

**Proceedings of the  
Fourth International Conference on  
Engineering Computational Technology**

## **Civil-Comp Press publications on Computational Engineering**

### **Proceedings of the Sixth International Conference on Computational Structures Technology**

*Edited by: B.H.V. Topping and Z. Bittnar*

### **Proceedings of the Third International Conference on Engineering Computational Technology**

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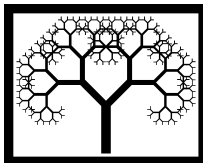
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### **Finite Element Mesh Generation**

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*Edited by*  
**B.H.V. Topping and C.A. Mota Soares**



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# Preface

This volume comprises the extended abstracts of contributed papers presented at The Fourth International Conference on Engineering Computational Technology (ECT 2004) held at Lisbon, Portugal, from 7 to 9 September 2004. The full papers from the conference are available on the accompanying CD-ROM. The ECT conference series began in Edinburgh during 1998. The 2004 conference was held concurrently with The Seventh International Conference on Computational Structures Technology (CST 2004). The venue for both the 2004 conferences was the National Civil Engineering Laboratory (LNEC) in Lisbon.

The special sessions included in this volume of Proceedings are:

- Advances in Numerical Methods for Environmental Modelling  
*organised by Professor G. Montero*
- Recent Trends and Challenges in Mesh Generation  
*organised by Dr M. Müller-Hannemann*
- Fluid-Structure Interaction Problems and Techniques  
*organised by Professor A. Suleman*
- The Application of Intelligent Systems to the Safety of Constructed Facilities  
*organised by Professor F. Hadipriono and Dr J. Duane*

We are particularly grateful to the organisers of these special sessions.

The following sessions are also included in this volume:

- Computer Aided Engineering and Design
- WWW Applications
- Computer Software Developments
- Numerical and Computational Methods
- Graph Theory: Applications and Techniques
- Problems in Uncertainty
- Multi-Physics Problems
- Forming and Casting Problems
- Computational Fluid Dynamics

- Parallel and Distributed Computations
- Evolutionary Algorithms for Engineering Analysis and Design
- Knowledge Representation, Processing and Design
- Geomechanics and Geotechnical Engineering
- Soil-Structure Interaction
- Pavement Analysis and Design
- Neural Networks for Engineering Analysis and Design
- Cellular Automata

Other papers presented at the conferences in 2004 are published as follows:

- *The Invited Lectures from CST 2004 are published in:*  
Progress in Computational Structures Technology, B.H.V. Topping and C.A. Mota Soares (Editors), Saxe-Coburg Publications, Stirling, Scotland, 2004.
- *The Invited Lectures from ECT 2004 are published in:*  
Progress in Engineering Computational Technology, B.H.V. Topping and C.A. Mota Soares (Editors), Saxe-Coburg Publications, Stirling, Scotland, 2004.
- *The Contributed Papers from CST 2004 are published in:*  
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These conferences could not have been organised without the help and support of many people. We would like to thank Professor Cristovão Mota Soares (IST) for all his kind help during the planning and organisation of these conferences. No trouble, task or problem was too great for him and we are grateful for his perseverance. We are also grateful to Professor Carlos Pina (LNEC) who so kindly helped us with the logistics of using the LNEC conference facilities.

We are grateful for Jelle Muylle (Civil-Comp Press) for designing and organising this and the other three volumes of conference proceedings (listed above). In addition, his development of the conference IT systems made sure that we could keep everything on track during the months of preparation of these volumes. The task was particularly onerous this year with more than twice the number of papers included in the four volumes than was originally anticipated. Once again we would like to thank Judy Tait (Civil-Comp Press) for her organisational skills, which were greatly appreciated.

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