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Edited by
B.H.V. Topping



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Preface

This book includes the lectures given at the Third Euro-Conference on Parallel and Distributed Computing for Computational Mechanics. These lectures build on the lectures presented at the First and Second Euro-Conferences, previously published in:

- “Parallel and Distributed Processing for Computational Mechanics: Systems and Tools”, Edited by: B.H.V. Topping, Saxe-Coburg Publications, Edinburgh, 1999, ISBN 1-874672-03-2.
- “High Performance Computing for Computational Mechanics”, Edited by: B.H. V. Topping and L. Lämmer, Saxe-Coburg Publications, Edinburgh, 2000, ISBN 1-874672-06-7.

As well as the lectures included in these books, a number of research presentations were made at the three Euro-Conferences. The texts of these presentations are published in:

- “Advances in Computational Mechanics for Parallel and Distributed Processing”, Edited by: B.H.V. Topping, Civil-Comp Press, Edinburgh, 1997, ISBN 0-948749-47-4.
- “Advances in Computational Mechanics with High Performance Computing”, Edited by: B.H.V. Topping, Civil-Comp Press, Edinburgh, 1998, ISBN 0-948-749-54-7.
- “Developments in Computational Mechanics with High Performance Computing”, Edited by: B.H.V. Topping, Civil-Comp Press, Edinburgh, 1999, ISBN 0-948749-59-8.

The lectures in this book include both review chapters and descriptions of a body of work from well established researchers in the field. The lectures cover the following topics:

- distributed visualization
- HPF+ for irregular applications
- parallel mesh partitioning for distributed systems
- load-balancing
- asynchronous iterative methods

- asynchronous waveform relaxation methods
- coercive elliptic problems
- time-harmonic hyperbolic problems
- domain decomposition methods
- nonlinear anisotropic problems
- parallel domain decomposition preconditioners
- parallel evolutionary optimization of structures

The Third Euro-Conference on Parallel and Distributed Computing for Computational Mechanics was held in Weimar, Germany between 20 and 25 March 1999. The Euro-Conference series was supported by the European Commission Training and Mobility of Researchers Programme under contract no: ERBMMACT960072 with Civil-Comp Limited. This support made the participation of many young researchers from Europe possible.

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