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## Preface

The Fourth World Congress on Computational Mechanics took place in the city of Buenos Aires from 29 June to 2 July 1998. This was the fourth meeting in this series promoted by the International Association for Computational Mechanics (IACM) and was jointly organized by the Argentinean Association for Computational Mechanics (AMCA) and the Spanish Society for Numerical Methods in Engineering (SEMNI).

The developments that have taken place in the different theoretical and engineering application fields of the broad area of Computational Mechanics were illustrated by the participation of more than 1000 delegates to the IV WCCM. The technical presentations included 110 keynote lectures and 660 contributed papers. Furthermore 700 papers were selected amongst the 1200 abstracts and were included in the CD-ROM proceedings.

This special issue includes some of the papers presented at the Congress by keynote lecturers. We have selected among them 14 papers, which concern different types of problems that can be grouped in the following topics:

- Sensitivity analysis.
- Optimum design.
- Mesh adaptivity.
- Nonlinear dynamics of multibody systems.
- Boundary element method.
- Stabilized enhanced strain elements.

The first four papers by R.A. Feijóo, L.A. Godoy, M. Casteleiro and E. Taroco concern the development of the sensitivity analysis for the solution of different types of problems and its applications in the respective fields. A second set of papers by M. Masmoudi, G. Bugada and G. Steven contains valuable contributions for the solution of optimum design problems. The third set includes the contributions from V.E. Sonzogni and P. Ladevèze in the error estimation and mesh adaptivity fields. The papers by J.M. Goicolea and A. Ibrahimbegović concern different developments in the nonlinear dynamics of multibody systems. J.T. Chen and J.C.F. Telles describe the application of the boundary element method for the solution of two different types of problems. Finally, E. Ramm presents a stabilization techniques for ESA-elements undergoing large strains.

We understand that these 14 papers are only a very small, but significant, overview of the recent developments in Computational Mechanics in the mentioned fields. The diversity of solutions demonstrates the worldwide interest in exploring new theories and numerical technique for a more efficient solution of problems in science and engineering with the help of computational methods.

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