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## Preface

This book contains the proceedings of the Fourth International Conference on Computational Fluid Dynamics (ICCFD4), held in Gent, Belgium from July 10 through 16, 2006. The ICCFD conference series is an outcome of the merger of two important streams of conferences in Computational Fluid Dynamics: *International Conference on Numerical Methods in Fluid Dynamics*, ICNMFD (since 1996) and *International Symposium on Computational Fluid Dynamics*, ISCFD (since 1985). In 1998 it was decided to join the two and ICCFD emerged as a biannual meeting, held in Kyoto in 2000, Sydney in 2002, Toronto in 2004 and Gent in 2006. Thus, the ICCFD series became the leading international conference series for scientists, mathematicians and engineers interested in the computation of fluid flow.

The 4th edition of the conference has attracted 200 participants from all over the world; 270 abstracts were received, of which 135 were selected in a careful peer review process by the executive committee (C. H. Bruneau, J.-J. Chattot, D. Kwak, N. Satofuka, D.W. Zingg, E. Dick and H. Deconinck) for oral presentation and a further 21 for poster presentation.

The papers contained in these proceedings provide an excellent snapshot of the field of Computational Fluid Dynamics as of 2006. Invited keynote lectures by renowned researchers are included, with contributions in the field of discretization schemes, high-end computing and engineering challenges, and two-phase flow. These keynote contributions are complemented by 137 regular papers on the most diverse aspects of CFD:

- Innovative algorithm development for flow simulation, optimisation and control: higher-order methods (DG, FV, FE and RDmethods), iterative methods and multigrid, solution adaptive mesh techniques, error estimation and control, parallel algorithms.
- Innovative modeling of flow physics in the area of compressible and incompressible flows: hypersonic and reacting flows, two-phase flows, turbulence (LES, DES, DNS, and transition), vortex dynamics, boundary layer stability, multi-scale physics, magnetohydrodynamics.

- advanced applications using the above mentioned innovative technology, and multidisciplinary applications including aero-elasticity and aero-acoustics.

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We also would like to thank the staff and PhD students of the von Karman Institute and the Department of flow, heat and combustion mechanics of the University of Gent, for the help they provided toward the success of this conference.

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