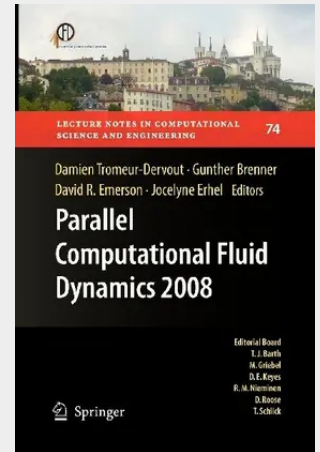


Parallel Computational Fluid Dynamics 2008

Parallel Numerical Methods, Software Development and Applications

Parallel CFD 2008, the twentieth in the high-level international series of meetings featuring different aspect of parallel computing in computational fluid dynamics and other modern scientific domains was held May 19-22, 2008 in Lyon, France. The themes of the 2008 meeting included the traditional emphases of this conference, and experiences with contemporary architectures. Around 70 presentations were included into the conference program in the following sessions: Parallel Algorithms and solvers Parallel performances with contemporary architectures Structured and unstructured grid methods, boundary methods software framework and components architecture CFD applications (Bio fluid, environmental problem) Lattice Boltzmann method and SPH Optimisation in Aerodynamics This book presents an up-to-date overview of the state of the art in Parallel Computational Fluid Dynamics from Asia, Europe, and North America. This reviewed proceedings included about sixty percent of the oral lectures presented at the conference. The editors. VI Preface Parallel CFD 2008 was organized by the Institut Camille Jordan of the University of Lyon 1 in collaboration with the Center for the Development of the Parallel Scientific Computing. The Scientific Committee and Local Organizers of Parallel CFD 2008 are delighted to acknowledge the generous sponsorship of the following organizations, through financial or in-kind assistance. Assistance of our sponsors allowed to organize scientific as well as social program of the conference.

This book collects the proceedings of the Parallel Computational Fluid Dynamics 2008 conference held in Lyon, France. Contributed papers by over 40 researchers representing the state of the art in parallel CFD and architecture from Asia, Europe, and North America examine major developments in (1) block-structured grid and boundary methods to simulate flows over moving bodies, (2) specific methods for optimization in Aerodynamics Design, (3) innovative parallel algorithms and numerical solvers, such as scalable algebraic multilevel preconditioners and the acceleration of iterative solutions, (4) software frameworks and component architectures for parallelism, (5) large scale computing and parallel efficiencies in the industrial context, (6) lattice Boltzmann and SPH methods, and (7) applications in the environment, biofluids, and nuclear engineering.



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