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Wessex Institute of Technology, UK

WITPRESS Southampton, Boston



Editors:

S. Hernández

University of La Coruña, Spain

C.A. Brebbia

Wessex Institute of Technology, UK

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Preface

OPTI 2009, the eleventh edition in the series of international conferences devoted to Computer Aided Optimum Design of Structures was held in the Algarve (Portugal) organized by the Wessex Institute of Technology, U.K. and the University of La Coruña, Spain. The main objective of the event was to provide a friendly and useful forum for the interchange of ideas and initiatives amongst researchers, designers, and scholars of the optimization community to share advances in design optimization. The OPTI Conferences started in 1989, when it took place in Southampton, U.K. After that every two years a new meeting has been held alternatively at each side of the Atlantic Ocean, in locations such as Boston, USA (1991); Zaragoza, Spain (1993); Miami, USA (1995); Rome, Italy (1997); Orlando, USA (1999); Bologna, Italy (2001); Detroit, USA (2003); Skiathos, Greece (2005) and Myrtle Beach, USA (2007).

Nowadays, it is already widely accepted that optimization techniques have much to offer to designers involved in the design of new industrial products. The formulation of optimum design has evolved from the time it was an academic topic unable to satisfy the requirements of real life prototypes. Since then the development of new algorithms, the improvement of others, the appearance of powerful commercial computer codes with easy to use graphical interfaces and the revolution in speed of digital computers created a fertile field for the incorporation of optimization in the design process in several engineering disciplines. Although not all industrial sectors are using optimisation techniques daily they are steadily being applied in more design cases.

This book contains most papers presented in OPTI 2009. Following the spirit of previous editions some of them deal with algorithms while others describe innovative design optimization formulations applied in several engineering fields including practical applications in industrial problems.

The content of the book has been distributed into six topics:

- New and enhanced algorithms
- Shape optimization
- Topology optimisation
- Design optimisation in materials, construction and bridge engineering
- Design optimisation in aircraft engineering
- Design optimisation in dam and soil engineering

The wide list of themes shows the maturity of optimization methodologies and their vast number of possible applications. This volume constitutes a valuable addition to the existing literature.

The Editors would like to express their gratitude to all authors for their contributions. Also they are indebted to the members of the International Scientific Advisory Committee of OPTI 2009 who reviewed the manuscripts efficiently and timely, thus ensuring their technical quality.

The Editors
June 2009

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