on up to 128 CPUs.

Parallel implementation of fictitious surfaces method for aerodynamic shape optimization

Path Optimization of Dual Airfoils Flapping in a Biplane Configuration with RSM in a Parallel Computing Environment

Grid methods

Convergence Improvement Method for Computational Fluid Dynamics Using Building-Cube Method

Aerodynamic Analysis of Rotor Blades using Overset Grid with Parallel Computation

Large scale massively parallel computations with the block-structured elsA CFD software

Applications on Hybrid Unstructured Moving Grid Method for Three-Dimensional Compressible Flows


Boundary methods

Flow Computations Using Embedded Boundary Conditions on Block Structured Cartesian Grid

Computation of Two-phase Flow in Flip-chip Packaging Using Level Set Method

A Parallel Immersed Boundary Method for Blood-like Suspension Flow Simulations

High Order methods

3D Spectral Parallel Multi-Domain computing for natural convection flows

3D time accurate CFD simulations of a centrifugal compressor

Parallel Algorithms and Solvers

Multicolor SOR Method with Consecutive Memory Access Implementation in a Shared and Distributed Memory Parallel Environment

Proper Orthogonal Decomposition In Decoupling Large Dynamical Systems

Performance Analysis of the Parallel Aitken-Additive Schwarz Waveform Relaxation Method on Distributed Environment

Aitken-Schwarz Acceleration not based on the mesh for CFD

From extruded-2D to fully-3D geometries for DNS: a Multigrid-based extension of the Poisson solver

Parallel direct Poisson solver for DNS of complex turbulent flows using Unstructured Meshes

A numerical scheme for the computation of phase transition in compressible multiphase flows
Lattice Boltzmann and SPH Methods

Lattice Boltzmann Simulations of Slip Flow of Non-Newtonian Fluids in Microchannels  p. 247

Multiple Relaxation Time Lattice Boltzmann simulation of binary droplet collisions  p. 257

High-Performance Computing and Smoothed Particle Hydrodynamics

software Framework and Component Architecture
An integrated object-oriented approach for parallel CFD  p. 275


Hybrid MPI-OpenMP performance in massively parallel computational fluid dynamics  p. 293
Hierarchical adaptive multi-mesh partitioning algorithm on heterogeneous systems  p. 299

Parallel Performance
Towards Petascale Computing with Parallel CFD codes  p. 309
Scalability Considerations of a Parallel Flow Solver on Large Computing Systems  p. 321
Large Scaled Computation of Incompressible Flows on Cartesian Mesh Using a Vector-Parallel Supercomputer  p. 331
On efficiency of supercomputers in CFD simulations  p. 347

Environment and biofluids applications
Numerical Study of Pulsatile Flow Through Models of Vascular Stenoses with Physiological Waveform of the Heart  p. 357
Fluid Flow - Agent Based Hybrid Model for the Simulation of Virtual Prairies  p. 369
HPC for hydraulics and industrial environmental flow simulations  p. 377
Multi-parametric intensive stochastic simulations for hydrogeology on a computational grid  p. 389
Parallel computation of pollutant dispersion in industrial sites  p. 399
General fluid
3D Numerical Simulation Of Gas Flow Around Reentry Vehicles  p. 409
Effective Parallel Computation of Incompressible Turbulent Flows on Non-uniform Grid  p. 417
Secondary flow structure of turbulent Couette-Poiseuille and Couette flows inside a square duct  p. 425

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